**Dear Committee Secretary, Community Affairs Committee, Department of the Senate, Parliament House. Re**: Inquiry into Therapeutic Goods Amendment (Repeal of Ministerial responsibility for approval of RU486) Bill 2005

I am writing as a Brisbane General Practitioner, mother of three and Australian citizen who is concerned by any inference that RU486 is a medication like any other.

I come to the commission with one question:

**What disease is this drug therapy for?**

My understanding of the TGA's role is to ensure that therapeutic goods are not released into the public arena that may harm the Australian population.

My concern is that this is not a "therapeutic good". What is it therapy for? What disease is it treating?

As a GP I am deeply concerned by the euphemisms that have allowed this chemical to be included inside the respectability of the medical profession. How is this chemical medical?

Let us be honest about this. In the reproductive health setting, this chemical will be designed to treat social ills that surround us – that move us to despair often – that demand of us the raw edge of compassion and personal involvement. It will be used to treat unfaithful partners, abusive husbands and lovers, financial poverty, emotional aloneness, the physical exhaustion of motherhood, social networks and connections breaking down, having no one who will be a neighbour to you, face-saving parents, feeling an inner death of self and future when a child is growing inside you, and so much more. Selina Ewing in her very balanced review of women and abortion, cites research showing that women choose to have abortions in situations of social (not medical) distress.(1)

I am very aware that many medical associations, including the AMA and RANZCOG, have awarded both surgical and chemical abortion honorary medical respectability. I am not convinced by their arguments. In fact I am offended that in the name of political correctness and the compassion that that is meant to imply, we are doing, dare I say it 'social engineering', in the name of medicine.

In all my research on surgical and now chemical abortion, I have not come across what I would consider normal medical assessments of medical or psychiatric indications, risk factors, contraindications, long term prospective follow-up studies or even uniform reporting of adverse outcomes. Indeed, some researchers state that there are no medical (2) or psychiatric (3) indications for abortion.
Why do we neglect these medical safety fundamentals in this particular case?

I come again to the question: **What medical disease are we treating?**

If you as a committee can honestly argue the case that RU486 is treating a medical condition then I would be very keen to understand your point of view. My current understanding of the situation distresses me deeply –I am ashamed of my profession for it's disservice to the people of Australia in giving abortion in all its forms medical respectability that I feel it does not deserve.

In my reading of the Hansard transcript from the Dec 15th 2005 public meeting of the committee, I astounded by the illogical and ill-considered comments with regard to the rights of the second patient present in a pregnancy. Dr Susan Page said that at "eight weeks it is not a human being because it is not live born". I am astounded – are stillborn babies not human? Are those with a heart beat only alive if they are visible and out of the womb? If we appeal to science, it can help us – it can genetically define when we are human and technology can now show us how human our little unprotected unseen ones are. Do we discard science when it suits us and instead draw imaginary lines in the sand? Another example of this is the erroneous claims unreferenced claims that pregnancy is "10 times" less safe than abortion. This is not supported by the research (4). I have been concerned by evidence of not giving balanced medical reporting on the psychological risks of abortion – despite years of well conducted trials(5,6) a recent small study of 1200 women is discussed as the only reference on the subject, without any admission of the legitimate concerns of other researchers who have rebutted it (7). Thorp(8) has made comparisons with the tobacco industry's initial reaction to negative effects of tobacco – I agree, there does seem to be an unscientific bias going on in the literature and propagandist rhetoric at present.

I bring these to your attention to make the point that unfortunately we cannot rely on the current representatives of the medical profession to be either scientifically consistent or to make their decisions out of the dignified history of medicine. Dr Pesce at least admits it is a "very small developing baby" and acknowledges that RU486 will stop its heart beating. Dr Tibbett from the RANZCOG mentions "foetal death" – yet at the same time asserts that she does not see that this medication should be in a separate category. Is a drug that intentionally kills to be compared to Viagra? – I find that offensive and it reveals the shallow level of some arguments. If this is a question only about access – the comparison stands – but if it is about deeper issues of humanity – it does not.

My concern about abortion being accepted within the medical profession is not new – indeed to not perform abortion was part of the Hippocratic Oath and part of the medical profession's reaction to the abuse of human rights performed by its own as part of Nazi Germany. Abortion was certainly not condoned by early feminists either. How can such deep historical ethical and moral concerns be treated so flippantly?

As a female medical professional I am concerned about so much with regard to this issue including women's right to informed consent – to be warned of the "acceptably low risks" (Senator Allison ) that includes death, increased suicide , self harm and psychiatric hospital admission (9).( See Appendix 1). I have certainly met so many distressed women post abortion that I cannot be silent on this issue if I am

to speak on behalf of my patients. Neither death nor deep lasting psychological distress is listed on the current risks on Planned parenthood's website – if I was considering this option – I would like to be treated with the respect of being told the real risks and not told platitudes about safety. (10) Are women's rights activists pushing for more informed consent? I have not noticed any action in that area. Why not?

