Fetal Tissue Research

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I. INTRODUCTION

The use of tissue from fetal remains for transplantation and biomedical research has become a controversial issue in recent years, involving scientists, doctors, patients, and the federal government. Fetal tissue is potentially useful in a wide range of treatments for a number of serious diseases, some of them affecting millions of people. Despite the promise, transplantation research using fetal tissue from induced abortion slowed dramatically in the U.S. in 1988, when a moratorium was declared on federal funding for such research involving humans. That moratorium was lifted by President Clinton on January 21, 1993. Though the future of fetal tissue transplantation research is brighter, public debate on the issue is likely to continue, exacerbated by the "acrimonious abortion debate" (VI, Post 1991, p. 14).

Using fetal tissue in biomedical research and in transplantation is not a new practice. As early as 1928 unsuccessful attempts were made to transplant fetal pancreas cells into diabetics (VII, Fichera 1928). Fetal tissue was used effectively in biomedical research during the 1950s, and was instrumental in the culture of the polio virus, which led to the development of the polio vaccine. Fetal tissue cultures were also essential in the development of the rubella vaccine, and continue to be used in virology research. Transplantation of fetal thymus cells into patients with DiGeorge Syndrome has been recognized as effective therapy since the late 1960s.

Many of the therapeutic applications involving fetal tissue are still experimental, so it is difficult to pinpoint fetal tissue transplantation's therapeutic potential. One promising application is the transplantation of human fetal brain cells into the substantia nigra of patients with Parkinson's disease to restore motor function. Fetal neural transplants have also shown promise for patients suffering from Alzheimer's disease, spinal cord and other neural tissue injuries, and possibly some forms of cortical blindness. Fetal liver cells may be useful for treatment of some kinds of bone marrow disease seen in leukemia and aplastic anemia patients.
Fetal tissue transplantation may also help those suffering from blood clotting disorders, such as sickle cell anemia, thalassemia, and hemophilia. Fetal pancreatic tissue has potential applications in the treatment of diabetes, especially juvenile onset diabetes. Human gene therapy may also employ embryonic and early fetal cells.

The Center for Biomedical Ethics at the University of Minnesota reports that more than 1,000 patients have received transplanted fetal tissue worldwide. Countries where fetal tissue transplantation has occurred include: Australia, Canada, China, the Commonwealth of Independent States (formerly the U.S.S.R.), Cuba, Czechoslovakia, Finland, France, Germany, Great Britain, Hungary, India, Italy, Mexico, Norway, Spain, Sweden, and Yugoslavia (IV, Vawter 1992, p. 2; I, Spain 1988; VII, Reinikainen 1989).

Fetal tissue has unique characteristics that make it especially valuable in some treatments. Fetal cells develop much faster than adult cells, hastening the therapeutic effect—a potentially significant benefit for gravely ill patients. They are also less likely to be rejected by transplant recipients because they are less antigenic than adult cells. This reduces the need for the exact tissue matches that can be so difficult to obtain. Fetal tissue is also easier to culture and proliferates more readily than comparable adult tissue. Furthermore, fetal tissue is in greater supply, due to the number of elective abortions.

Questions about the use of fetuses and fetal tissue in biomedical research were raised in the United States in the early 1970s. Between 1969 and 1973, all 50 states enacted the Uniform Anatomical Gift Act, allowing for the donation of all or part of the body of a dead fetus for research or therapeutic research. Prospects for the use of fetal tissue increased after the Supreme Court decision in Roe v. Wade legalized abortion. As the availability of fetal tissue increased so did the concern over the potential for controversial research on living, soon-to-be-aborted fetuses, and anxiety over maltreatment of dead abortuses. Vivid examples include Geoffrey Chamberlain’s 1968 report of an experiment on a fetus of 26 weeks gestational age. Delivered by hysterotomy from a 14-year-old patient, the fetus was attached to an “artificial placenta” and kept alive for more than 5 hours before it expired (VII, Chamberlain 1968). Another researcher, Peter Adam, reported using an “isolated perfused human fetal brain”—the severed head of an aborted fetus—to study brain metabolism in early human development (VII, Adam 1975).

