

# *The Abortion–Breast Cancer Connection*

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The reputation of abortion as safe for women—which claim is explicitly part of the *Roe v. Wade* decision—has rightfully come under serious question for many reasons over the years since *Roe*. One of the reasons that “safe abortion” has come under question is the evidence linking abortion to an increased risk of breast cancer (ABC link). The ABC link has been an issue that has been in and out of the limelight in recent years. It is an issue which has stubbornly refused to go away despite recurrent pronouncements from high places of its nonexistence.

A recent example is a 2004 article in the prestigious British medical journal *The Lancet*.<sup>1</sup> The paper was promoted by the mainstream media as “a full analysis of the current data.”<sup>2</sup> According to the byline on the paper, the results of all these studies were compiled into a “collaborative reanalysis,” by the “Collaborative Group on Hormonal Factors in Breast Cancer,” a group of authors too numerous to list. However, a small print footnote reveals that the study was actually put together by a group of five scientists at Oxford University, headed by prominent British epidemiologist Valerie Beral. The Beral study’s conclusion is unequivocal: “Pregnancies that end as a spontaneous or induced abortion do not increase a woman’s risk of

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<sup>1</sup>Collaborative Group on Hormonal Factors in Breast Cancer, “Breast Cancer and Abortion: Collaborative Reanalysis of Data from 53 Epidemiological Studies, Including 83,000 Women with Breast Cancer from 16 Countries,” *The Lancet* 363.9414 (March 27, 2004): 1007–1016.

<sup>2</sup>David Wahlberg, “Study: Breast Cancer Not Tied to Abortion; Group Backs Up Institute’s Earlier Findings,” *Atlanta Journal-Constitution* (GA), March 26, 2004, A9.

developing breast cancer.”<sup>3</sup> This conclusion is remarkably reminiscent of the National Cancer Institute’s (NCI) statement given on its “Cancer Facts” web page on “Abortion, Miscarriage, and Breast Cancer Risk,” carried on the NCI website since the spring of 2003.<sup>4</sup> On this “fact sheet,” the NCI concludes that “having an abortion or miscarriage does not increase a woman’s subsequent risk of developing breast cancer.”

The trouble is, to accept this conclusion, one needs to dismiss almost half a century’s worth of data which do show a significant link between abortion and an increased risk of breast cancer. Beral et al. suggest that those previous studies “yielded misleading results,”<sup>5</sup> and that one should trust the largest, most recent studies (i.e., those which show no ABC link). Such apparently knowledgeable pronouncements seem just a bit too self-assured in an age when concerns about women’s health reign supreme.

If one can be certain of anything about the ABC link, it is surely that the question of its very existence is important enough for a careful evaluation, given the millions who choose abortion and the tens of thousands who die of breast cancer each year. The present work will therefore examine the ABC link in some historical and scientific detail, offering a perspective on an issue that is at the center of a long-running public policy debate that, having been sucked into the maelstrom of the “abortion wars,” plays out in legislatures and courtrooms and newspaper editorials, as well as in scientific and medical journals.

### **Early History of the ABC Link**

Neither the ABC link nor the efforts to suppress it are new; the first published study to document it occurred almost half a century ago. Over the years, denial of the ABC link has become the party line of all major governmental agencies (including the World Health Organization<sup>6</sup> [WHO]), mainstream medical associations (including the American College of Obstetricians and Gynecologists<sup>7</sup> and Royal College of Obstetricians and Gynaecologists<sup>8</sup>), and the most prestigious medical journals (including the *New England Journal of Medicine*<sup>9</sup>).

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<sup>3</sup>Collaborative Group, “Breast Cancer and Abortion,” 1007.

<sup>4</sup>National Cancer Institute, “Abortion, Miscarriage, and Breast Cancer Risk,” [http://cis.nci.nih.gov/fact/3\\_75.htm](http://cis.nci.nih.gov/fact/3_75.htm).

<sup>5</sup>Collaborative Group, “Breast Cancer and Abortion,” 1007.

<sup>6</sup>World Health Organization, “Induced Abortion Does Not Increase Breast Cancer Risk,” Fact Sheet No. 240 (June 2000), <http://www.who.int/mediacentre/factsheets/fs240/en/>.

<sup>7</sup>American College of Obstetricians and Gynecologists, “ACOG Finds No Link Between Abortion and Breast Cancer Risk,” news release, July 31, 2003, [http://www.acog.org/from\\_home/publications/press\\_releases/nr07-31-03-2.cfm](http://www.acog.org/from_home/publications/press_releases/nr07-31-03-2.cfm).

<sup>8</sup>Royal College of Obstetricians and Gynaecologists, “RCOG Statement on Abortion and Breast Cancer,” January 28, 2004, [http://www.rcog.org.uk/press\\_releases.asp?PageID=33&PressReleaseID=82](http://www.rcog.org.uk/press_releases.asp?PageID=33&PressReleaseID=82).

<sup>9</sup>Patricia Hartge, editorial, “Abortion, Breast Cancer, and Epidemiology,” *New England Journal of Medicine* 336.2 (January 9, 1997): 127–128.

A 1957 nationwide study in Japan (published in the English language *Japanese Journal of Cancer Research*) reported that women who had breast cancer had a three-fold higher frequency of pregnancies that had ended in induced abortion.<sup>10</sup> As abortion was neither legal nor common in many places, however, such studies were few and far between. But in 1970, a very high profile, multinational WHO study, based at Harvard, and published in the WHO's own *Bulletin*, reported a disturbing trend “in the direction which suggested increased risk associated with abortion—contrary to the reduction in risk associated with full-term births.”<sup>11</sup> The WHO study findings were not based specifically on induced abortion, including both induced abortions and miscarriages, but it is interesting that they came out just about the time when, in the United States and elsewhere, the question of legalization of induced abortion was being widely considered. The fact that the WHO findings never entered the debate reveals a disturbing—and continuing—disconnect between the so-called women's health advocates pushing for legalized abortion, and any genuine concern for women's health.

The first epidemiological study on American women to consider the ABC link specifically was published in the *British Journal of Cancer (BJC)* by Malcolm Pike and colleagues<sup>12</sup> at the University of Southern California in 1981. Since abortion had only been legal in the United States for scarcely a decade by then, the only appropriate candidates for the study were women diagnosed with breast cancer by their early thirties. In other words, the subjects needed to have been young enough to have been exposed to legal abortion. The results of the Pike study made headlines: women who had an abortion before they had any children were at a 2.4-fold (i.e., 140 percent) increased risk for breast cancer.

The response of the scientific community to the Pike study was dichotomous: reflective of responsible concern from some quarters, and of active denial from others. Exemplifying the former was a 1982 review in the prestigious journal *Science* by Willard Cates, Jr. of the Centers for Disease Control and Prevention (CDC).<sup>13</sup> Writing on the overall, roughly decade-long history of the safety of legal abortion in the United States, Cates expressed his concern: “There is some concern about ... possibly higher risks of breast cancer in certain women.” Exemplifying the effort to deny the ABC link, however, was a 1982 study published in the *BJC* by a group from Oxford University (interestingly, with overlapping authorship with the 2004 Oxford [Beral] “collaborative reanalysis”).<sup>14</sup> The 1982 Oxford study targeted

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<sup>10</sup>M. Segi et al., “An Epidemiological Study on Cancer in Japan,” *GANN (Japanese Journal of Cancer Research)* 48, Suppl. (1957): 1–63.

<sup>11</sup>B. MacMahon et al., “Age at First Birth and Breast Cancer Risk,” *Bulletin of the World Health Organization* 48.2 (1970): 209–221.

<sup>12</sup>M. C. Pike et al., “Oral Contraceptive Use and Early Abortion as Risk Factors for Breast Cancer in Young Women,” *British Journal of Cancer* 43.1 (January 1981): 72–76.

<sup>13</sup>W. Cates, Jr., “Legal Abortion: the Public Health Record,” *Science* 215.4540 (March 26, 1982): 1586–1590.

<sup>14</sup>M. P. Vessey et al., “Oral Contraceptive Use and Abortion before First Term Pregnancy in Relation to Breast Cancer Risk,” *British Journal of Cancer* 45.3 (March 1982): 327–331.

Pike's study specifically, and claimed greater credibility for its much larger number of patients (1,176 compared with 163 in the Pike study) and much greater age range (up to age 50, compared with a maximum age of 32 in the Pike study). The Oxford group's conclusion was as noteworthy for its emotional tone as for its contrary result: "The results are entirely reassuring, being, in fact, more compatible with protective effects than the reverse." Scientifically, it is a simple matter to explain the Oxford group's negative result: It was based almost entirely on miscarriages, as so few of the women in the study had been young enough to be exposed to legal induced abortion. The biological differences between these two events are clear, and will be discussed in some detail a bit later on in the present paper. It was also particularly telling that, in a paper based entirely on quantitative data, the only quasi-quantitative expression in the entire text (or tables) for the number of women in the study who had actually undergone an induced abortion was "only a handful of women." Clearly, this Oxford "study" was little more than a fabrication of apparently negative data, designed to "reassure" the public about the safety of abortion.

### **The Biology behind the Statistics**

One would think, especially given the overwhelmingly elective nature of induced abortion, that the precautionary principle would prevail, if not in terms of legal regulation, then at least in terms of recommendations by medical societies and public health agencies. That is to say, even one or two studies showing a significant association between induced abortion and future breast cancer risk would surely raise some red flags about the procedure's safety. Yet not only was a statistical connection showing up in the vast majority of studies that had examined the issue, but by the early 1980s, a clear picture of the physiological events explaining that connection was beginning to emerge.