I am also concerned that there is evidence of coercion of women into abortion, evidence of increased violence against women who are pregnant, evidence of women forced into this position by loss of emotional, financial or practical support by the men in their lives, evidence of young women being kept in positions of sexual abuse through using abortions – one case in the US had a father committing incest with his three daughters and used 10 abortions to maintain that cycle of abuse. (11) Why are women who say they are protecting women's rights not concerned about that? Is the only real threat to us the children we conceive that we need to protected against?

I am concerned by the lack of evidence of abortion-as-the-only-choice activists giving compassionate care and concern for pregnant women. In fact one prominent senator has called pregnancy support services "anti-choice". The only way that makes sense is if the word "choice" is a euphemism for "abortion". Yet supposed compassion for rural women was their entry point in this very debate. Why do we give that line any credibility? If I had come across one abortion-as-the-only-choice activist who had opened her home to a pregnant woman in crisis, or started a shelter for women who were pregnant with no support, or sat with women grieving with deep regret and shame for their unborn baby, or called around to find a cot or clothes, or pushed the government for funding for crisis pregnancy centres, or held aborted babies arising from our public hospital abortions as they died instead of leaving them alone in the pan room, then I would feel they could perhaps have some credibility.

I have met pro-life activists who have done these things voluntarily – for no financial gain. I have not met abortion-as-the-only-choice activists who have.

In fact, in this enquiry so far the solution of sex-education has been the option pushed to decrease the abortion rates – hasn't the current atheist value laden sex education proved itself unable to teach about deep lasting responsible relationships that bring real fulfillment and community? Why aren't these same activists calling for funding for pregnancy support services as part of the solution to our abortion epidemic?

If I could see any of these issues being approached with rigor by those who are purporting to represent women's rights on this issue – I would be more convinced of their intentions being pure and not just pushing their religious belief that abortion somehow gives women freedom.

I urge this committee not to wash their hands of responsibility to care for the beating hearts of both mother and child.

I urge you to insist that public elected accountability be maintained on this deep human issue. Do not be duped into political correctness and utilitarianism masquerading as compassion.

I urge you also to place the concerns about surgical abortion's safety to women and their children on the public record.

I urge you to push for real compassionate economic and community responses to women in crisis pregnancy. Please don't just give more money for atheist sex education processes that have patently failed. We need real options for women in all those situations I outlined at the beginning of my submission – the women of Australia backed up against the wall - and fodder for the abortion industry. Please don't abandon them to it.

Again, I ask: **What disease are we treating?**

Respectfully,

Dr Johanna Lynch MBBS FRACGP

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Appendix 1: Thorp, J.M., Hartmann, K., Shadigan, E. (2003) Long term physical and psychological health consequences of induced abortion. Review of the Evidence. Obs and Gyn Survey 58(1) p67-79.

# Long-Term Physical and Psychological Health Consequences of Induced Abortion: Review of the Evidence

[CME PROGRAM: CATEGORY 1 CME REVIEW ARTICLE 2]

Thorp, John M. Jr., MD*; Hartmann, Katherine E. MD, PhD†; Shadigian, Elizabeth MD‡

*Mcallister Distinguished Professor of Obstetrics and Gynecology, † Assistant Professor, Department of Epidemiology,School of Public Health, and Department of Obstetrics and Gynecology, School of Medicine, Chapel Hill, North Carolina and ‡ Associate Professor, Department of Obstetrics & Gynecology, School of Medicine, University of Michigan, Ann Arbor, Michigan
Reprint requests to: John M. Thorp, Jr, MD, Department of Epidemiology, School of Public Health, University of North Carolina, Department of Obstetrics and Gynecology, School of Medicine, Chapel Hill, NC 27599. Email: JMT@med.unc.edu.
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## Abstract

Induced abortion is a prevalent response to an unintended pregnancy. The long-term health consequences are poorly investigated and conclusions must be drawn from observational studies. Using strict inclusion criteria (study population >100 subjects, follow up >60 days) we reviewed an array of conditions in women's health. Induced abortion was not associated with changes in the prevalence of subsequent subfertility, spontaneous abortion, or ectopic pregnancy. Previous abortion was a risk factor for placenta previa. Moreover, induced abortion increased the risks for both a subsequent preterm delivery and mood disorders substantial enough to provoke attempts of self-harm. Preterm delivery and depression are important conditions in women's health and avoidance of induced abortion has potential as a strategy to reduce their prevalence. Only review articles including the single published meta-analysis exploring linkages between abortion and breast cancer were relied upon to draw conclusions. Reviewers were mixed on whether subsequent breast neoplasia can be linked to induced abortion, although the sole meta-analysis found a summary odds ratio of 1.2. Whatever the effect of induced abortion on breast cancer risk, a young

woman with an unintended pregnancy clearly sacrifices the protective effect of a term delivery should she decide to abort and delay childbearing. That increase in risk can be quantified using the Gail Model. Thus, we conclude that informed consent before induced abortion should include information about the subsequent risk of preterm delivery and depression. Although it remains uncertain whether elective abortion increases subsequent breast cancer, it is clear that a decision to abort and delay pregnancy culminates in a loss of protection with the net effect being an increased risk.