“There is no doubt that fetal tissue transplantation evokes ghoulish images of the procedure itself as an assault and a mutilation of immature human beings” (V, Mahowald 1987, p. 15). Some observers have compared fetal research to the specter of experiments by Nazi doctors on subjects doomed to die (IV, Bopp 1989, p. 72). In the early 1970s there were reports that the National Institutes of Health (NIH) was funding research on living fetuses (III, Vawter 1990, p. 11), and some researchers proposed experimenting on or harvesting tissue from fetuses that were to be, or recently had been aborted, but were not yet dead. For the most part, these extreme cases have been eliminated today by federal regulations on human experimentation, but similar concerns persist. In 1989, an article published by
Swedish, British, and American authors described their method of retrieving fresh fetal brain tissue as suctioning brain tissue from the fetus while it was still alive \textit{in utero} (VII, Lindvall 1989). While this is believed to be an isolated incident in another country, the article raised some of the old concerns about the use of fetal tissue.

\textbf{Regulation of Fetal Tissue Research}

Various commissions have been established in the United States and abroad to study the question of using fetal tissue. Some early reports examined research on live fetuses and pregnant women, paying little attention to the transplantation of fetal tissue. Later reports have focused more on the use of tissue from dead fetuses. Most committees have made distinctions between fetuses, based on age and weight of the fetus, viability (the likelihood of the fetus surviving outside the uterus), whether the research was to take place \textit{in utero} or \textit{ex utero}, whether the research was to directly benefit that fetus, and, finally, whether the fetus was alive. All commissions have concluded that some types of research on living fetuses and the use of some fetal tissue is ethical, provided that certain safeguards are in place. Different countries allow varying kinds of research, but none of the commissions have recommended that fetal tissue research not be allowed to continue. (See Section II of this Scope Note for a compilation of documents from U.S. and international commissions and organizations.)

The first major policy statement was produced in 1972 by a British advisory group, commonly referred to as the Peel Commission. The committee report established guidelines for the use of human fetal tissue research in Great Britain. The Peel Commission’s recommendations were updated in 1989 by the Polkinghorne Commission, which eliminated previous distinctions between viable and nonviable fetuses, and recommended that a government agency be established to act as an intermediary between the abortion clinic and the fetal tissue researcher. Current British guidelines for fetal tissue research stipulate that consent will be given in two separate stages: first for the abortion, then for tissue donation. No direct contact is allowed between the abortion clinics and the tissue researchers. To safeguard against the possibility of excessive transfer of brain tissue between a fetus and a recipient, only isolated neurons or fragments of tissue are allowed to be used.

In the U.S., the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research was established in 1974 within the Department of Health, Education and Welfare (HEW). The Commission’s first task was to investigate research involving the fetus, and to recommend whether, and under what circumstances, such research could be conducted or funded by the federal government. Until the Commission had studied the topic and made its recommendations, most research on living human fetuses was banned in the United States. The Commission conducted public hearings, gathered statements by ethicists, philosophers, and lawyers and studied the topic in depth.

The Commission concluded that living fetuses (\textit{in utero} or \textit{ex utero}) were not to be research subjects unless the research was intended to benefit that fetus or
its mother and unless it posed no added risk to the fetus. The research was also not permitted to terminate the heartbeat or respiration of the living fetus ex utero. Strict guidelines were set under which research on living fetuses or their tissue would be allowed: an institutional review board must grant approval; those harvesting tissue could not have any part in the timing, method, or procedures used to terminate a pregnancy; no changes in termination procedure could entail greater than minimal risk to the fetus or pregnant woman; no inducements could be offered to terminate a pregnancy; both parents must consent; and artificially maintaining the vital signs of living, nonviable fetuses was prohibited.

The guidelines for research on dead fetuses or fetal tissue were much less specific. There has been some debate over which, if any, of the federal regulations on living fetuses pertained to dead fetuses (II, U.S. National Institutes of Health, HFTTR Panel 1988, p. D21). This type of research could be conducted if done in accordance with commonly held convictions regarding respect for the dead, and in accordance with state and local laws (II, U.S. National Commission 1975, Report, p. 75).

The recommendations of the Commission led to the lifting of HEW's funding ban in July 1975, and to the promulgation of regulations for fetal research (VII, U.S. Department 1975, 1978). In 1988 Congress amended the National Organ Transplant Act to include fetal organs and tissues among body parts and tissues that may not be bought or sold (VII, U.S. Congress 1988).