One important line of evidence providing biological support for the ABC link came from the field of reproductive endocrinology (the study of the hormones of reproduction). Only during the 1970s did laboratory methods for measuring such hormones as estradiol (the main active form of estrogen) and progesterone easily and cheaply become widely available. In 1976, a landmark study by two Swiss obstetricians, Kunz and Keller, was published in the *British Journal of Obstetrics and Gynaecology*.<sup>15</sup> The Kunz and Keller study documented a clear difference between the enormous rise of estrogen and progesterone in the first trimester of viable pregnancies, and the stunted and short-lived rise of these hormones during pregnancies destined to abort spontaneously (miscarry). These findings dovetailed perfectly with the patterns of differences in breast cancer risk following different pregnancy outcomes that was now clearly emerging from the epidemiological data.

During the same period of the late 1970s, key experimental research on laboratory rats was providing another avenue of verification of the ABC Link. Jose and Irma Russo, a prominent husband-and-wife research team at the Michigan Cancer

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<sup>15</sup>J. Kunz and P. J. Keller, "HCG, HPL, Oestradiol, Progesterone and AFP in Serum in Patients with Threatened Abortion," *British Journal of Obstetrics and Gynaecology* 83.8 (August 1976): 640-644.

Foundation in Detroit (they are now at Fox Chase Cancer Center in Philadelphia) conducted a landmark study in which rats were exposed to standard, cancer-producing doses of a known chemical carcinogen after different pregnancy outcomes.<sup>16</sup> Almost 80 percent of rats who had undergone surgical abortion developed breast cancer (similar to rats not allowed to become pregnant at all), while those allowed a full-term pregnancy were completely protected from developing the disease.

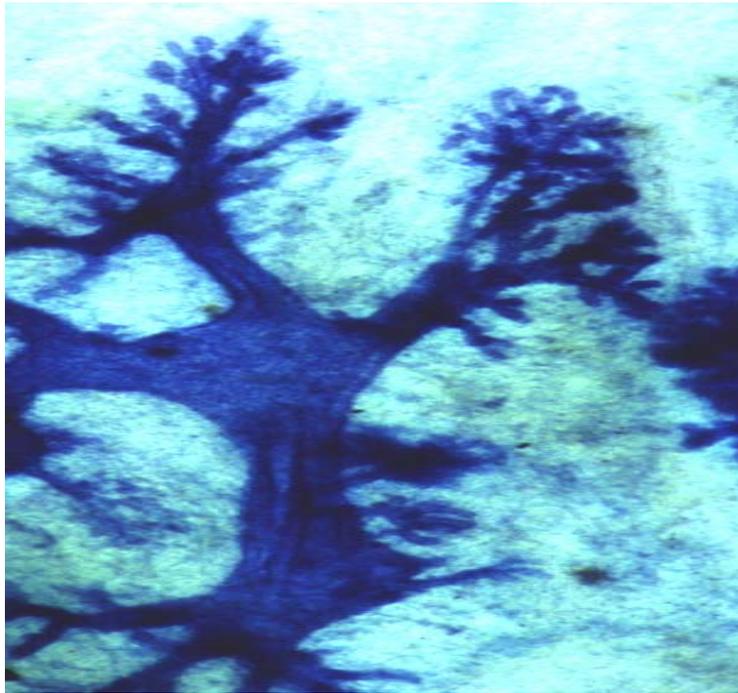
Not only do experimental animals provide verification of epidemiological data, but their bodies can be examined microscopically during and after the experiment. In this way, the Russos have been major players in the discovery of the changes that take place in the mammalian breast before, during, and after pregnancy. In the photograph on the following page, lobules type 1 (LOB 1) represent those very primitive structures present in the breast at birth. Lobules type 2 (LOB 2, not pictured) are present in greatest number after puberty, but before any pregnancy. Only toward the end of a full-term pregnancy (about 32 weeks gestation in the human species) do most lobules become lobules type 3 (LOB 3; see accompanying photograph on following page), which are much denser and elaborate, and capable of lactation. Lobules type 4 are those which are actively producing milk. The progression from type 1 to type 3 requires an enormous amount of cellular multiplication. Lobules type 3 are also terminally differentiated, meaning the cells' ability to multiply has switched off. Part of the development process in the breast, and in most types of tissue generally, is this terminal differentiation. Cancer, whether of the breast or any other tissue, is a disease wherein cellular multiplication or proliferation is out of control. Therefore, it is only those cells which are still capable of proliferation, such as the cells in lobules type 1 and 2, which are vulnerable to the effects of carcinogens. Carcinogens can cause cancer by causing mutations in the cellular DNA. Such abnormal cells, if they are then stimulated to proliferate, can ultimately progress to malignancy.

Knowledge of the development of breast lobules thus provides a coherent explanation of the experimental results obtained in the rats treated with carcinogens. In rats not allowed to complete a pregnancy, most of the lobules would be type 2, in which most cancers are known to arise due to lack of full differentiation. Treating these rats with a carcinogen therefore resulted in most developing breast cancer. In contrast, rats allowed to bear a full-term litter of pups were resistant to the carcinogen, since most of their breast lobules had developed into types 3 and 4. In other words, the carcinogen would have caused just as many mutations, but any abnormal cells that may have been generated were incapable of proliferation, and therefore incapable of becoming cancerous.

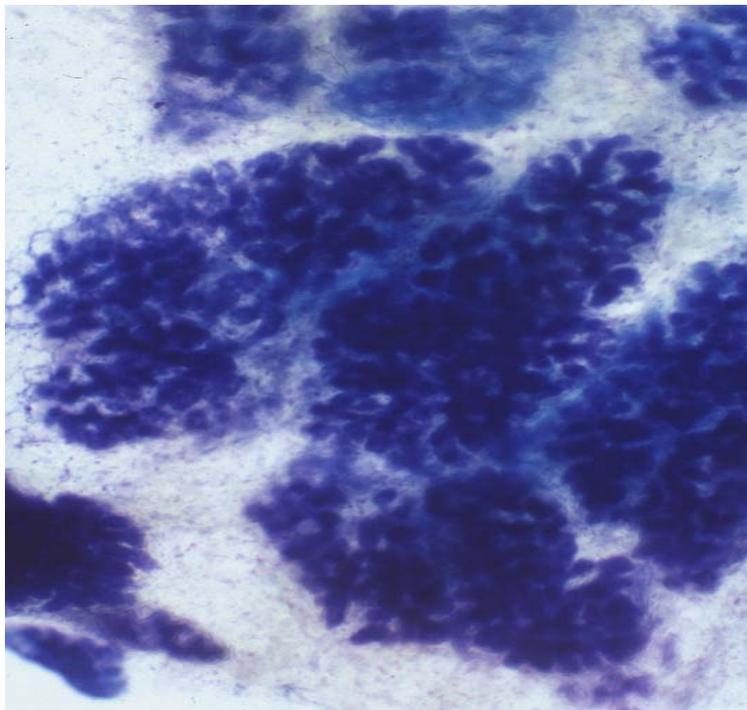
The facts about lobular development in the breast also provide a clear explanation of the epidemiological data. That is, the completion of a full-term pregnancy provides some level of permanent protection against breast cancer, because it leaves a woman with fewer vulnerable, undifferentiated cells which can give rise to cancer. The younger a woman is when she has her first full-term pregnancy, the greater

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<sup>16</sup>J. Russo and I. H. Russo, "Susceptibility of the Mammary Gland to Carcinogenesis," *American Journal of Pathology* 100.2 (August 1, 1980): 497–512.



**Lobules Type 1**



**Lobules Type 3**

the protection, since it means there would be less time overall during which her breasts contained a large percentage of such vulnerable cells. The breast cell situation with induced abortion is that not only are the cells not yet differentiated, but because of the growth stimulation of pregnancy hormones—mainly estradiol—during the incomplete pregnancy, there are more of those cancer-vulnerable cells in the breasts than were there at the start of the pregnancy. Consequently, most epidemiological studies have shown higher risks in women who have had an induced abortion than in those who had not become pregnant at all.

Knowledge of the actions of estrogen and progesterone in terms of their effects upon breast growth completes the coherent picture of induced—but not spontaneous—abortion and breast cancer risk. As long as some progesterone is present (called a “permissive hormone” in this situation), estradiol (which, recall, is a form of estrogen) is a strong promoter of cellular proliferation in the breast. The greatest growth stimulation occurs in the first and second trimesters of a normal pregnancy by far. Importantly, estrogen is implicated in most known risk factors for breast cancer; everything from taking artificial estrogens in the form of birth control pills or postmenopausal estrogen replacement therapy, to beginning menstruation at an early age and/or having menopause at a later age (both of which cause a greater lifetime exposure to estrogen). Even non-reproductive risk factors such as postmenopausal obesity and chronic alcohol consumption are explained in terms of such women having higher chronic circulating levels of estrogen (because fat cells actually make estrogen and alcohol impedes the liver’s ability to degrade estrogen).

### **Epidemiological Data Continue to Accrue**

During the 1980s and early 1990s, as various researchers studied older and older populations of women who had been exposed to legalized abortion, study after study—in Japan,<sup>17</sup> Europe,<sup>18</sup> and the United States<sup>19</sup>—continued to report significantly increased breast cancer risk in women who had had an induced abortion. By 1994, six epidemiological studies out of seven in the United States, on women of both black and white ethnicity, had reported increased risk with induced abortion.<sup>20</sup>

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<sup>17</sup>F. Nishiyama, “The Epidemiology of Breast Cancer in Tokushima Prefecture” [in Japanese], *Shikoku Ichi* [*Shikoku Medical Journal*] 38 (1982): 333–343.

<sup>18</sup>L. Lipworth et al., “Abortion and the Risk of Breast Cancer: A Case-Control Study in Greece,” *International Journal of Cancer* 67.2 (April 10, 1995): 181–184.

<sup>19</sup>H.L. Howe et al., “Early Abortion and Breast Cancer Risk among Women under Age 40,” *International Journal of Epidemiology* 18.2 (June 1989): 300–304; A. E. Laing et al., “Breast Cancer Risk Factors in African-American Women: The Howard University Tumor Registry Experience,” *Journal of the National Medical Association* 85.12 (December 1993): 931–939.