Target Audience: Obstetricians & Gynecologists, Family Physicians

Learning Objectives: After completion of this article, the reader will be able to define the terms abortion rate and abortion ratio, to outline the epidemiologic problems in studying the long-term consequences of abortion, and to list the associated long-term consequences of abortion.

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In the late 1960s and early 1970s, abortion was legalized in most of the western world. Legalization culminated in more women choosing termination than had been expected (1,2), with young, socially deprived, and childless women making up the largest proportion (3). Initially, research focused on early complications, immediate maternal mortality, and optimization of abortion technique (4). Subsequent interest in the potential long-term health consequences entered scientific discussion later, not primarily driven by specific hypotheses, but rather by those with conflicting viewpoints, vis a vis, the moral status of the embryo or fetus, and the desire to either limit or expand access to abortion (5). As profound sociologic changes in reproductive behavior were documented in the form of rising abortion rates, political pressures motivated governments to appoint special study commissions charged with the task of reporting on the long-term health implications of induced abortion (6,7). The resulting reports lament the lack of long-term follow-up and call for detailed study of the health effects of this common procedure. Despite strong recommendations for substantive research, and the clear need for women to have accurate information as they execute their autonomy, current data remain sparse, studies are small and methodologically flawed, and the conclusions are often intertwined with the political agendas of their authors and publishers (8).

## ABORTION EPIDEMIOLOGY

Epidemiologic data exist on abortion from most countries in which it is legal. However, the completeness of these data are subject to local statutes and their enforcement (3). Sources of information include legally mandated registers, hospital administrative data and clinic statistics, and voluntary reporting or surveys of abortion providers. With these limitations in mind, nonetheless, we can calculate abortion incidence. Both abortion rates and ratios are important measures in understanding the epidemiology of legal abortion. Rates reflect abortions per 1000 reproductive-age women, and ratios are the number of abortions per 100 live births or pregnancies. Readers should note that abortion ratios increase as the number of births diminish, and

increases in abortion ratios can reflect not only the incidence of women deciding to terminate a pregnancy, but also the incidence of women deciding to conceive.

From the early 1970s, the annual number of abortions performed in the United States peaked at 1.61 million in 1990. Abortions have declined over the last decade with 1.37 million in 1996; this drop is attributed in part to aging of the population (9,10) and a fall in unintended pregnancies amongst adolescent women (11,12). In 1996, the U.S. abortion rate per 1000 women aged 15 to 44 was 23 of 1000, the lowest reported rate since 1975. The abortion ratio in 1996 was 26 abortions per 100 live births and abortions. Thus, 26% of all recognized pregnancies were terminated (6,7). Overall, the United States abortion rate (23/1000 in 1996) is high compared with similarly developed countries. In 1995, the abortion rates were 16 of 1000 in Canada, 15 of 1000 in England, 6 of 1000 in the Netherlands, and 18 of 1000 in Sweden (13).

One can presume that abortion is most often chosen as a response to a crisis or unintended pregnancy. The high prevalence of a history of induced abortion means that even small positive or negative effects on long-term health could influence the lives of many women and their families.

## EPIDEMIOLOGIC PROBLEMS IN STUDYING THE LONG-TERM CONSEQUENCE OF ABORTION

Abortion is an exposure that cannot be assigned to women by chance as part of an experimental design. Thus, investigators are deprived of the powerful tool of randomization to minimize bias in their findings. Progress in research must depend on well-done observational studies.

Observational studies are more prone to bias than experimental trials and thus less likely to allow the drawing of conclusions regarding causality. Potential problems in observational research done on the health consequences of induced abortion include two important sources of error: 1) Bias in assessment of true exposure status: This may occur through information bias, namely differing accuracy of information about abortion history across comparison groups. This is the case if medical records or registries systematically over-report or under-report elective abortions (i.e., missing events or the result of reporting bias—e.g., if women's self-report selectively reveals or suppresses information about their abortion history); 2) Selection of an inappropriate comparison group of women without a history of abortion. Populations of women who choose abortion differ in many ways from those who do not. At the time of the abortion, they are likely to be younger, poorer, and less able to reliably contracept than a sample of the general population of women (14). Dissimilarities in socioeconomic status, stress, access to health care, and lifestyle may persist across time, and they may actually be associated with adverse health events. This introduces risk of uncontrolled confounding of the estimates of association between abortion and long-term outcomes—in other words, observed associations may stem from other confounding differences between women who choose abortion and those who do not. For a careful comprehensive analysis of the limitations of observational research in this area and a useful scheme for categorizing study design, readers are referred to the work of Hogue (15).

The most consistently debated problem in the study of long-term health effects of induced abortion is ascertainment of true exposure status: it is thought that women with a significant medical problem such as breast cancer or a preterm delivery may be more likely to report an induced abortion than controls who do not have such a health problem (16–19). Paradoxically, Tang et al. (20) in a methodologic study to assess underreporting in breast cancer cases and controls could find no evidence of a hesitancy to report (21). Udry et al. (22) found a similar prevalence of induced abortion underreporting in a study of women with and without health problems where self reports were compared with medical records. Soderberg et al. (23) demonstrated high nonparticipation rates of women with prior induced abortion in long-term follow-up studies. Moreover, they showed that nonparticipation was linked with being young, unmarried, and of low socioeconomic status.