The Moratorium in the U.S.

Though there was not much federal funding for the use of fetal tissue in human transplantation, research progressed steadily for a decade under these guidelines. A new round of controversy was touched off in the spring of 1987 when Mexican researchers reported in the New England Journal of Medicine that they had transplanted fetal neural tissue into the brains of two young Parkinson's disease patients, and that the condition of both patients improved substantially (VII, Madrazo 1987). In the fall of 1987 the NIH Director (James Wyngaarden, M.D.) sought the advice of the Department of Health and Human Services (HHS) in considering the funding of an intramural research protocol to transplant fetal tissue into patients with Parkinson's disease. In March 1988 the Assistant Secretary of Health (Robert Windom, M.D.) withheld approval of the protocol until an advisory committee could be established to evaluate the ethical, legal, and social implications of fetal tissue transplantation. All federal funding of research involving the transplantation of tissue from induced abortions into humans was halted. While privately funded research was still allowed, and transplantation using spontaneously aborted fetal tissue was still permitted, this moratorium had a serious effect on transplantation research.

In September 1988 the NIH convened a panel of non-government experts—ethicists, lawyers, theologians, physicians, and biomedical researchers—representing varied outlooks on the use of fetal tissue, and on abortion. The conclusion of a substantial majority of the panel members was that though "it is of moral relevance that human fetal tissue has been obtained from induced abortion," fetal
tissue transplantation research is "acceptable public policy," provided that certain safeguards are in place. They recommended that there be anonymity between the donor and the recipient, and that special consent procedures be used to separate the decision to abort from the decision to donate tissue. These recommendations were in keeping with other guidelines established in other countries and "located squarely in the middle" of international consensus (II, U.S. National Institutes of Health, Advisory Committee 1988, p. C5).

The Advisory panel's report went to the NIH Director's standing advisory committee, which unanimously accepted the special panel's report without change. The NIH Director requested that HHS lift the moratorium, but this was not done. In the next administration, under President Bush, the HHS Secretary (Louis Sullivan, M.D.) and the Assistant Secretary for Health (James O. Mason, M.D.) were persuaded that permitting fetal tissue transplantation research would increase the incidence of abortion. They argued that the "additional rationalization of directly advancing the cause of human therapeutics cannot help but tilt some already vulnerable women toward a decision to have an abortion" (IV, U.S. Congress, House 1991, p. 7). On November 2, 1989, Sullivan approved an indefinite extension to the moratorium on federal funding for transplantation research involving fetal tissue from induced abortions.

Under the moratorium, fetal tissue research has continued slowly in the U.S. with private funding, and in other countries. Some bills to lift the ban have been introduced in the U.S. Congress, but they have either not passed or were vetoed by President Bush and Congress failed to override the veto (IV, U.S. Congress 1992).

In May 1992, just prior to his veto of H.R. 2507, President Bush signed an executive order establishing a fetal tissue bank, which would collect and distribute tissue resulting from spontaneous abortions and ectopic pregnancies. Opinions vary on whether enough tissue could be collected from such abortions to satisfy the requirements of biomedical researchers, and whether the resulting tissue would be of high enough quality, and sufficiently free of genetic defects to prove useful (III, Vawter et al. 1990). Some commentators also believe that the costs of collecting enough tissue would be prohibitive (IV, Hilts 1992).

In June 1992, Senators Waxman and Kennedy introduced legislation that would give the new tissue bank one year to become established, after which point a researcher would be allowed to use aborted fetal tissue if the bank could not provide suitable tissue within 14 days of the request. This legislation also failed.

Other tactics have been used by the research community in an effort to overturn the ban on aborted fetal tissue research. In late October 1992, five disease and research groups sued HHS, charging that the Department had violated the Administrative Procedures Act when it made permanent a temporary ban on the research without following the law on proper public notice. The political climate against fetal tissue research has changed with the new administration, and with President Clinton's lifting of the moratorium on funding for fetal transplantation research shortly after he took office (VII, Toner 1993).
Arguments in Favor of the Use of Fetal Tissue

Proponents of the use of fetal tissue emphasize the long-awaited benefits for people suffering from devastating and often fatal diseases—people who may have no other hope, or for whom all other therapies have already been exhausted.