<sup>20</sup>The six studies that reported a positive association were: M. C. Pike et al., “Oral Contraceptive Use and Early Abortion as Risk Factors for Breast Cancer in Young Women,” *British Journal of Cancer* 43.1 (January 1981): 72–76; L. A. Brinton et al., “Oral Contraceptives and Breast Cancer Risk among Younger Women,” *Journal of the National Cancer Institute* 87.11 (June 7, 1995): 827–835; L. Rosenberg et al., “Breast Cancer in Relation to the Occurrence and Time of Induced and Spontaneous Abortion,” *American Journal of Epide-*

It should be noted that most of these data reflected the standard of comparing the effects of having a pregnancy which was ended by induced abortion versus the effects of not having had that pregnancy (as opposed to versus continuing that pregnancy to childbirth). Yet, even with the issue of breast cancer having had more media exposure, and achieving major publicity with a “National Breast Cancer Awareness Month” which highlighted that it had about 200,000 victims per year, abortion—which was emerging as the most preventable of cancer causes—received no attention whatsoever.

That changed abruptly at the end of October 1994, with the publication of a study by Janet Daling and colleagues of the Fred Hutchinson Cancer Research Center in Seattle, Washington.<sup>21</sup> The Daling study could hardly avoid a high profile, as it was published in the *Journal of the National Cancer Institute (JNCI)*. The Daling team’s overall finding was of a statistically significant, 50 percent increase in the risk of breast cancer among women who had chosen abortion. Even the *New York Times* carried the story with the headline “New Study Links Abortions and Increase in Breast Cancer Risk.”<sup>22</sup> But forces were already set in motion to make sure the news was short-lived. For one thing, the Daling study was accompanied by a most unusual *JNCI* editorial.<sup>23</sup> It was unusual because most medical journal editorials, written by a scientist who has peer-reviewed the study, are published by the journal in order to highlight the importance of a major study on a subject of wide public interest. Such editorials typically make it easy for reporters—usually non-scientists working on short deadlines—to glean the major points of a study and render it understandable to the general public. Instead, Dr. Lynn Rosenberg, of Boston University School of Medicine, took the opportunity to write an editorial which sandbagged the Daling study, concluding—among other things—that “...the overall results as well as the particulars are far from conclusive, and it is difficult to see how they will be informative to the public.” Rosenberg did offer a possible explanation for drawing the inferences that she did, introducing the idea that “reporting bias” could well have generated a false positive result. Since “reporting

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*miology* 127.5 (May 1988): 981–989; H. L. Howe et al., “Early Abortion and Breast Cancer Risk among Women under Age 40,” *International Journal of Epidemiology* 18.2 (June 1989): 300–304; A. E. Laing et al., “Breast Cancer Risk Factors in African-American Women: The Howard University Tumor Registry Experience,” *Journal of the National Medical Association* 85.12 (December 1993): 931–939; A. E. Laing et al., “Reproductive and Lifestyle Factors for Breast Cancer in African-American Women,” *Genetic Epidemiology* 11 (1994): 300. The one study that reported no association was: M. Moseson et al., “The Influence of Medical Conditions Associated with Hormones on the Risk of Breast Cancer,” *International Journal of Epidemiology* 22.6 (December 1993): 1000–1009.

<sup>21</sup>J.R. Daling et al., “Risk of Breast Cancer among Young Women: Relationship to Induced Abortion,” *Journal of the National Cancer Institute* 86.21 (November 2, 1994): 1584–1592.

<sup>22</sup>Lawrence K. Altman, “New Study Links Abortions and Increase in Breast Cancer Risk,” *New York Times*, Oct. 27, 1994, A24.

<sup>23</sup>L. Rosenberg, “Induced Abortion and Breast Cancer: More Scientific Data Are Needed,” *Journal of the National Cancer Institute* 86.21 (November 2, 1994): 1569–1570.

bias” (also known as “response bias” or “recall bias”) continues to be employed as the main reason to dismiss the ABC link, it will be discussed in some detail below.

But first, there are other aspects to the Daling study and its treatment in the professional and popular media that need to be aired. In the study itself, it was ominous enough that it showed that women in general suffered a 50 percent increased risk of getting breast cancer after choosing abortion. However, there were other findings yet more ominous. The risk was far more—more than a 100 percent increase—for women who had an abortion prior to age eighteen or after age thirty. The risk was also compounded for women who had any family history of breast cancer—even a grandmother or aunt. That is, when women with a family history of breast cancer and an abortion were compared with women with a family history of breast cancer and no abortion, they were found to have an 80 percent increased risk, rather than a 50 percent increased risk. As for women with the three risk factors combined, that is, abortion before age eighteen with a positive family history of breast cancer, the relative risk was actually reported as infinite. It should be admitted that this last statistic was based on only twelve women; i.e., all twelve women who had such a reproductive and family history were found among the 845 breast cancer patients and none of them were found among the 961 healthy control women to whom they were compared. Could any other medical or surgical intervention—especially one chosen by over a million healthy patients each year—that raised such a specter of mortal danger in a major, peer-reviewed study, continue unabated, and still be touted as safe?

Most assuredly not. But the number of abortion’s apologists and promoters, within the ranks of science and medicine as well as politics and the media, is prodigious. Rosenberg’s “poison pill editorial” in the *JNCI* gives us a hint, and ensuing events were even more revealing. For example, the article in the *New York Times*, while attracting attention by headlining Daling’s conclusion of overall increased risk, was as dismissive as Rosenberg’s editorial. While it is appropriate to cut reporters some slack for their being misled by the medical journal itself, it should be noted that the author of the *Times* story, Dr. Lawrence Altman, was a seasoned epidemiologist in his own right who worked for many years in the Centers for Disease Control. He should certainly have known better. It turns out that Altman was later dragged through the professional mud in July 1995, when an article in *Science* berated him for giving the Daling study a credible headline.<sup>24</sup> Daling herself was treated even worse, having her study belittled in the professional and lay media alike for several months following its publication, although she continued to stand by her findings.

As for the editorialist Rosenberg, she could hardly claim any degree of objectivity. Her editorial clearly misrepresented the Daling study, an act which by itself satisfies most definitions of scientific misconduct. Rosenberg has also shown herself to take a stance that appears to go beyond “pro-choice” (as Janet Daling has described herself), and that is radically pro-abortion. In 1999, for example, she served on behalf of a group of Florida abortion clinics as an expert witness in their (ulti-

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<sup>24</sup>C. C. Mann, “Press Coverage: Leaving Out the Big Picture,” *Science* 269:5221 (July 14, 1995): 166.

mately successful) facial challenge of a new parental notification law in Florida for minors seeking abortion.<sup>25</sup> Such minimal restrictions on abortion are supported by the vast majority of even “pro-choice” citizens, but not by the likes of Rosenberg. Other strange events bear her fingerprints. For example, a study on breast cancer in South Australian women was published in the *American Journal of Epidemiology* (*AJE*) in 1988,<sup>26</sup> when Rosenberg was an associate editor.<sup>27</sup> Only seven years later, in the *British Journal of Cancer*, did a small review appear which revealed that abortion—which had been omitted entirely as a variable in the 1988 *AJE* paper (the data about abortion in that study was kept unpublished)—was the strongest and most significant risk factor identified in the 1988 study.<sup>28</sup> Specifically, the 1988 data showed that South Australian women who had had an induced abortion experienced a statistically significant, 160 percent increased risk of breast cancer!

### The Reporting Bias Canard

Of course, Rosenberg’s dismissive editorial that accompanied the Daling study seemed plausible enough to the untrained reader, and she did offer a reason why Daling’s results could not be trusted. What she wrote in this particular regard was: “A major concern, especially because the observed effect was small, is the possibility of reporting bias.”<sup>29</sup> This attribution of an observed ABC link to reporting bias (a.k.a. “response bias” or “recall bias”) refers to a potential weakness in any epidemiological study that relies on a retrospective data collection method. What “retrospective” refers to is collecting data through interviews and/or questionnaires from cancer patients and healthy control subjects who have been identified for the study. Such studies rely, therefore, on the subjects’ ability and/or willingness to recall or report their history of exposure to the variable in question. What the term “bias” refers to in this context is a difference in the reporting accuracy between the cases and the controls. If—the argument goes—breast cancer patients are more likely to remember and report a history of abortion than are control subjects, then abortion would appear more often among the patient population, even if no more of them had had an abortion than the control women. This discrepancy would translate, in turn, to an increased risk (i.e., a relative risk > 1.0) of breast cancer associated with abortion, but it would not be a real result.

This reporting bias hypothesis seems all the more plausible because abortion is such a sensitive subject for women to talk about. In fact, the underreporting of

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<sup>25</sup>*North Florida Women’s Health and Counseling Services, Inc., et al., v. State of Florida et al.*, Circuit Court, Second Judicial District, Leon County, FL, No. 99-3202, 1999.

<sup>26</sup>T. E. Rohan, A. J. McMichael, and P. A. Baghurst, “A Population-Based Case-Control Study of Diet and Breast Cancer in Australia,” *American Journal of Epidemiology* 128.3 (September 1988): 478–489.

<sup>27</sup>Rosenberg was an associate editor of the journal during the period 1987 to 1991.

<sup>28</sup>N. Andrieu et al., “Familial Risk, Abortion and Their Interactive Effect on the Risk of Breast Cancer—A Combined Analysis of Six Case-Control Studies,” *British Journal of Cancer* 72.3 (September 1995): 744–751.

<sup>29</sup>L. Rosenberg, “Induced Abortion and Breast Cancer,” 1569.

abortion history is well documented in the literature. The real question is whether or not there is a difference in reporting accuracy between cases and controls. The hypothesis of such a bias is certainly testable and worthy of testing. The problem with the hypothesis, however, is that it has repeatedly been tested, and the bias found not to exist.