Daling et al. (24) examined the possibility of differential reporting in an article that examined breast cancer risk in relation to induced abortion. They did so by completing a substudy case-control analysis of cervical cancer and induced abortion in which they could find no evidence of differential underreporting of prior induced abortion. Lindefors-Harris et al. (25) linked self reports of induced abortion to a national registry. While these authors claimed to have found evidence of ascertainment bias, subsequent reanalysis done with the assumption that women who had not undergone abortion would not falsely report such caused Dahling et al. (24) to question their findings.

Beyond difficulties in ascertaining abortion status, there is not a clear consensus about how investigators should conceptualize abortion as a risk factor. One analytic approach views an interrupted pregnancy as a fraction of a complete pregnancy, for instance assuming that an abortion at 8 weeks is the biologic equivalent of 20% of a pregnancy. Others treat abortion as a distinct biologic event focusing on the abruptness of termination and subsequent hormonal changes (26). The latter approach is used most commonly, although more sophisticated approaches to capture additional detail about duration of pregnancy as well as history and mode of abortion are warranted.

For the purposes of summarizing current knowledge, critical reviewers and meta-analysts are limited by the narrow focus of electronic searches using abortion as a search heading when many other studies of an array of exposures include information about reproductive history. For instance, Ananth et al. (27) in their review and meta-analysis of induced abortion and placenta previa located three of the five pertinent articles via hand searches. Each article’s identifiers had been designed to address the effects of smoking on placentation. Their discovery and inclusion allowed for meta-analysis and the drawing of a conclusion a review such as ours would have been unable to do. This obscurity of potential sources of information is both a challenge and an opportunity. It increases the logistical difficulty and, therefore, effort and cost of systematic review, but suggests the literature contains a rich reserve of data for future analyzes.

## METHODS AND SOURCES

We performed our research for relevant publications using the MEDLINE database. We searched under “abortion” and “abortion complications” headings from1966 to

2002, restricting the search to publications in English. Abstracts were then reviewed to see if they met the inclusion criteria for this article. The bibliographies of relevant articles were analyzed to identify additional reports. Appropriate articles were obtained for full review.

Inclusion criteria were: The study must have had over 100 subjects with follow-up of two months or longer after elective abortion. A study size criterion was applied based on the premise that long-term complications are rare and reported effect sizes small, thus studies with fewer than 100 subjects would most likely not have inadequate power to detect differences. Long-term was defined as >= 2 months, paralleling clinical advice that a return to optimal fertility after elective abortion would take at least that long.

Articles were abstracted by a single author (J.M.T.). Information abstracted included time and location of the study, the number of subjects, the study design, the findings, and appropriate comments. Our review is limited to legal abortions performed using surgical techniques. Illegal abortions are often done without sterile technique. We did not identify studies of medical abortions with long-term follow-up. When exploring the possible association between induced abortion and breast cancer, we did not believe that another review of the up to 31 observational studies published heretofore would add much to the four reviews and/or meta-analyzes already in the literature. Thus, we have provided summaries of these reviews similar to Davidson in his "personal view" article on breast cancer and induced abortion done in the 2001 issue of the Lancet (28).

## INDUCED ABORTION SUBSEQUENT SPONTANEOUS ABORTION

Five studies (26,29–32) were evaluated for associations between induced abortion and miscarriage (Table 1). Two used cohort design and three were case-control studies. None found a significant association between induced abortion and early pregnancy loss. Those that analyzed their data by the number of previous elective abortions did not show a dose-response effect (26,29,31,32). Likewise, use of logistic regression to control for confounding variables failed to demonstrate any significant associations (26,29–32).

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TABLE 1 Induced abortion and subsequent spontaneous abortion

## INDUCED ABORTION AND SUBSEQUENT PLACENTA PREVIA

Three studies (33–35) were found exploring induced abortion and placenta previa (Table 2). Both the cohort (33) and the two case-control studies (34,35) found a positive association. The article by Taylor et al. (35) generated an odds ratio of 1.3 with confidence intervals (CI) of 1.01 to 1.66. That estimate of risk was maintained in a logistic regression analysis.

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TABLE 2 Induced abortion and subsequent placenta previa

Ananth et al. (27) used meta-analysis to study abortion and placenta previa. He combined five observational studies (33,36–39) [only one of which met our inclusion criteria and is presented in Table 2 (33)] and found that women with prior induced abortion had a relative risk of placenta previa of 1.7 (RR = 1.0, 2.9). He also noted substantial heterogeneity in effect estimates across studies.

## INDUCED ABORTION AND SUBSEQUENT ECTOPIC PREGNANCY

Nine articles examined associations between induced abortion and ectopic pregnancy. (40–48) (Table 3). All but two of these used case-control design (41,47). An Italian case-control study (n = 559) showed a strong association between induced abortion and ectopic pregnancy (OR = 2.9; CI = 1.6, 5.3) (44).

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TABLE 3 Induced abortion and subsequent ectopic pregnancy

A French case-control study showed a significant effect with a dose-response with two or more abortions: one abortion, OR = 1.4 (CI = 1.0–2.0) and two or more abortions OR = 1.9 (CI = 1.0–3.7) (48). The other seven studies did not demonstrate an association between abortion and subsequent ectopic pregnancy (40–47).