Those concerned with possible abuses of pregnant women or fetuses have pointed to a number of safeguards that can be put in place. The connection between abortion and tissue research should be isolated as much as possible. The opportunity to donate fetal tissue should be presented only after a woman has decided to proceed with an abortion. There should be no monetary reward for donating fetal tissue. Directed donation of fetal tissue should be banned to prevent women from conceiving fetuses with the intention of aborting the fetus and using the tissue for the benefit of a loved one.

Some authors believe that women's motives for having abortions have been trivialized, and that their decision-making capacity has been challenged. They argue that women take abortion decisions seriously and that they are not easily influenced by societal pressures to help others. They do not agree that the prospect of assisting an anonymous patient by fetal tissue donation would encourage a woman to abort her fetus. There are so many other factors in the decision to abort that the prospect of donating tissue is not likely to "tip the scales," they contend (VII, Vawter and Gervais 1992).

Others point out that there is a double standard for laboratory research and clinical research. In the U.S., the moratorium extends to federal funding for transplantation research in human subjects using fetal tissue from induced abortions. However, the same aborted tissue may be used in the laboratory setting so long as it is not transplanted. The American Federation for Clinical Research has questioned the wisdom of such public policy. In testimony at a Senate hearing, the organization charged that the ban on fetal tissue transplantation "tells all biomedical scientists that in addition to beating four-to-one odds in obtaining an NIH grant, you must now pass a political litmus test before you can proceed with a scientific endeavor" (IV, U.S. Congress, Senate 1991, p. 77).

Arguments Against the Use of Fetal Tissue

Many opponents of fetal tissue research believe that elective abortion is morally wrong, and that using fetal tissue from elective abortions is a way of legitimizing it. They contend that women who are undecided about whether to have an abortion will feel less guilty about one if they think they can help another person by donating the fetus to research. The development of successful fetal tissue transplantation therapies might result in an increase in the number of abortions. Others worry that successful use of fetal tissue could encourage the institution of abortion, and make it more socially acceptable. If the medical research establishment becomes dependent on elective aborted fetuses, an irreversible institutional and economic bond between abortion centers and biomedical science will be established. The use of fetal tissue from elective abortions might create political turmoil in a nation already deeply divided over the abortion issue (VI, Post 1991).
Others speculate that the legalization of the use of fetal tissue would dilute support for challenging the current legal climate that allows elective abortion (IV, Robertson 1988).

Some commentators question whether rightful informed consent can be obtained for use of fetal tissue from induced abortions (VI, Barry and Kesler 1990). James Burtchaell and Paul Ramsey argue that "when a parent resolves to destroy her unborn, she abdicates her right to make decisions on the fetus' behalf" (VI, Burtchaell 1989, p. 156; III, Ramsey 1975, p. 93), thus rendering her ineligible to give informed consent to research on the fetus.

Other authors see the use of aborted fetal tissue as the first step down a slippery slope—at the bottom of which are the Nazi experimenters—researchers without scruples, without moral integrity, and without concern for the dignity of the research subject, or the dead fetus (IV, Bopp and Burtchaell 1989; VII, Cameron 1988).

Some observers focus on guilt by association, or complicity in abortion. The researcher would become a party, after the fact, to the destruction of the unborn (VI, Burtchaell 1989, p. 163). Thus, it follows that the mother, the researcher, and even the funding agency would be guilty of encouraging or performing an immoral act. It is not possible, according to these writers, to insulate the immorality of abortion from the use of the aborted fetal tissue.

In his letter to Congress, James Mason expressed concern that families desperate to help a loved one were being given false hopes and inflated expectations by those supporting the use of fetal tissue.

Still others argue that not all alternative treatments for these diseases have been exhausted. Cell lines may be cultured in vitro, reducing the need for fresh tissue (VI, Burtchaell 1989, p. 180). The fetal tissue bank, which collects only tissue from ectopic pregnancies and spontaneous abortions, may also reduce the dependence on fetal tissue from elective abortions.

Finally, some commentators argue that some tissue transplantation research is premature, and that not all animal studies have been pursued (III, Sladek and Shoulson 1988).