Actually, the first paper that articulated the reporting bias argument in ABC research, and claimed to have found such evidence, was a 1991 paper by a group headed by Olav Meirik of the WHO.<sup>30</sup> However, a closer look at that claim reveals just how far beyond the breaking point some are willing to stretch scientific credibility in order to reach a politically correct conclusion. The Meirik group had previously performed a study (published in *The Lancet*)<sup>31</sup> on reproductive risk factors for breast cancer in the late 1980s, based on retrospective interviews with women in Sweden and Norway. The Swedish women in that study had also had their abortions recorded at the time they took place (in addition to recalling them for the later study interview), so in the 1991 *AJE* study, Meirik compared these prospective medical records with the responses the women had given in the earlier study.<sup>32</sup> Meirik's group found a significant difference between the interview responses and the medical records, that is, "between underreporting of previous induced abortions among controls [those who did not develop breast cancer] relative to overreporting among cases [those who did develop breast cancer]."<sup>33</sup> This peculiar term, "overreporting," actually is intended to mean what it says; that is, that women who reported having had an abortion of which the computer had no record were deemed to have imagined the event! Without such a preposterous assumption, the Meirik group could produce no significant evidence of reporting bias. Under some published peer pressure—from both Daling's group and my own—Meirik et al. quietly retracted the claim of "overreporting" in a published letter in 1998.<sup>34</sup> However, they did not retract the hypothesis of reporting bias in ABC research, and reporting bias continues

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<sup>30</sup>B. M. Lindefors-Harris et al., "Response Bias in a Case-Control Study: Analysis Utilizing Comparative Data concerning Legal Abortions from Two Independent Swedish Studies," *American Journal of Epidemiology* 134.9 (November 1, 1991): 1003–1008.

<sup>31</sup>Olav Meirik et al., "Oral Contraceptive Use and Breast Cancer in Young Women: A Joint National Case-Control Study in Sweden and Norway," *The Lancet* 2.8508 (September 20, 1986): 650–654; H.-O. Adami et al., "Absence of Association between Reproductive Variables and the Risk of Breast Cancer in Young Women in Sweden and Norway," *British Journal of Cancer* 62.1 (July 1990): 122–126. Both papers report the results of the same study, from somewhat different perspectives and using somewhat different statistical treatments of the data.

<sup>32</sup>B. M. Lindefors-Harris et al., "Response Bias in a Case-Control Study."

<sup>33</sup>Ibid.

<sup>34</sup>Olav Meirik, Hans-Olav Adami, and Gunnar Eklund, letter to the editor, "Relation between Induced Abortion and Breast Cancer," *Journal of Epidemiology and Community Health* 52.3 (March 1998): 209. See also Joel Brind et al., Reply to "Relation Between Induced Abortion and Breast Cancer," *Journal of Epidemiology and Community Health* 52.3 (March 1998): 209–211.

to be cited as fact by the NCI and all the other “mainstream” sources of public health information.

Yet, not only is there no credible evidence for the existence of reporting bias in ABC research, but there is ample credible evidence to prove its nonexistence by any reasonable standard. Even going back to the early days of ABC research, a 1968 study published in Japan reported an increased risk of over 50 percent in women who had had an abortion.<sup>35</sup> In this case, the fact that the control subjects were also cancer patients—stomach cancer patients, rather than healthy controls—is evidence against reporting bias. More recently, a 1989 study performed by the New York State Department of Health, which was based on fetal death records—not retrospective interviews—reported a 90 percent increase in risk among women who had had an induced abortion (relative risk = 1.9).<sup>36</sup> In a more recent study in 2000, Daling’s group did something similar to what Meirik et al. had done.<sup>37</sup> They compared retrospective interview responses with responses given by the same women several years earlier, at the time of a prenatal interview, long before anyone could have known who would end up with breast cancer. Their result was also unequivocal: “The authors’ data do not suggest that controls are more reluctant to report a history of induced abortion than are women with breast cancer.”<sup>38</sup>

Though false, the reporting bias argument was—and still is—sufficient to keep the ABC link as a credible scientific finding out of the public consciousness. As long as the public keeps faith in government agencies such as the NCI, some voluntary organizations such as the American Cancer Society, and the major medical journals and societies, and so long as these agencies send a clear unified message, then it does not matter whether the message is true or false: the public will believe it. The only effective counterweight to such unified enforcement of the party line (in this case, “safe abortion”) is an independent media. Importantly, the mainstream media’s tendency to lean in the “pro-choice” direction is well known, and it reinforces their tendency to view the mainstream scientific and medical authorities as authoritative. The mainstream media is therefore not the prime mover in the ongoing effort to deny the reality of the ABC link.

### **Comprehensive Review Refocuses Public Attention**

This influence of the mainstream media became clear with the October 1996 publication of the “comprehensive review and meta-analysis” on the ABC link, which I wrote in conjunction with Vernon Chinchilli, Walter Severs, and Joan Summy-Long of the Pennsylvania State College of Medicine, and published in the *British Medical*

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<sup>35</sup>H. Watanabe and T. Hirayama, “Epidemiology and Clinical Aspects of Breast Cancer” [in Japanese], *Nippon Rinsho* 26.8 (August 1968): 1843–1849.

<sup>36</sup>H. L. Howe et al., “Early Abortion and Breast Cancer Risk Among Women Under Age 40.”

<sup>37</sup>Mei-Tzu C. Tang et al., “Case-Control Differences in the Reliability of Reporting a History of Induced Abortion,” *American Journal of Epidemiology* 151.12 (June 15, 2000): 1139–1143.

<sup>38</sup>*Ibid.*

Association’s (BMA) epidemiology journal, the *Journal of Epidemiology and Community Health (JECH)*.<sup>39</sup> I had deliberately chosen this journal in order to get a fair shake at publishing it without substantive change. Moreover, we did not wish to have our study misrepresented and discounted in a *JNCI* editorial, as had happened to the 1994 Daling study. (As it happens, in December the *JNCI* did publish an editorial which misrepresented and discounted our paper, but at least we had two months for our message to gain some traction.<sup>40</sup>)

Our paper was both a narrative review and quantitative compilation of every published study we could find (there were twenty-three) that had reported data on the ABC link. We also enumerated the studies which reported data on spontaneous abortion and those which did not distinguish between induced and spontaneous abortion. Our conclusion was a statistically significant, overall 30 percent increase in the risk of breast cancer among women who had had an induced abortion, and no significant link with spontaneous abortion. Importantly, the comparison criterion for induced abortion was—as it has always been—“not having had that pregnancy,” rather than the childbirth choice. We also included an extensive discussion of the theory and the evidence that form the biological basis of an ABC link.

Fortunately, the institutions involved in the publication of the meta-analysis paper—Baruch College, Penn State Medical College, and the BMA—made efforts to draw media attention, and the news was reported widely around the world. Unfortunately, but not surprisingly, the backlash from “mainstream” science and medicine was swift and unrelenting.

Just three months after the publication of our meta-analysis, a new paper that was widely hailed as the definitive disproof of the ABC link appeared in what is arguably the most prominent and prestigious medical in the world, the *New England Journal of Medicine (NEJM)*.<sup>41</sup> Although this was a study only of women in Denmark, and authored by Mads Melbye and colleagues of the Statens Serum Institut in Copenhagen, it was largely funded by the U.S. Department of Defense, and heralded by a *NEJM* editorial written by Patricia Hartge, a senior NCI scientist. Hartge’s editorial conclusion was: “In short, a woman need not worry about the risk of breast cancer when facing the difficult decision of whether to terminate a pregnancy.”<sup>42</sup> This followed quite naturally from the Melbye group’s conclusion: “Induced abortions have no overall effect on the risk of breast cancer.”<sup>43</sup>

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<sup>39</sup>Joel Brind et al., “Induced Abortion as an Independent Risk Factor for Breast Cancer: A Comprehensive Review and Meta-Analysis,” *Journal of Epidemiology and Community Health* 50.5 (October 1996): 481–496.

<sup>40</sup>D. L. Weed and B. S. Kramer, “Induced Abortion, Bias, and Breast Cancer: Why Epidemiology Hasn’t Reached Its Limit,” *Journal of the National Cancer Institute* 88.23 (December 4, 1996): 1698–1700.

<sup>41</sup>Mads Melbye et al., “Induced Abortion and the Risk of Breast Cancer,” *New England Journal of Medicine* 336.2 (January 9, 1997): 81–85.

<sup>42</sup>Hartge, “Abortion, Breast Cancer, and Epidemiology.”

<sup>43</sup>Melbye et al., “Induced Abortion and the Risk of Breast Cancer,” 81.

Just how, one may reasonably ask, could one single study's result nullify almost half a century's data from dozens of studies? The answer given was basically a two-pronged argument: strength in numbers, and use of prospective medical records, which eliminates the possibility of reporting bias. In regard to the former, the Melbye study is no doubt the largest study on the ABC link, comprising every woman born in the state of Denmark between 1935 and 1978 (over 1.5 million women), over 300,000 abortions and over 10,000 cases of breast cancer. The null result (relative risk = 1.00) was stated with very tight statistical limits (i.e., very high confidence). In the public mind, the Melbye study pretty much did settle the issue, even though scientifically it was a complete travesty.