## INDUCED ABORTION AND SUBSEQUENT PRETERM BIRTH

We found 24 studies that explored associations between abortion and preterm birth (PTB) (or a surrogate marker for PTB—low birth weight (LBW) (49–72) (Table 4). Twelve studies found an association between these two phenomena with consistent results in risk ratio elevation of 1.3 to 2.0. Moreover, 7 of the 12 identified a “dose-response effect” with risk estimates rising as a woman had more induced abortions. Also notable is the increased risk of very early deliveries at 20 to 30 weeks’ gestation after induced abortion, first noted by Wright, Campbell, and Beazley in 1972 (49). Seven subsequent articles displayed this phenomena of midpregnancy PTB associated with induced abortion (57,59,60,63,64,70,72), which is especially relevant because these are the infants with the most dire risk of morbidity and mortality, upon which society expends so many resources (73). Of particular note are the three large cohort studies done in the 1990s, 20 to 30 years after legalization (70–72). Each shows

elevated risk and a dose-response effect. One would assume that these studies were done so long after legalization that the stigma of abortion that might contribute to underreporting would have waned. Henriet and Kaminski (72) did sensitivity analyzes of nondifferential underreporting of previous induced abortion in women experiencing a preterm birth and found that their risk estimates were stable even with underreporting rates of 50%.

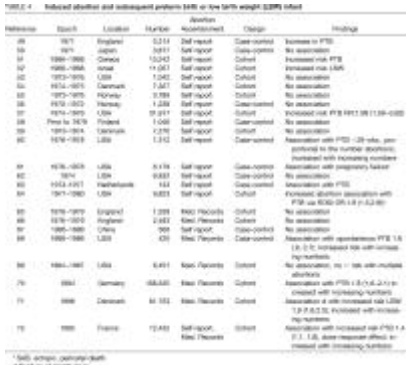

TABLE 4 Induced abortion and subsequent preterm birth or low birth weight (LBW) infant* SAB, ectopic, perinatal death.† Rupture of membranes.

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## INDUCED ABORTION AND SUBSEQUENT SUBFERTILITY

Seven articles have studied links between abortion and the subsequent inability to conceive (Table 5) (74–80). Only two studies from Greece (74,79) have seen any association. Each was done in different decades. Other studies found no association. Finding an appropriate control group for fecundity studies limits all such articles. Women undergoing abortion are by definition fertile, and neither women who have never conceived nor those who have born children constitute an ideal comparison group.

TABLE 5 Induced abortion and subsequent subfertility

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## INDUCED ABORTION AND SUBSEQUENT BREAST CANCER

As described earlier, we have addressed the linkages between induced abortion and breast neoplasia differently from the other topics. Rather than replicate the tables and works of numerous other authors, we have summarized four review articles (81–84), one of which conducted a meta-analysis (83) (Table 6). Two of the four reviewers (81,82) found no association between induced abortion and breast cancer, although one found a “small to nonsignificant effect” (84). The sole meta-analysis by Brind et al. (83) reported a summary odds ratio for breast cancer of 1.3 (95% CI, 1.2, 1.4) in

patients with a previous induced abortion. They concluded that induced abortion is an independent risk factor for breast carcinoma (83).

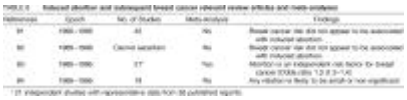

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TABLE 6 Induced abortion and subsequent breast cancer relevant review articles and meta-analyses* 21 independent studies with representative data from 26 published reports.

All the reviews comment on the potential for bias in data collection, presentation, and analysis emphasizing in particular the sensitive nature of abortion with its potential for underreporting. All the reviewers acknowledge that these potential biases could obscure real relations or create spurious associations. In addition, reviewers comment on the high likelihood of a "file drawer" effect with pertinent studies being withheld from publication due to the highly politicized atmosphere in which their findings would be reported. None of the reviewers seems to be comfortable with the scope and content of the current literature. Each advocates for the analysis of prospectively gathered data that link known pregnancy outcomes to subsequent neoplastic events (28,85). Brind et al. (83) have demonstrated clearly the need for such studies by showing that despite the relatively low increase in risk they discovered, the high incidence of both breast cancer and induced abortion would ensure a substantial impact on women's health if their conclusions are correct. Weed and Kramer (85) have thoughtfully considered the ways in which the conclusions one draws on this "thorny" issue are influenced by the moral values each reviewer brings to these complex data. Nonetheless, a statistically significant positive association between induced abortion and breast cancer cannot be easily dismissed because Brind et al. (83) review is the only one that is quantitative.

## INDUCED ABORTION AND SUBSEQUENT MENTAL HEALTH

The literature on psychosocial sequelae of induced abortion is confusing, and results are confounded by not only the research problems described above but the cultural, religious, and legal milieu of reproductive decision making within the society studied (86). Given the psychological distress faced by a woman with an "unwanted or unintended" pregnancy, separating the sequelae of such a pregnancy from its ultimate disposition can be quite difficult (87). Given the breadth of mental health outcomes postulated to be associated with induced abortion, we present tables that reflect the range of outcomes in published reports. Because mental health status may change over time, we have also annotated the duration of follow-up for each particular study.