II. ORGANIZATIONAL AND GOVERNMENTAL POLICIES AND STATEMENTS

In his presentation to the NIH Director's Advisory Committee, LeRoy Walters explained why studying similar policy statements from other organizations and countries are so important: "... There is, of course, no guarantee that the eight committees and the one parliamentary assembly have reached a conclusion that is ethically correct. However, we are less likely to make a serious moral mistake when numerous other groups of conscientious men and women from around the world have reached virtually identical conclusions about appropriate public policy" (II, U.S National Institutes of Health, Advisory Committee 1988, p. C5).

Listed below are many government task forces and advisory committees that have studied the issue of using fetal tissue in human transplantation research.
They have all reached the conclusion that if proper safeguards and regulations are observed, some uses of fetal tissue from induced abortions are acceptable. There are similarities and distinctions among the documents, but taken together, they provide a thorough overview of ethical and public policy concerns surrounding the use of fetal tissue.

Some of these advisory panels discussed the use of a variety of tissues, and some addressed not just tissue, but also experimentation on live fetuses. Some of the statements below are simple declarations that fetal tissue should be handled with commonly held respect for dead bodies; others are much more explicit.

Many groups have made distinctions between fetuses in utero or ex utero, between viable and non-viable fetuses, between live and dead fetuses, and between therapeutic and non-therapeutic research. Commonly, the committees expressed concern that animal studies precede human fetal studies, that the information sought be obtainable only by studying fetuses, and that risks and benefits to the fetus and mother be identified, minimized and fully explained to the mother. Some committees required the father's consent to donate tissue, while others accepted his non-objection.

Most committees expressed concern about the moral relevance of abortion to the use of aborted fetal tissue. In order to address problems of complicity with abortion, many advisory committees specified that, as much as possible, a woman's decision to abort should be separated from her decision to donate fetal tissue for transplantation. Most groups required anonymity between the donor and the recipient. Some committees were concerned that individuals involved in research have no say in the timing, method or procedures used to terminate pregnancy; some suggested an independent, non-profit agency to gather and distribute the tissue, so as to reduce problems with conflict of interest.

All committees specified that no one should benefit economically from donating or distributing tissue, and most required some form of record keeping. Many advisory panels stated that fetal tissue research should be permitted if it is consistent with local laws and subject to approval of local institutional review boards.


III. GENERAL


University of Notre Dame theologian Burtchaell describes the decision at Notre Dame to ban the use of electively aborted fetal tissue in biomedical research. The original article and ensuing comments by Freedman and Robertson present a debate on the issues of complicity with abortion, and the rights of the woman to donate the tissue of her aborted fetus.


Drs. Cefalo and Engelhardt question the extent to which those who disapprove of abortion may make use of tissues derived from abortion in order to treat serious diseases. They argue that with proper safeguards such tissue can be used without cooperating in abortion. That is, even those who oppose abortion can benefit from the use of tissue procured during abortion.


Canadian physiologist Fine outlines the major objections and concerns surrounding the use of fetal tissue. He warns that the pace of scientific research must not preempt public debate and a verdict consistent with social values.


This article reviews some applications of fetal research and fetal tissue research. Benefits featured include the development of vaccines, advances in prenatal diagnosis, detection of malformations, assessment of safe and effective medications, and the development of *in utero* surgical therapies. Fetal tissue research enhances vaccine development, helps to identify risk factors and toxicity levels in drug production and the development of cell lines, and provides a source of fetal cells for ongoing transplantation trials.
Mahowald describes a forum on fetal tissue and abortion held in Cleveland in 1986. After analyzing various points of view, she concludes that differing ethical frameworks espoused by various policy makers supported different ethical guidelines for the use of fetal tissue in transplantation.

McCullagh provides a solid foundation for understanding the techniques and intricacies of fetal tissue transplants.

McCullagh argues that to make a decision on the ethics of fetal tissue transplants, one needs to gather accurate data and consider many aspects of the procedure. He suggests that we should look at the whole picture, and not focus on one feature of the dilemma of using aborted fetal tissue.