What was hailed as the Melbye study's greatest strength actually turned out to be its greatest weakness. That is, while its reliance on medical records does indeed preclude the possibility of reporting bias, the flaws in the compilation of the data were breathtaking. For starters, the study included records of induced abortions dating back to 1973. Melbye's justification for this seems straightforward enough: "In 1973, the legal right to an induced abortion through 12 weeks' gestation was established for women with residence in Denmark."<sup>44</sup> The implication here, of course, is that Denmark had the equivalent of *Roe v. Wade* in 1973, before which time elective abortion was not legal. In fact, induced abortion has been legal (and on record) in Denmark for reasons other than medical necessity since 1939 and was only most recently liberalized in 1973.<sup>45</sup> Consequently, some 60,000 of the oldest women in the Melbye study cohort—the part of the population with the most cases of breast cancer—who had had an abortion before 1973, were misclassified as not having had an abortion, because their abortions had not been entered into the computerized registry.<sup>46</sup> This is a very crucial point. It is not necessarily very consequential if records are missing for many patients, providing these patients are thus excluded from the analysis. But it is quite another matter when these patients are included in the study as subjects, thus representing their abortion history as different than it actually was.

Yet the Melbye study embodies still more egregious violations of proper scientific methodology. Most glaring was the inclusion of breast cancer diagnoses dating back to 1968. This actually violates the most fundamental rule of all in scientific inquiry, i.e., temporality: cause must precede effect. Yet here, Melbye was measuring the effect—breast cancer—from 1968, five years before beginning the collection of data in 1973 on the potential cause: induced abortion. Despite these glaring gaps and flaws, the calculation of Melbye's raw numbers resulted in a 44 percent increase in breast cancer risk with induced abortion, an increase which did not appear in print in the study, and which was made to disappear with statistical adjust-

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<sup>44</sup>Melbye et al., "Induced Abortion and the Risk of Breast Cancer," 82.

<sup>45</sup>M. Osler et al., "Family Planning Services Delivery: Danish Experience," *Danish Medical Bulletin* 37.1 (February 1990): 95–105.

<sup>46</sup>*Befolkningens bevaegelser [Vital Statistics] 1994* (Copenhagen: Danmarks Statistik, 1996), 56–62.

ment.<sup>47</sup> Even then, the Melbye study still reported—but not as a “conclusion”—a statistically significant trend of increasing breast cancer risk with gestational age at abortion. Thus, women who had aborted at more than eighteen weeks’ gestation were at more than double the risk of breast cancer, compared to women who had aborted at less than seven weeks gestation. Clearly, the Melbye study was purely a political exercise in the guise of a scientific study, designed to shore up the reputation of abortion as safe for women.

While the Melbye study was generally quite effective in keeping the ABC link out of public awareness, the issue kept rearing its head around the United States as state after state considered abortion informed consent laws that mandated that ABC link warnings be given by abortion practitioners to women seeking abortion. Many such bills got as far as enactment into state law in the 1990s, specifically, those in Mississippi, Montana (enjoined by a state court in 1999), Louisiana, and Kansas. Texas and Minnesota followed in 2003. Over a dozen more states continue to debate such legislation perennially. But the stubborn persistence of the issue has been tested with a continuing program of denial from high places, most notably from the National Cancer Institute.

Since the publication of the Daling study in 1994, the NCI has maintained a “Cancer Facts” fact sheet devoted to abortion and breast cancer on its website. Until early 1997, the message was generally dismissive of the ABC link, calling the evidence for it “inconsistent and inconclusive.”<sup>48</sup> In 1997, however, shortly after the publication of the Melbye study, the NCI ratcheted up the rhetoric of denial, claiming that “there is no convincing evidence of a direct relationship between breast cancer and either induced or spontaneous abortion.”<sup>49</sup> The inclusion of spontaneous abortion here serves to confuse the issue, since the difference between induced and spontaneous abortion in terms of pregnancy hormones and breast cancer risk had long been resolved. But most outrageous about the new version of the NCI “fact sheet” was the addition of the following sentence: “The scientific rationale for an association between abortion and breast cancer is based on limited experimental data in rats, and is not consistent with human data.” This of course, was exactly contrary to reality, as the scientific rationale was based on many lines of evidence (as discussed above), and the ABC link is entirely consistent with the overwhelming majority of studies on women.

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<sup>47</sup>Joel Brind and Vernon M. Chinchilli, letter to the editor, “Induced Abortion and the Risk of Breast Cancer,” *New England Journal of Medicine* 336.25 (June 19, 1997): 1834–1835.

<sup>48</sup>National Cancer Institute, “Abortion, Miscarriage, and Breast Cancer Risk,” fact sheet 3.75 (October 1996), formerly found at [http://cancernet.nci.nih.gov/clinpdq/risk/Abortion\\_and\\_Breast\\_Cancer.html](http://cancernet.nci.nih.gov/clinpdq/risk/Abortion_and_Breast_Cancer.html). This fact sheet is no longer available online, but a copy may be obtained from Dr. Brind on request.

<sup>49</sup>National Cancer Institute, “Abortion, Miscarriage, and Breast Cancer Risk,” fact sheet 3.75 (February 1997), formerly found at [http://cancernet.nci.nih.gov/clinpdq/risk/Abortion\\_and\\_Breast\\_Cancer.html](http://cancernet.nci.nih.gov/clinpdq/risk/Abortion_and_Breast_Cancer.html). This fact sheet is no longer available online, but a copy may be obtained from Dr. Brind on request.

Fortunately, there were some members of Congress who knew better, and were also in a position to exercise their constitutional oversight authority to rein in the NCI. Most notable was Dr. Tom Coburn (R-OK), an obstetrician as well as a congressman, who managed to ask some hard questions of NCI representative Dr. Edison Liu at a 1998 congressional subcommittee hearing in the House Commerce Committee. Within months after a pointed follow-up letter was sent to the NCI Director from the Chairman of the Commerce Committee, Tom Bliley (R-VA),<sup>50</sup> there was a substantial modification of the language of the NCI's website "fact sheet." Thus, "no convincing evidence" morphed into "evidence of a direct relationship ... is inconsistent." Most importantly, the most offensive and untruthful statement about the "scientific rationale" and the data's "not [being] consistent with human data" was completely expunged.<sup>51</sup>

With the NCI forced to take at least a noncommittal stance, the ABC link continued to emerge around the United States as a state issue in terms of informed consent legislation.

### A Slew of Large New Studies

Between the years 2000 and 2003, several new studies were published on women from the United Kingdom, China, and Scandinavia, studies which, yet again, were trumpeted as definitively disproving the ABC link. When subjected to close scrutiny, however, the validity of their findings again runs into serious trouble.

The 2001 U.K. study was authored by Oxford epidemiologist Michael Goldacre et al., and published in the *JECH*.<sup>52</sup> Interestingly—and it would seem hardly by coincidence—the Goldacre study had overlapping authorship with both the 1982 Oxford study<sup>53</sup> and the 2004 "collaborative reanalysis."<sup>54</sup> The Goldacre study was widely considered to be very strong because, like the 1997 Melbye study, it involved a very large number of women (over 350,000), over 28,000 of whom had developed breast cancer. Also like the Melbye study, the Goldacre study relied entirely upon medical records of abortion, from the (U.K.) National Health Service (NHS) hospital records. The results actually showed a statistically significant 17 percent decrease in breast cancer risk among women who had had any induced abortions. However, also like the Melbye study, many missing abortion records resulted in the misclassification of abortion-positive women as abortion-negative. But even more egregiously than in the Melbye study, more than 90 percent of abortion-positive women were misclassified in this way. This could be quite easily determined, since

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<sup>50</sup>Tom Bliley to Richard Klausner, January 12, 1999. A copy of this letter may be obtained from Dr. Brind on request.

<sup>51</sup>Joel L. Brind, "NCI's New ABC 'Facts': Fewer Lies," *Abortion-Breast Cancer Quarterly Update* 3.3 (Fall 1999): 1–2.

<sup>52</sup>M. J. Goldacre et al., "Abortion and Breast Cancer: A Case-Control Record Linkage Study," *Journal of Epidemiology and Community Health* 55.5 (May 2001): 336–337.

<sup>53</sup>Vessey et al., "Oral Contraceptive Use."

<sup>54</sup>Collaborative Group, "Breast Cancer and Abortion."

the Goldacre study was based on all the women who had been admitted to NHS hospitals in the Oxford area for any reason. A simple perusal of statistics on induced abortion in the United Kingdom reveals that at least 15 percent of those women were abortion-positive,<sup>55</sup> yet the records upon which the Goldacre study relied indicated that only just over 1 percent of the cancer patients—300 of them, to be exact—had an induced abortion on record. Such a massive gap in the database renders any study of the ABC link in this population statistically meaningless.<sup>56</sup>

China, on the other hand, comprising a population under very tight control, and in which abortion is very common, would seem to offer a very good place to do ABC link research. Between 2000 and 2002, three published reports of two studies on overlapping populations of female textile workers in Shanghai appeared in the *American Journal of Epidemiology*,<sup>57</sup> the *International Journal of Cancer*,<sup>58</sup> and the *British Journal of Cancer*.<sup>59</sup> These studies were quite large, reflecting a study population of over 260,000 total, and the Ye study was based on prospective data—that is, women had filled out questionnaires when they entered the study, before any of them developed breast cancer. The Sanderson study was based on retrospective interviews, and the results of both studies were essentially null, that is, no significant effect on breast cancer risk was found associated with induced abortion. The main problem with the Chinese studies is that abortion is so common (over 50 percent of the study population in both the Sanderson and Ye studies). In addition (and contrary to the usual pattern in the United States and the United Kingdom), almost all abortions are done after the birth of a woman's first (and usually only) child. Thus, the women in the study who had not had an abortion at a given age were not typical. These women were either childless or they had their first child at an older age, characteristics which are both risk factors for breast cancer. In other words, the women who had an abortion were being compared to what amounts to a high-risk subgroup of women, rather than to a group of women who are truly typical of the population, and the risk-increasing effect of abortion was therefore masked.<sup>60</sup>

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<sup>55</sup>Office for National Statistics (U.K.), "Report: Legal Abortions in England and Wales, 2000," *Health Statistics Quarterly* 10 (Summer 2001): 57. As the overall induced abortion rate in England and Wales averaged more than 1 percent per year during the study period (1968–1998), it is conservatively estimated that approximately 15 percent of the women in the cohort underwent an induced abortion in their lifetime.