Table 7 presents our tabulation of these studies; of particular note is the association between induced abortion and either suicide or suicide attempt (89,90,92,93,95–97). This is an objective rather than a subjective outcome, and because the effects are seen after induced abortion rather than before (90,93) indicates either common risk factors for both choosing abortion and attempting suicide, such as depression, or harmful effects of induced abortion on mental health. This phenomena is not seen after spontaneous abortion (91). Other studies tabulated that demonstrated increased risk of

depression or emotional problems after induced abortion in certain subgroups may explain the psychopathology that culminates in deliberate self harm (88,91,94).

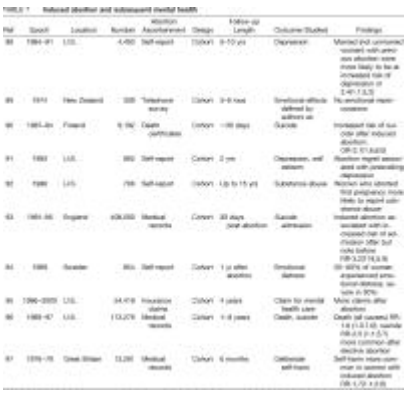

TABLE 7 Induced abortion and subsequent mental health

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## CONCLUSIONS

The long-term health effects of elective abortion are difficult to study and thus poorly understood. This lack of knowledge stems from a variety of causes. First and foremost, exposure to abortion cannot be assigned on an experimental basis, restricting researchers to rely on observational studies and precluding randomized trials. Thus, all research in this realm is prone to an array of different sources of bias that complicate the process of drawing conclusions. Second, it is not clear what group of women constitutes an appropriate comparison group for these observational studies. Third, the decision to terminate a pregnancy is emotionally difficult for many women. Hence, regret, remorse, or shame may cause them to not disclose having made such a decision when queried about their reproductive histories. Fourth, the long-term health consequences of elective abortion have been highly politicized. Those who would grant a moral status to an embryo or fetus and thus limit elective abortion, often use adverse health consequence claims as a tool to further their moral agenda, while those who support no restrictions on abortion access are at times unwilling to consider that pregnancy interruption could affect future mental and physical health. Finally, the effect sizes are small with risk ratios when present falling in the range of a doubling or less of risk for comparatively rare outcomes. The potential for modest influence on events that are unlikely and distant for an individual woman hinders the ability of clinicians or patients to use their experience and judgment to use such information in decision making.

One might then reasonably ask why study such a complicated, politically treacherous, and difficult to understand phenomena. Studies would have to be large and, thus, expensive to have adequate power to detect small effects and control for the biases described and might not directly influence clinical care. We would point to cigarette smoking and its health consequences as an answer. In the 1950s and 1960s, each point delineated in the preceding paragraph could have been, and were, applied to the dilemma of studying whether tobacco consumption has adverse health consequences. Although no individual clinician or patient could discern the harm of cigarette

smoking and all studies had to be observational with their inherent biases, well-done epidemiologic research was able to document adverse consequences and ultimately inform public opinion and policy. Elective abortion must be studied in the same fashion with similar vigor, given the frequency with which women choose to terminate a pregnancy and the important and prevalent health conditions that some of the data gathered heretofore have linked to elective abortion, e.g., preterm birth and breast cancer. Women deserve to be fully and accurately informed about potential health effects of elective abortion, preferably in a health education context separate and distinct from the timeframe of actually being faced with making difficult decisions about whether to continue or end a pregnancy.

Until further research and meta-analyzes are forthcoming, we are faced with the uncertainties outlined in this review. We find little evidence to support the claims that elective abortions increase the risk of subsequent subfertility, ectopic pregnancy, and spontaneous abortion. Of more concern are the possibility of links to preterm birth, placenta previa, breast carcinoma, and serious mental health problems.

Abortion is a procedure most used by women at the outset of their reproductive life. Most women having an induced abortion are under 30 years old (72). Preterm birth is common, affecting around 10% of deliveries in the western world, and is the leading cause of infant morbidity and mortality (73). Despite substantial investigative effort, primary preventive measures to lower the rate of preterm births have proven futile and rates have been steady or increased over the past two decades (73). The population-based studies we reviewed suggest that induced abortion increases the risk of preterm birth in subsequent pregnancies. Moreover, these reports suggest that a dose-response effect is present with increasing numbers of abortions associated with increasing risk, and that the linkage is most strong with extremely premature deliveries (<32 weeks), which is the population of newborns that experiences the bulk of the morbidity and mortality that occur from being born prematurely. Clinicians should remember that the increased risk of early childbirth associated with induced abortion occurs over and above the background risk of preterm birth (estimated to be 10%) inherent with any pregnancy. The respective roles of various surgical and medical techniques used for induced abortion and their impact on preterm birth remain unexplored and may mitigate these consequences. Considering these data, we think that women in general, including those considering abortion, need to be informed that surgical abortion procedures may increase the likelihood of subsequent preterm births, and that the risk associated with other methods is unknown. For those women who choose abortion, techniques that in theory protect the cervix from trauma, such as laminaria or preabortion cervical ripening, should be used.