Nolan tries to balance the threat to our values and our social ethos by transplantation of tissue from fetal cadavers against the benefits to be gained from doing so. She recommends requiring restraints that can prevent harmful normative and attitudinal shifts in the perceived value of the aborted fetus, yet permit pursuit of medical benefits for those desperately in need.

In this slim volume on fetal research, Princeton theologian Ramsey draws a picture of the early history of experimentation on fetuses and on fetal remains. He describes the development and ramifications of early public policy in Britain and the United States.

Robertson examines the key ethical, legal and policy issues presented by fetal tissue transplants, commenting that once again, medical innovation has challenged ethical norms and social practices.

Sladek and Shoulson suggest waiting until a sufficient number of animal studies have been performed before researchers experiment on human patients.

In the wake of the single unconfirmed report of dramatic improvement in two Mexican Parkinson’s patients, many researchers are anxious to attempt fetal tissue transplantation, but the authors advise a more cautious course. Citing extensive data from experimental transplants conducted as early as 1944, Sladek and Shoulson suggest waiting until a sufficient number of animal studies have been performed before researchers experiment on human patients.
Economist Thorne warns that unless care is taken by the government and nonprofit tissue banks, there is vast potential for abuse in the procurement of tissues for donation.


The Congressional Office of Technology Assessment (OTA) argues for further research and evaluation before neural grafting—transplanting tissue into the brain or spinal cord—can be adapted for general therapeutic use. OTA touches upon a policy issue in the federal regulation of the use of fetal tissue—the resultant regulation of new surgical practices and medical techniques. The report offers suggested congressional actions pursuant to neural grafting.

Vawter, Dorothy E.; Kearney, Warren; Gervais, Karen G.; Caplan, Arthur L.; Garry, Daniel; and Tauer, Carol. The Use of Human Fetal Tissue: Scientific, Ethical, and Policy Concerns—A Report of Phase I of an Interdisciplinary Research Project Conducted by the Center for Biomedical Ethics. Minneapolis: Center for Biomedical Ethics, University of Minnesota, January 1990. 303 p.

A thorough study by researchers at the University of Minnesota's Center for Biomedical Ethics, this is a report of an on-going interdisciplinary research project. The report provides clinical background on applications for fetal tissue, describes sources of fetal tissue and guidelines for determination of fetal death. Laws and regulations guiding such research are highlighted, as are procurement and distribution of fetal tissue. Finally, the report presents various ethical frameworks supporting the use of fetal tissue, discusses informed consent to donate tissue, and outlines arguments of complicity or legitimation to the use of fetal tissue.

IV. LEGAL AND POLICY ISSUES


Attorneys Annas and Elias examine the ethical concerns and the political pressure surrounding the NIH moratorium, and the ensuing Human Fetal Tissue Transplantation Research Panel Report. The panel concluded that, while it is morally relevant that the fetuses are obtained from elective abortions, fetal tissue research is acceptable public policy because abortion is legal and the research is intended to achieve significant medical goals. Other recommendations of the panel included separation of the decision to abort from that to donate the tissue; anonymity between donor and recipient; and informed consent of the pregnant woman.

Bopp, James, and Burtchaell, James T. Fetal Tissue Transplantation: The Fetus as Medical Commodity. This World 26: 54–79, Summer 1989.
The text of this article is one of the dissenting opinions of the Human Fetal Tissue Research Panel of the NIH. The authors question whether abortion is dissociable from fetal research and whether allowing tissue donation will act as an incentive to abort in the future. They argue against the use of aborted tissue because the research is morally tainted by its complicity in the abortion act, just as the use of Nazi research data is morally unacceptable to these commentators.


Bregman offers a proposed amendment to California law that would proscribe the act of conceiving a fetus with the goal of aborting it and using the resulting tissue to aid a loved one. While most clinicians have argued that fetal tissue does not have to be as closely matched as other tissue, this prospect raises concerns among many.


Childress describes the deliberations of the Human Fetal Tissue Research Panel as it attempted to reach a consensus on the use of aborted fetuses. He explores various arguments for and against the use of fetal tissue for transplantation research, following elective abortion, and for and against the use of federal funds for such research. He critically examines charges that such research, especially with federal funds, would involve complicity in the moral evil of abortion, would legitimate abortion practices, and would provide incentives for abortions. Finally, Childress considers whether the donation model is appropriate for the transfer of human fetal tissue, and whether the woman who chooses to have an abortion is the appropriate donor of the tissue.