<sup>56</sup>Joel L. Brind and Vernon M. Chinchilli, letter to the editor, "Abortion and Breast Cancer," *Journal of Epidemiology and Community Health* 56.3 (March 2002): 237–238.

<sup>57</sup>M. Sanderson et al., "Abortion History and Breast Cancer Risk: Results from the Shanghai Breast Cancer Study," abstract of presentation at the Society for Epidemiological Research Annual Meeting, *American Journal of Epidemiology* 151.11 (June 1, 2000): 151.

<sup>58</sup>M. Sanderson et al., "Abortion History and Breast Cancer Risk: Results from the Shanghai Breast Cancer Study," *International Journal of Cancer* 92.6 (June 15, 2001): 899–905.

<sup>59</sup>Z. Ye et al., "Breast Cancer in Relation to Induced Abortions in a Cohort of Chinese Women," *British Journal of Cancer* 87.9 (October 21, 2002): 977–981.

<sup>60</sup>Joel L. Brind and Vernon M. Chinchilli, letter to the editor, "Breast Cancer and Induced Abortions in China," *British Journal of Cancer* 90.11 (June 1, 2004): 2244–2246.

This difficulty is inherent in the nature of epidemiology, and it arises when the exposure in question—in this case, induced abortion—has become the rule rather than the exception within the population under study.

In Scandinavia, a study by Erlandsson et al. appeared in the *International Journal of Cancer* in 2003.<sup>61</sup> This study was reasonably large—almost 1800 case-control pairs, which made it about twice as large as the 1994 Daling study. As in most of the other large recent studies discussed above, the data were collected prospectively, and the study was widely viewed as more credible for that reason. However, as in the Melbye and Goldacre studies, the Erlandsson study ran into the misclassification problem resulting from huge gaps in the database. The subjects were all Swedish women who had had at least one live birth during the study period, because in Sweden, a record is automatically created at an antenatal interview. In the antenatal record, each woman gives a detailed history, including any abortions. The registry of antenatal record data was linked by Erlandsson et al. to the breast cancer registry, in order to find any connection between induced abortion and breast cancer. Similar to the Goldacre study, Erlandsson et al. found a 20 percent decrease in risk of breast cancer with women who had had abortions, with a borderline significance to that decrease. The problem here is that the typical pattern of induced abortion in Sweden is more like that in China than the United States or the United Kingdom; that is, abortion is used more often to limit family size than to delay first childbirth. What that means for the Erlandsson study is quite simply that most of the induced abortions in the study population happened sometime between the antenatal interview (when all the abortion data were collected) and the time of breast cancer diagnosis, and were therefore missing from the record. Here again, then, we find a database which is simply unsuitable for obtaining a valid result regarding the ABC link, because most of the women who had had an induced abortion were misclassified as not having had one.<sup>62</sup>

A final note regarding these large recent studies is in order. In the authors' discussions of their findings in the text of the papers, all misrepresent the published record of previous articles involving research on ABC. Specifically, all omit any mention of the 1989 New York State study, a study which—prominently published in the *International Journal of Epidemiology*—found an unequivocal ABC link using a rock-solid prospective database.<sup>63</sup> The most glaring example of this misrepresentation appears in the Goldacre study: “None of the cohort or record linkage studies have shown a significant increase in breast cancer risk after exposure to induced abortion.”<sup>64</sup>

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<sup>61</sup>G. Erlandsson et al., “Abortions and Breast Cancer: Record-Based Case-Control Study,” *International Journal of Cancer* 103.5 (February 20, 2003): 676–679.

<sup>62</sup>Joel L. Brind and Vernon M. Chinchilli, letter to the editor, “Abortions and Breast Cancer: Record-Based Case-Control Study,” *International Journal of Cancer* 109.6 (May 10, 2004): 945–946.

<sup>63</sup>Howe et al., “Early Abortion and Breast Cancer Risk among Women under Age 40.”

<sup>64</sup>Goldacre et al., “Abortion and Breast Cancer: A Case-Control Record Linkage Study,” 337.

### More Changes on the NCI “Fact Sheet”

The rash of new, large studies which showed no ABC link set the stage for a major change in the tone of the NCI “fact sheet” on the link. The change was set to coincide with the arrival of new leadership in Washington, following the election of Republican President George W. Bush. Just over a year into his first term, in early March of 2002, his appointee for NCI Director, Andrew von Eschenbach, took the agency’s helm. When he arrived at his new office, Dr. von Eschenbach found the proposed text of the new ABC link “fact sheet” on his desk, waiting for his signature.<sup>65</sup> Two days later, the NCI’s message on the ABC link no longer referred to evidence of the ABC link as “inconsistent.” Instead, the text read: “The current body of scientific evidence suggests that women who have had either induced or spontaneous abortions have the same risk as other women for developing breast cancer.”<sup>66</sup> This presented a more conclusive tone than previous versions. The new “fact sheet” was also shorter, the description of the 1994 study by Janet Daling and colleagues having been eliminated entirely.

The net result was that the single most influential worldwide authority on what causes cancer and what does not was firmly in denial of the ABC link. At the same time, the underlings who orchestrate NCI policy had managed to tie what amounted to an endorsement of “safe abortion” to the new conservative anti-abortion administration in Washington. The effect of the NCI policy change was chilling for those engaged in the effort to raise public awareness of the ABC link. At the time the change was made, there were two lawsuits in progress—one in North Dakota<sup>67</sup> and one in California<sup>68</sup>—which accused abortion providers of engaging in false advertising by denying the ABC link. Armed with the new NCI “fact sheet,” judges in both cases ruled against the plaintiff. In the North Dakota case, the judge actually permitted the outrageous claim—made by the defendant—that there was “no evidence” of the ABC link, to stand. In California, the judge dismissed the suit summarily.

Politically, conservative voices in Washington were soon heard by the Bush administration. Late in April, the National Physicians Center for Family Resources, based in Birmingham, Alabama, sent Dr. von Eschenbach a detailed critique of the NCI “fact sheet.” Among other flaws, the critique cited the NCI’s “overall tone of

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<sup>65</sup>A. von Eschenbach, opening address at NCI Workshop on Early Reproductive Events and Breast Cancer, Bethesda, MD, February 24, 2003. Video record available at: <http://videocast.nih.gov/PastEvents.asp?c=1&s=91>.

<sup>66</sup>National Cancer Institute, “Abortion, Miscarriage, and Breast Cancer Risk,” fact sheet 3.75 (March 6, 2002), formerly found at [http://cancernet.nci.nih.gov/fact/3\\_53.htm](http://cancernet.nci.nih.gov/fact/3_53.htm). This fact sheet is no longer available online, but a copy may be obtained from Dr. Brind on request.

<sup>67</sup>*Amy Jo Mattson v. MKB Management Corp., dba Red River Women’s Clinic*, District Court, East Central Judicial District, County of Cass, State of North Dakota, Civil No. 99-3734.

<sup>68</sup>*Agnes Bernardo et al. v. Planned Parenthood Federation of America et al.*, Superior Court of the State of California, County of San Diego, Case No. GIC 772552.

denial,” its “misrepresentation of the published medical literature on the ABC link,” and its “inclusion of inaccurate statements.”<sup>69</sup>

Then, in early June, a letter was sent to the Secretary of Health and Human Services (HHS, the federal department which includes the NCI), Tommy Thompson, by U.S. Congressmen Chris Smith (R-NJ), Joseph Pitts (R-PA), and twenty-six other representatives, asking “that the fact sheet be reevaluated for accuracy and bias and that it be removed from the Department website until that review is completed.” They based this request on their stated belief that the “fact sheet” “is scientifically inaccurate and misleading to the public.”<sup>70</sup>

On July 1, 2002, the NCI removed the “fact sheet,” an action which prompted predictable outrage from “safe abortion” advocates. A letter to HHS originating from the office of Rep. Henry Waxman (D-CA) and signed by eleven of his fellow “pro-choice” colleagues, referred to the ABC link as a “popular myth” and asked for the restoration of the latest fact sheet.<sup>71</sup> Predictably, the “pro-choice” print media rallied to Waxman’s cause, accusing the Bush administration of political meddling with “objective” science. One newspaper, the *Star-Ledger* (NJ), went so far as to compare President Bush to Joseph Stalin as one out to control information and hide the truth from the American people.<sup>72</sup>

In late November, the removed fact sheet was replaced—sort of—with a statement on “Early Reproductive Events and Breast Cancer.” The new statement reverted to calling the data on the ABC link “inconsistent,” and announced an NCI workshop to be conducted shortly, to help determine the current state of knowledge and the direction of future research.<sup>73</sup>

### **The NCI Workshop**

In January 2003, the NCI announced its “workshop” on “Early Reproductive Events and Breast Cancer” to be held in late February. It was billed as a three-day workshop at which all the data on the ABC would be subject to “scientific scrutiny” and “comprehensive review.” However, it was obvious from the start that the “workshop” was a scam. First, the meeting lasted barely two days—not three days, as it began with Monday evening introductory addresses by Dr. von Eschenbach and two other speakers, presentations of data on Tuesday morning, breakout sessions

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<sup>69</sup>National Physicians Center for Family Resources, “National Cancer Institute Fact Sheet Analysis: The Abortion-Breast Cancer Connection (ABC Link),” fact sheet, April 2002. A copy may be obtained from Dr. Brind on request.

<sup>70</sup>Jocelyn Kaiser, “Cancer Risk: Nudge from Congress Prompts NCI Review,” *Science* 297.5579 (July 12, 2002): 171.