Placenta previa effects 0.3% to 0.8% of pregnancies and is the leading cause of uterine bleeding in the third trimester and of medically indicated preterm birth. Pregnancies complicated by placenta previa result in high rates of preterm birth, low birth weight, and perinatal death (27). Both the observational studies included in our review and meta-analysis by Ananth et al. (27) show a link between placenta previa and previous induced abortion. The meta-analysis (27) incorporated articles outside the scope of our search and exemplifies how review of other articles on topics such as smoking and placenta previa can inform the search for linkages between abortions and reproductive health. Ananth et al. (27) speculate that a 50% reduction in induced abortion would be required to avert 1.5% of placenta previa cases. Placenta previa is

rare enough and the impact of this change is so small that we would not feel obliged to mention this to women contemplating their first abortion. Our advice might change if a woman had had a previous cesarean delivery, an independent risk factor for placenta previa; or if she were contemplating undergoing a second elective pregnancy termination (27). In other venues, information about the existence and magnitude of risk may be appropriate for health education summaries of the reproductive correlates of elective abortion.

Potential links between breast cancer and abortion are the most controversial long-term health consequence explored in our review. Findings are mixed with reviewers and authors of original manuscripts drawing different conclusions. The one meta-analysis performed to date points to a small but significant link between abortion and breast carcinoma. The current literature is insufficient to be informative for counseling. Nonetheless, the topic is worthy of well-designed and conducted research and of careful meta-analyses using the hand-search techniques used by Ananth et al. (27) to explore sources of published data not focused on the direct link between abortion and breast cancer. In the interim should we, and how do we, inform patients? We think that given the undisputed protective effect of a full-term delivery early in one's reproductive life on subsequent breast cancer development that a young woman facing an unwanted or crisis pregnancy can and should be informed of the loss of that protection that would derive from a decision to terminate her pregnancy and delay having a baby (98,101). To illustrate, Table 8 uses the Gail Equation to predict 5-year and lifetime risk of breast carcinoma for an 18-year-old woman with an unintended or crisis pregnancy. The Gail model (99) is considered the best available measure for estimating an individual woman's risk of developing breast cancer. It was used to calculate risk estimates for the National Cancer Institute's breast cancer chemoprevention trial and is specifically designed to be useful in decision making by women (100). In the first scenario, she decides to terminate and then has her first term delivery at age 32, where in the second, she has a live-born infant. We then assess her individual risk at age 50 when the risk of breast cancer begins to peak. For both black and white women, her decision at age 18 and subsequent reproductive choices can almost double her 5-year and lifetime risk of breast neoplasia at age 50. Tables 5, 9, and 10 demonstrate that the "loss of protection" effect is most pronounced in women under 20 years of age who elect to undergo abortion rather than continue their pregnancy. We think, now, that clinicians are obliged to inform pregnant women that a decision to abort her first pregnancy may almost double her lifetime risk of breast cancer through loss of the protective effect of a completed first full-term pregnancy earlier in life. Additionally, we believe that women should be aware of the studies that support induced abortion as an independent risk factor for breast cancer, with the only quantitative analysis showing a small but statistically significant odds ratio of 1.3, although the other three reviews (which are nonquantitative) refute this.

TABLE 8 **Gail Equation is used to calculate risk estimates**

| Gail Variable | Scenario | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Race | White, nonblack | White, nonblack | Black | Black |
| Age | 50 | 50 | 50 | 50 |
| Menarche | 12 | 12 | 12 | 12 |
| Age of first live birth | 32 | 18 | 32 | 18 |
| No. of first-degree relatives with breast cancer | 0 | 0 | 0 | 0 |
| Number of previous breast biopsies | 0 | 0 | 0 | 0 |
| 5-Year risk (%) | 1.3 | 0.7 | 0.8 | 0.4 |
| Lifetime risk (% | 12.1 | 6.5 | 6.7 | 3.6 |

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TABLE 8 Gail Equation is used to calculate risk estimates

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TABLE 9 **White women with unintended or crisis pregnancy at 18, 28, 38 years of age: effects of delaying first live birth by 5, 10, 20 years compared With delivery now***

| Age at Pregnancy | 5-year Risk at 50 | | | |
|---|---|---|---|---|
| | With delivery now | With 5-year delay | With 10-year delay | With 20-year delay |
| 18 | 0.7 | 0.9 | 1.1 | 1.3 |
| 28 | 1.1 | 1.3 | 1.3 | |
| 38 | 1.3 | 1.3 | | |

* Assume term delivery, menarche at 12 years of age, no family history of breast cancer, no breast biopsies.

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TABLE 9 White women with unintended or crisis pregnancy at 18, 28, 38 years of age: effects of delaying first live birth by 5, 10, 20 years compared With delivery now* * Assume term delivery, menarche at 12 years of age, no family history of breast cancer, no breast biopsies.