Danis proposes that the Uniform Anatomical Gift Act be amended to prevent parents from designating recipients in case of elective abortion. He feels this is not a violation of the constitutional right to privacy, and would support the state's legitimate interest in preventing the exploitation of women.


Donovan presents a picture of American scientists losing the race against fatal diseases, and not remaining competitive with scientists in other countries who are able to use aborted fetal tissue in their research. She states that the government has severely hampered research involving fetuses and embryos, not because of a conviction that such studies lack scientific merit, but because of the politics of abortion.


While mainly discussing research on
fetuses in utero, the authors provide a summary of the developments in federal regulation of fetal research. Ryan and Fletcher propose permitting an increment of higher risk in non-therapeutic research involving first-trimester fetuses and a redefining of the term "minimal risk."


Hilts highlights some misgivings about the fetal tissue bank established by the Bush Administration in May of 1992. Citing an unidentified internal NIH memo, Hilts reports that the estimates of the quantity of fetal tissue that could be gathered were not accurate, and that there would not be enough tissue to supply researchers. He also enumerates some concerns about the quality of cells and tissues to be obtained from ectopic pregnancies and spontaneous abortions.


Minnesota ethicists survey the effects of the 1991 House bill H.R. 2507 and critique Part 2 of the bill. Specifically, they object to the requirements that a pregnant woman sign documents stating that her decision to have an abortion is unrelated to her decision to donate fetal tissue. The authors also question the wisdom of requiring a researcher to maintain a collection of medical records that would not be treated as part of the patients' medical records, but would be subject to government audit. The signed declarations seem to imply that the state has an interest in establishing the motivations of women seeking abortion, and that such motivations meet certain moral criteria.


Richard provides an overview of the public policy debate waged in the United States in the 1980s.


Law professor Robertson surveys the ethical, legal and policy issues surrounding the use of fetal tissue. In a systematic analysis of the problems, he concludes that ethical concerns should not prevent research on transplantation therapy for serious illnesses.


Terry draws the conclusion that the debate over abortion and fetal tissue is a purposeful confusion of the issues destined to preempt any meaningful discussion of fetal tissue transplantation. The issues identified are not so much ethical concerns, but instead reflect settled positions on abortion taken for strategic reasons.

Testimony is provided by many parties interested in the Fetal Tissue Transplantation Research Bill (H.R. 1532), introduced by Henry Waxman on March 20, 1991, but never passed by the House of Representatives. Of particular interest is the testimony of Guy and Terri Walden, parents of a child who has undergone fetal tissue transplantation to treat Hurler's Syndrome, a fatal disease. Text of the bill is included.


Passed by both houses of Congress, this bill was vetoed by President Bush on June 23, 1992. It did not have enough support to override the presidential veto. The act would have lifted the moratorium on fetal tissue transplantation and enacted all the recommendations of the NIH Human Fetal Tissue Transplantation Research Panel.


In another hearing on ethical and policy issues relating to fetal tissue transplantation, testimony and prepared statements are provided by numerous individuals and organizations. The bill was introduced to force the lifting of the moratorium and to establish careful safeguards and procedures. This bill also died in committee.


Minnesota bioethicists describe the history of fetal tissue research, its regulation in the U.S., and ethical issues relating to fetal tissue transplants. The existing ban on federal funding for such research is discussed. They conclude that the true reasons for not funding such research are not based on sound ethical reasoning, but rather political expedience. They briefly touch upon the chances of a Congressional challenge to the moratorium.


Bioethicist Walters presents six major policy statements by British, American, Australian, and French committees and the recommendation of the Council of Europe as the central focus of an article on public policy regarding fetal tissue.


Bioethicist Caplan considers the ethical implications of utilizing abortuses and brain dead or anencephalic infants as donors, and presents an analysis of the pros and cons of using such donors. Caplan concludes that the arguments for using abortuses, anencephalics, and
brain dead infants as organ and tissue donors outweigh the arguments against.