<sup>71</sup>Office of Henry Waxman to Tommy Thompson, October 21, 2002, [http://www.house.gov/waxman/news\\_files/pdfs/news\\_letters\\_thompson\\_hhs\\_websites\\_10\\_21\\_02.pdf](http://www.house.gov/waxman/news_files/pdfs/news_letters_thompson_hhs_websites_10_21_02.pdf).

<sup>72</sup>Editorial, “Political Science,” *The Star-Ledger* (NJ), January 3, 2003, 16.

<sup>73</sup>National Cancer Institute, “Early Reproductive Events and Breast Cancer,” [http://cancer.gov/cancer\\_information/doc.aspx?viewid=8cf78b34-fc6a-4fc7-9a63-6b16590af277](http://cancer.gov/cancer_information/doc.aspx?viewid=8cf78b34-fc6a-4fc7-9a63-6b16590af277).

(off the record) on Tuesday afternoon, and a wrap-up and presentation of summary findings by mid-day Wednesday.<sup>74</sup>

Second, as if the time were not short enough, discussion of the ABC link was severely limited, diluted by inclusion of animal research and basic reproductive hormone and genetic research, as well as human reproductive research unrelated to induced abortion. Even some of the invited experts who had published important work on the ABC link, such as Janet Daling and the Russos, were invited to present data only on breast cell and tumor genetics, and not on induced abortion. In fact, most of the invited experts were not experts on the ABC link at all, and were unaware of the fact that eradicating the ABC link was really the sole purpose of the meeting. I myself was invited only at the eleventh hour, and only to have a seat in the audience—not to make a presentation of any sort.

Third, it was particularly telling that the only experts who were invited to present on the ABC link were publicly known to be on the side of discrediting it. There was only one full-length, on-the-record lecture on the subject, given by Leslie Bernstein of the University of Southern California,<sup>75</sup> and there were two off-the-record short presentations of “late-breaking results,” one of them given by Mads Melbye. There was neither any comprehensive review of extant published data, nor any opportunity to review any of the new data, of which the audience was given only a “sneak peek.”<sup>76</sup> I had no podium, but only the opportunity to ask a few questions. One question I did ask was for access to Dr. Bernstein’s new data, and I was told that she would not make it available until after it was published! At least this verbal exchange was on the record.<sup>77</sup> Interestingly, one of Bernstein’s studies, which was in press at the time of the “workshop,” was published a month later;<sup>78</sup> however, the journal that published it took the unprecedented action of refusing to publish a letter critical of the study from our group<sup>79</sup>—even though our group has standing in the field of ABC link research.

If the NCI’s experts really wanted to settle the matter of the ABC link once and for all, to debunk the extant published evidence and relegate it to the scrap heap of epidemiological history, this was their chance to do so. The lone “crusader” (yours

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<sup>74</sup>National Cancer Institute, “Early Reproductive Events and Breast Cancer: Workshop Agenda, February 24–26, 2003,” <http://cancer.gov/cancerinfo/ere-workshop-agenda>.

<sup>75</sup>Leslie Bernstein, address given at NCI Workshop on Early Reproductive Events and Breast Cancer, Bethesda, MD, February 25, 2003. Video record available at: <http://videocast.nih.gov/PastEvents.asp?c=1&s=91>.

<sup>76</sup>Ibid.

<sup>77</sup>Joel L. Brind, Q&A regarding Bernstein address, *ibid*.

<sup>78</sup>Maya Mahue-Giangreco et al., “Abortion, Miscarriage, and Breast Cancer Risk of Young Women,” *Cancer Epidemiology Biomarkers & Prevention* 12.3 (March 1, 2003): 209–214.

<sup>79</sup>Joel Brind, and Vernon M. Chinchilli, letter to editor, “Re: Induced Abortion, Miscarriage, and Breast Cancer Risk of Young Women,” submitted to *Cancer Epidemiology Biomarkers & Prevention*, July 10, 2003.

truly) was there, armed with all the data and opinion ever published in the peer-reviewed literature on the subject. I could have been set up to present my analysis of it to the assemblage, with the opportunity for all of them to take their best scientific shots at it for as long as they liked. But they missed their chance. They played out a political charade, just waiting to re-post a year later the conclusion that “the best evidence” indicates “no overall association” between abortion and breast cancer on the NCI’s website. It was an exercise of brute political force, backed by the power of the purse (our tax dollars), and any potential dissenters among the gathered NCI grantees would assuredly have been held to account.

That brings up the fourth important point: the inherent conflict of interest between the NCI career scientists, who make the highly competitive grant funding decisions for the agency that funds most of the cancer research in the United States (and much of it elsewhere), and the supposedly independent research scientists who receive those grants, that dare not break with the party line.

It is also noteworthy that political forces outside the NCI were keeping up maximal pressure for the agency to arrive at the politically correct conclusion. A month prior to the “workshop,” a heavy-handed *New York Times* editorial said it all: “If the experts at the meeting agree that there is no link between abortion and breast cancer, the institute will have no excuse to suppress the information. It will have to issue a new fact sheet or admit it can no longer provide objective guidance on matters that inflame social conservatives.”<sup>80</sup> As for von Eschenbach himself, his willingness to play along with the NCI career scientists bent on discrediting the ABC link may come as a surprise, because he was appointed by President Bush. However, at the time of his appointment he was national president-elect of the American Cancer Society (ACS), an organization with the same “safe abortion” bias as the NCI. The ACS itself has engaged in a vigorous campaign against the ABC link, including attempts to silence the free speech of the independent, non-profit Coalition on Abortion/Breast Cancer, through legal intimidation.<sup>81</sup>

Almost immediately after the “workshop,” the NCI posted its “summary findings.”<sup>82</sup> The finding relevant to the ABC link reads: “Induced abortion is not associated with an increase in breast cancer risk (1)” (The “(1)” means that this conclusion is accorded the highest quality of evidence rating, i.e., “well established”). Interestingly, this “epidemiologic finding” was only the sixth out of ten, with the first three relating to the “long-term risk reduction” in breast cancer risk attributable to childbirth. The simplicity of connecting the proverbial dots to show that interrupting a pregnancy in progress therefore leaves a woman at higher long-term breast can-

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<sup>80</sup>Editorial, “Abortion and Breast Cancer,” *New York Times*, Late Edition-Final, January 6, 2003, A20.

<sup>81</sup>Coalition on Abortion/Breast Cancer, “Society’s Legal Eagles Harass the Coalition,” [http://www.abortionbreastcancer.com/american\\_cancer\\_society.htm](http://www.abortionbreastcancer.com/american_cancer_society.htm).

<sup>82</sup>National Cancer Institute, “Summary Report: Early Reproductive Events and Breast Cancer Workshop,” <http://www.nci.nih.gov/cancerinfo/ere-workshop-report>.

cer risk, compared to not interrupting it, is exceeded only by the temerity of deliberately disconnecting the dots.

As an invited participant to the NCI “workshop,” I felt compelled to file a “minority report.”<sup>83</sup> One would think that, were the “workshop” not a sham, this report would be posted on the NCI website. Instead, a brief excerpt is posted as a “Minority Dissenting Comment,” without identifying the author or providing any means to obtain the full text.<sup>84</sup>

With the NCI giving its highest stamp of disapproval to the ABC link, convincing the public of its reality has been made difficult, to say the least. For example, two informed consent laws enacted in 2003, one in Texas<sup>85</sup> and the other in Minnesota,<sup>86</sup> mandated that information on the ABC link be given to women considering abortion. However, in 2004 the ABC link information was removed from the state website by the governor of Minnesota under pressure from the state medical association.<sup>87</sup> Subsequently, the commissioner of health of Louisiana removed ABC link information<sup>88</sup> that had been in that state’s mandated booklet since 1995.<sup>89</sup>

It certainly did not help matters when, in March 2004, Beral’s “collaborative reanalysis” appeared in *The Lancet*.<sup>90</sup> Not only did the Beral “reanalysis” arrive at essentially the same conclusion as the NCI “workshop,” but it also claimed to be a thorough review of the extant data. Another important similarity—revealed by close

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<sup>83</sup>Joel Brind, “Early Reproductive Events and Breast Cancer: A Minority Report,” March 10, 2003, [http://bcpinstitute.org/nci\\_minority\\_rpt.htm](http://bcpinstitute.org/nci_minority_rpt.htm).

<sup>84</sup>National Cancer Institute, “Minority Dissenting Comment Regarding Early Reproductive Events and Breast Cancer Workshop,” [http://cancer.gov/cancer\\_information/doc.aspx?viewid=15e3f2d5-5cdd-4697-a2ba-f3388d732642](http://cancer.gov/cancer_information/doc.aspx?viewid=15e3f2d5-5cdd-4697-a2ba-f3388d732642).

<sup>85</sup>*Woman’s Right to Know Act* (September 1, 2003), Texas Health & Safety Code, Chapter 171, subchapter A (Texas Legislative Council, 2004). Available under “Chapter 171. Abortion” at <http://www.capitol.state.tx.us/statutes/hs.toc.htm>.

<sup>86</sup>*Women’s Right to Know Act* (April 14, 2003), Minnesota Statutes 2004, Chapter 145, sections 4241–4249 (Minnesota Office of the Revisor of Statutes, 2004). Available under “145.4241” and subsequent section numbers at <http://www.revisor.leg.state.mn.us/stats/145/>.

<sup>87</sup>Dr. Robert Meiches, chief executive officer, Minnesota Medical Association, to Minnesota Governor Tim Pawlenty and Diane Mandernach, Minnesota commissioner of health, December 9, 2003. A copy of this letter may be obtained from Dr. Brind on request.

<sup>88</sup>Louisiana Department of Health and Hospitals, *Abortion: Making a Decision* (Baton Rouge, LA: Louisiana Department of Health and Hospitals, n.d.), <http://www.dhh.state.la.us/offices/publications/pubs-1/Abortion-MakingaDecision04.pdf>; Associated Press, “Women Wrongly Warned Cancer, Abortion Tied,” November 9, 2004, <http://abcnews.go.com/Health/wireStory?id=239655>.