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TABLE 10 **Black women with unintended or crisis pregnancy at 18, 28, 38 years of age: Effects of delaying first live birth by 5, 10, 20 years compared with delivery now***

| Age at Pregnancy | 5-year Risk at 50 | | | |
|---|---|---|---|---|
| | With delivery now | With 5-year delay | With 10-year delay | With 20-year delay |
| 18 | 0.4 | 0.9 | 1.1 | 1.3 |
| 28 | 1.1 | 1.3 | 1.3 | |
| 38 | 1.3 | 1.3 | | |

* Assume term delivery, menarche at 12 years of age, no family history of breast cancer, no breast biopsies.

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TABLE 10 Black women with unintended or crisis pregnancy at 18, 28, 38 years of age: Effects of delaying first live birth by 5, 10, 20 years compared with delivery now* * Assume term delivery, menarche at 12 years of age, no family history of breast cancer, no breast biopsies.

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The effects of elective abortion on mental health are challenging to interpret for the reasons outlined. Although earlier studies focusing on secondary outcomes were reassuring, more recent, large cohort studies linking abortion to the “hard” outcomes of either suicide, psychiatric admission, or deliberate self harm are concerning (90,93,97). A major question remains unanswered because of the lack of a proper control group. Is the observed phenomena a correlate of the circumstance that may lead to a crisis or unintended pregnancy regardless of a woman’s decision to choose abortion, or is this a function of both? Until that question can be answered, it will be hard to inform women as to what, if any, additional risk a decision to terminate will produce. Likewise, the uncertainty limits a clinician’s ability to reassure such a woman that her decision will not have long-term mental health effects. The observation of the association, regardless of the lack of causal linkage, suggests careful screening and follow-up for depression and anticipatory guidance/precautions for women who choose elective abortion.

## INFORMED CONSENT IMPLICATIONS

Informed consent is a bioethical tool used in medical practice to protect an individual's autonomy as he or she makes a healthcare decision. Clinicians are obliged by law to inform patients before a medical decision of the benefits and risks of the treatment being pondered. The goal is not to confuse a patient nor direct her decision-making process but to provide patients with the information that a reasonable person would want to know. Thus, not every possible good or bad consequence or consequences that are uncertain are obliged to be shared. Because of our review, we think that any woman contemplating an induced abortion should be cautioned about the mental health correlates of an increased risk of suicide or self-harm attempts as well as depression and a possible increased risk of death from all causes. Analagous to the clinical practice with puerperal depression, women undergoing abortion should be screened for depression at follow-up visits, warned of the signs and symptoms of depression and suicidal ideation, and provided easy access to mental health evaluation and treatment.

The informed consent process is an interaction between two individuals, clinician and patient, with the intent to respect the patient's autonomy. Individual patients will weigh the importance of these potential risks differently based on their life experiences and values. Furthermore, we anticipate the outcry arising from this approach from both sides of the abortion debate. Those who would ascribe a moral status to an embryo or fetus will view calculation of risk as a cruel calculus compared with the loss of an individual life. Their opponents who view maternal autonomy as paramount and fear that an unwanted pregnancy limits a woman's capacity for fulfillment will view information about remote risk from abortion as an attempt to limit access to the procedure. Nevertheless, we think abortion decision making should include the protection of informed consent and women who wish to know the long-term physical and mental consequences of their decision should be informed.

Furthermore, women contemplating their first induced abortion early in their reproductive life should be informed of two major long-term health consequences. First, their risk of subsequent preterm birth, particularly of a very low-birth weight infant, will be elevated above their baseline risk in the current pregnancy. Second, they will lose the protective effect of a full-term delivery on their lifetime risk of breast carcinoma. This loss of protection will be in proportion to the length of time that elapses before they experience their first delivery. Increased rates of placenta previa and the disputed independent risk of induced abortion on breast cancer risk warrant mention as well. Failure to provide this information is a direct threat to maternal autonomy, diminishing a woman's ability to give informed consent. We believe a reasonable person is entitled to know these conclusions and their limitations and having been informed, will find herself in a better place to personally evaluate the long-term health consequences of an induced abortion.

We acknowledge that the setting of informed consent at the time of counseling about an undesired or crisis pregnancy is suboptimal as an opportunity to be first introducing the potential risks of elective abortion. Women would be better served by having preexisting knowledge about the scope and nature of potential risks. This suggests that reproductive health education opportunities in clinical settings, schools, and the media, would serve the interests of women best by featuring currently

available information about potentially associated risks. Such knowledge could hypothetically reduce behaviors that place individuals at risk of an undesired pregnancy, and certainly would protect against the undesirable but necessary circumstance of being provided with such information for the first time in the setting of a crisis pregnancy.

Given the central role that abortion has played in the life of women over the past 30 years, we are distressed by the lack of term-term, well-done research designed to understand the sequelae. A clear and overwhelming need exists for a large epidemiologic, cohort study of women with an unintended or crisis pregnancy. Follow-up across participants' lifetimes with careful measurement of other pertinent exposures would dramatically advance knowledge. Until such an investigation is invested in, women are making important health decisions with incomplete information. A commitment to such research would seem to us to be morally neutral common ground upon which both sides of the abortion/choice debate would agree is critical.

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