Three types of association with evil are discussed—direct participatory actions, causal actions, and symbolic actions. Childress identifies the latter two as being relevant to fetal tissue research and abortion. After analyzing the philosophical dimension, Childress concludes that while the rationale for the moratorium on federal funding of fetal research in the U.S. was based on causal responsibility, the ethical analysis was flawed, and the policy should be reversed.


Jones presents four possible positions that one might take to evaluate the ethics of fetal tissue research from aborted fetuses. He calls them: scientific pragmatism, abortion dependent, clinical benefit (abortion irrelevant) and abortion independent. Jones adopts the latter position, as it “appears to reflect the stance of most within society.” The thrust of his argument is that one may view as morally acceptable a procedure (transplantation) that would not be possible apart from what many regard as a morally unacceptable procedure (induced abortion). Basic to this thrust is a complete separation in practice between the two procedures.


The authors argue that whether or not abortion is morally justified, use of human fetal tissue for research or therapy is justified in certain circumstances. The ethical rationale, both for allowing transplantation of fetal tissue and for placing certain limitations, is based on respect for autonomy and a balancing of harms and benefits that gives priority to those most affected.


Miller asks two broad moral questions with regard to the use of fetal tissue: Is there a framework from other moral paradigms to assist in ethical debates about the transplantation of fetal tissue? Does the use of fetal tissue entail cooperation in abortion? He develops a theoretical framework by combining the paradigm of just-war reasoning with canons governing the use of cadaverous tissue. This paradigm creates
safeguards that allow fetal tissue to be procured without the taint of association with abortion. For Miller, it is important to make the distinction between intending and foreseeing a moral misdeed.

VI. RELIGIOUS & MORAL ISSUES


Barry and Kesler critique the scientific and ethical foundations of proposed fetal tissue research, and support the federal moratorium on funding for fetal research. First, they feel there have not been enough long-term therapeutic successes to warrant federal funding. They argue that there are alternative techniques and therapies that would offer at least as much hope as do fetal tissue transplants. They also see serious problems with informed consent to donate, and a woman's authority to donate tissue.


In a bibliographic essay, Rabbi Bleich provides a survey of Jewish perspectives of fetal tissue transplantation. He summarizes his dissenting opinion in the NIH Human Fetal Tissue Transplantation Research Panel Report.


British ethicist Botros uses Immanuel Kant's philosophy to analyze the morality of using aborted fetal tissue in research.


Burtchaell focuses on respect for the dead, and specifically on whether a woman consenting to abortion has a right to consent to fetal tissue donation. He argues that the way we treat bodies is an indication of the respect we hold for the dead person. “The decision to abort is an act of such violent abandonment of the maternal trust that no further exercise of such responsibility is admissible” (p. 161). Burtchaell also concentrates on the moral complicity problem, rejecting any arguments that the ends of fetal research justify the means used to succeed. He remains convinced that successful research using aborted tissue will increase the number of abortions.


After presenting an overview of research using fetal tissue in 1988, Desmond expresses concerns over the connection between abortion and the use of aborted fetal tissue. She wonders whether fetal implants, physicians and hospitals are actually encouraging de-
liberate abortions to maintain a ready supply of tissue. She is particularly concerned about the vulnerability of non-viable living fetuses.


Mahowald asks whether, just because we have the technical expertise to transplant fetal tissue, should we do so? She concludes that while it is possible to create enough safeguards to make fetal tissue research ethically acceptable, a “degree of moral aversion ought to remain as a wedge for helping to maintain moral balance along the slippery slope” (p. 222).


Case Western Reserve ethicist Post argues that the public has a right to question medical progress that may be moral regress. He charges that the bioethics “establishment” too quickly accepts the beneficence arguments in favor of fetal tissue use and aligns itself with the medical establishment. While Post does not argue that fetal tissue research will increase the number of abortions, he is apprehensive over the strengthening of the relationship between abortion clinics, biomedical researchers and the federal government.


Strong disagrees with the NIH Human Fetal Tissue Transplantation Research Panel that tissue use is ethically acceptable because it can be morally insulated from the issue of abortion. He argues that whatever wrong is involved in using fetal tissue from aborted fetuses must be balanced against the benefits for patients, and on this basis, fetal tissue transplantation can be morally justified.

VII. ADDITIONAL READINGS


SCOPE NOTE SERIES

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