<sup>89</sup>Louisiana Department of Health and Hospitals, *Abortion: Making a Decision* (Baton Rouge, LA: Louisiana Department of Health and Hospitals, 1995), 17. The 1995 version of this document is no longer available from the Louisiana Department of Health and Hospitals, but a copy may be obtained from Dr. Brind on request.

<sup>90</sup>Collaborative Group, “Breast Cancer and Abortion.”

scrutiny—shows the “reanalysis” to be every bit as disingenuous as the “workshop.”

Although the group of “fifty-three epidemiological studies” (actually, fifty-two with data specifically relating to induced abortion) comprising the “reanalysis” seems impressive, it is not what it appears to be. With a total of forty-one studies extant in the published literature, one naturally assumes that the “reanalysis” therefore included data from eleven additional studies. However, this is far from the truth. What Beral et al. actually did was exclude seventeen published studies, and add data from twenty-eight that were previously unpublished. Two of the excluded studies were excluded for appropriate scientific reasons, i.e., they had not ascertained the occurrence of abortion directly in cases and controls. But eleven of the studies were excluded for entirely unscientific reasons, specifically, that “principal investigators ... could not be traced,” or “original data could not be retrieved,” or “researchers declined to take part in the collaboration,” or “principal investigators judged their own information on induced abortion to be unreliable.” Four other studies were excluded by simple omission, without any mention at all. The reader will hardly be surprised that ten of these fifteen excluded studies had reported a statistically significant ABC link. In fact, a compilation of all fifteen excluded studies reveals an overall 80 percent risk increase among them. It is therefore hardly surprising that the Beral group’s conclusion shows no significant risk increase, especially considering that twenty-eight of the fifty-two studies on which they relied had not been previously published. Moreover, Beral et al. did include the large prospective studies of the Melbye, Goldacre, and Erlandsson groups, studies which—as enumerated above—should have been excluded on purely scientific grounds.<sup>91</sup>

### **A Serious Methodological Flaw**

Another important aspect of the Beral “reanalysis” is that it provides a particularly clear example of a standardized methodological flaw peculiar to ABC link research, one which masks the most obvious connection between abortion and breast cancer. In looking at the key data summary table in that study, it is important to note the comparison that produced the overall negative result. The title of the table unequivocally states: “Relative risk of breast cancer, comparing the effects of having a pregnancy that ended as an induced abortion versus effects of never having had that pregnancy.” The artificiality of this comparison is striking, for “never having had that pregnancy” is not an option for a woman already pregnant. In terms of any reasonable standard of informed consent, the potential harm of any given medical or surgical procedure must be weighed against the alternative of not having the procedure. In the case of induced abortion—especially since this procedure is overwhelmingly performed on healthy women—that would mean the childbirth alternative. As far as breast cancer is concerned, the risk-reducing effect of full-term pregnancy (FTP) has been well-known literally for centuries, and is universally acknowledged.

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<sup>91</sup>Breast Cancer Prevention Institute, “Fact Sheet: Abortion and Breast Cancer, Re: ‘Collaborative Reanalysis of Data’ Published in *Lancet* 3/25/05,” <http://bcpinstitute.org/beralpaperanalysis.htm>.

It is even acknowledged explicitly in the introduction to Beral's "reanalysis": "Pregnancies that result in a birth are known to reduce a woman's long-term risk of breast cancer." It is hardly difficult to connect the dots here: Having an induced abortion leaves a woman with a higher long-term risk of breast cancer, compared to not having the abortion; i.e., compared to childbirth. Even ABC link nemesis Lynn Rosenberg was forced to admit this under oath in cross-examination in court: "Question: So in other words, a woman who finds herself pregnant at age fifteen will have a higher breast cancer risk if she chooses to abort that pregnancy than if she carries the pregnancy to term, correct?" Answer: "Probably, yes."<sup>92</sup>

It is therefore unequivocal that one aspect of the ABC link has long since been proven beyond a reasonable doubt, but it has been hidden by a standard peculiarity of epidemiological methodology. Yet even more telling is that this peculiarity reflects a double standard, for it only seems to apply to abortion, while a more reasonable standard is applied when evaluating other potential risk factors for breast cancer. This double standard is exemplified most clearly when evaluation of the ABC link is compared to evaluation of another risk factor in the news lately, i.e., postmenopausal hormone replacement therapy (HRT). In fact, the parallel to HRT is really quite striking, since FTP has effects similar to menopause on a woman's long-term breast cancer risk. In particular, both FTP and menopause lower a woman's breast cancer risk, and the younger the woman is when either event occurs, the more her risk is lowered (i.e., the greater the protective effect).

Beral's own collaborative group at Oxford actually helped to establish HRT as a risk factor with their "Million Woman Study" on women in the United Kingdom, published in *The Lancet* in 2003.<sup>93</sup> In conducting the study, the Beral group sent questionnaires to women aged fifty through sixty-four. Importantly, not all women in that age group have gone through menopause. It has also long been established that women who go through menopause at a later age are at higher risk of breast cancer, due to longer exposure to the cancer-promoting hormone estrogen. In fact, the "million woman" study reproduced this very finding among all the non-users of HRT: "The relative risk of breast cancer also varied substantially according to menopausal status; for example, among never users of HRT the relative risk of invasive breast cancer was ... 0.63 (0.58–0.68) for postmenopausal, compared with premenopausal women." (In other words, menopause reduced the risk of breast cancer by a statistically significant 37 percent, compared to premenopausal women of the same age.) Therefore, including premenopausal women in the HRT analysis would have only confounded the results. That is, comparing postmenopausal HRT users to premenopausal women of the same age would make it look like HRT was *not* a risk factor, because the risk among the premenopausal women is elevated in the same manner by their bodies' own estrogen production.

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<sup>92</sup>*North Florida Women's Health and Counseling Services, Inc., et al., v. State of Florida et al.*, official transcript of videotape deposition of Lynn Rosenberg, Sc.D., for purposes of trial testimony, Nov. 18, 1999, p. 77.

<sup>93</sup>Million Woman Study Collaborators, "Breast Cancer and Hormone-Replacement Therapy in the Million Woman Study," *The Lancet* 362.9382 (August 9, 2003): 419–427.

Accordingly, the Beral group restricted their analysis of the effect of HRT in an appropriate way: “To keep confounding by factors associated with the menopause to a minimum, the main analyses of the risk of breast cancer in relation to use of HRT were restricted to postmenopausal women with a defined time since menopause.” The result? Current users of HRT were found to be at higher risk of breast cancer than non-users by between 30 percent and 100 percent (average = 66 percent), depending upon the particular type of hormonal formulation taken. Just as it is only appropriate to compare postmenopausal women who choose to take HRT to postmenopausal women who choose not to take HRT, it is only appropriate to compare pregnant women who choose abortion to pregnant women who choose not to have an abortion. This would clearly yield a scientifically correct—but politically incorrect—result.

### **Doing the Right Thing**

Despite the worst efforts of scientists, doctors, politicians, journalists, and judges to quash public knowledge of the ABC link, the fact that published evidence of it abounds would make it a daunting task to convince a jury of its nonexistence, given a well-presented case. Along these lines, two recent medical malpractice cases give cause for optimism. Both were filed by young women against abortion providers for failure to warn about the risk of breast cancer and psychological complications. Both were filed in reference to abortions that were obtained when the women were minors, and were filed in politically liberal jurisdictions. Importantly, both were also filed by women who did not have breast cancer. The first, in Philadelphia, Pennsylvania, was settled late in 2003 for an undisclosed but substantial amount, when the case was on the brink of jury selection.<sup>94</sup> The second was adjudicated in January 2005 in Portland, Oregon.<sup>95</sup> Importantly, this was not a settlement, but rather was a judgment of liability following the entry of the equivalent of a plea of no contest by the abortion clinic. It also involved an undisclosed but substantial cash award to the plaintiff. All indications are that this is only the beginning of what may become a legal avalanche.

It is indeed unfortunate that—even assuming the truth will eventually win out—it may not occur until the issue is forced into the courtroom. We have estimated that upwards of 10,000 cases of breast cancer each year presently, and up to over 25,000 per year in twenty or thirty years hence, are or will be attributable to induced abortion.<sup>96</sup> How many thousands of women will be subjected to the pain and suffering of this horrible life-threatening disease, only because the doctors, the public health agencies, the media, and even the voluntary anti-cancer organizations are under the thumb of the “safe abortion” lobby?

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<sup>94</sup>*Stephanie Carter v. Charles E. Benjamin and Cherry Hill Women’s Center*, Philadelphia Court of Common Pleas, April Term, 2000, No. 3890.

<sup>95</sup>Dave Andrusko, “Plaintiff Wins Suit against Abortion Clinic,” *National Right to Life News* 32.2 (February 2005): 15.

<sup>96</sup>Joel Brind et al., “Induced Abortion as an Independent Risk Factor for Breast Cancer.”

But there is more to challenge the “safe abortion” mythology. Even as politically correct studies have been promulgated to neutralize the data proving the ABC link, even stronger data has emerged in recent years that firmly links abortion to premature births in subsequent pregnancies (which in turn raise the risk of breast cancer in the mother and cerebral palsy in the prematurely born children), and to suicide and other forms of premature death in women.<sup>97</sup>

Many adjectives may be used to properly describe induced abortion, but “safe” is assuredly not one of them. The day will surely come when this is common knowledge, and for every day sooner that this happens, thousands of lives may be saved.

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<sup>97</sup>John M. Thorp, Jr., Katherine E. Hartmann, and Elizabeth Shadigian, “Long-Term Physical and Psychological Health Consequences of Induced Abortion: Review of the Evidence,” *Obstetrical and Gynecological Survey* 58.1 (January 2003): 67–79.