

Abstracts of Papers for the Conference on Medicine and Science in the 21st Century: Bioethical Issues

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PREFACE

The conference, **Medicine and Science in the 21st Century: Bioethical Issues**, co-hosted by the Science Museum of Virginia, United Network for Organ Sharing, Virginia Biotechnology Research Park, and Virginia Commonwealth University, will be held at the Virginia Biotechnology Research Park in Richmond, Virginia on November 1, 1997. Presented here are abstracts of papers by speakers (in alphabetical order) who will discuss the bioethics of defining death, organ transplantation, genetic counseling, clinical research, reproductive medicine, economic issues in health care, and uses of biotechnology in the food industry.

The conference is supported by Science Museum of Virginia, United Network for Organ Sharing, Virginia Biotechnology Research Park, Virginia Commonwealth University, The C. F. Sauer Company, and Jefferson Hotel. We thank the Virginia Academy of Science for publication and reprint costs.

Ethical Challenges Face to Face: Genetic Counseling. Joann Bodurtha, M.D., M.P.H., Department of Human Genetics, Pediatrics, and Obstetrics-Gynecology, Medical College of Virginia, Virginia Commonwealth University, Richmond, VA 23298.

The provision of clinical services to individuals and families deepens our appreciation of personal similarities and uniqueness. Moral problems become evident when rules are broken, appearances do not seem right, or ethical principles are in direct conflict. Rapidly evolving genetic technological breakthroughs occur in a socioeconomic landscape that may attempt to simplify the facts. If good ethical decision-making starts with good factual information and self-assessment, how do we apply the principles of autonomy, beneficence, and justice in genetic counseling? Exemplary patient situations across the lifespan will be discussed. Decisions about childbearing, resource allocation, and cancer genetic testing we all potentially encounter will be reviewed.

Ethical Issues in Xenotransplantation. R. Randal Bollinger, M.D., Ph.D., Fuqua School of Business, Duke University, Durham, NC 27706.

Transplantation of organs and tissues between disparate species, particularly from animals to humans raises many moral, religious, ethical, biological and medical questions. Our recently developed abilities to modify the genomes of potential donor species to make their organs more biologically acceptable to humans have intensified the debate. Among the ethical issues raised by xenotransplantation of transgenic organs into non-human primates and eventually human beings are genetic engineering,

cloning of individuals, animal rights and animal use, risk of zoonoses, human experimentation, informed consent and patient rights.

Transplantation has proved in the past to be a fertile testing ground for new and deeper understandings of medical ethics. The development of xenotransplantation promises to continue this tradition. Past failures of cross species transplants have often led to broad condemnation of the entire approach as has been the case frequently for other developing but unproven medical therapies. When xenotransplant successes increase in number and duration the huge unmet demand for transplantable organs will alter irrevocably the frame of the ethical debate. Treatments that are today unethical, may tomorrow be ethical and even required. Such was the evolution of successful living, unrelated renal transplantation and such is likely to be the course of effective xenotransplantation. Now is the time for thoughtful consideration of ethical issues that transcend short term progress in biology and medicine.

Defining Death Based on Neurologic Criteria. Michael Diringer, M.D., Director, Neurology/Neurosurgery, Intensive Care, Washington University School of Medicine, St. Louis, MO 63110.

Until recently death was defined exclusively based on cessation of cardiovascular and pulmonary function. Advances in technology that enable artificial maintenance of these functions have forced re-evaluation of how death is defined. Since the 1968 publication of the Harvard criteria for defining brain death there has been considerable evolution in how death is conceptually, operationally, and legally defined. This presentation traces the evolution of thinking about these various definitions of brain death and review the current guidelines for its diagnosis. Some of the inconsistencies across these three approaches will be identified and the resulting ethical dilemmas discussed.

Having a Baby. Things My Parents Never Told Me: Ethical Issues in Reproductive Medicine. Cathy James, R.N.C., M.S., W.H.N.P. Department of Obstetrics and Gynecology, Medical College of Virginia, Virginia Commonwealth University 23298.

Beginning with the birth of Louise Brow, the world's first "test tube" baby in July 1978, the field of reproductive medicine has mushroomed. Since that time numerous babies have been born as a result of assisted reproductive technologies. Society, however, is lagging behind the technology in deciding what is acceptable and what is not. Beginning with a brief overview of various procedures (in vitro fertilization, intracytoplasmic sperm injection, assisted hatching, donor oocytes, traditional surrogacy, gestational carrier, and embryo cryopreservation) that a couple may choose to build a family, discussions then focus on ethical issues of each technology relative to access to these options by single women, unmarried couples, lesbian couples, and older women. If donor oocytes, sperm or embryos are needed should the donor remain anonymity? What can be done with cryopreserved embryos that are unclaimed? You are challenged to think about these technologies in terms of family building, impacts on children, friends, and extended family, as well as their ramifications to society at large. Only by thought provoking, continual dialogue will we be able to address these concerns, and provide support and guidance for professionals in reproductive medicine and couples faced with such difficult choices.

The Ethics of Cancer Research: Clinician vs. Scientist. Laurie Lyckholm, M.D., Department of Medicine, Division of Hematology/Oncology, Medical College of Virginia, Virginia Commonwealth University, Richmond, VA 23298.

While clinical cancer research is tremendously important to the advancement of cancer treatment, it is charged with many ethical predicaments. It is problematic in that it often involves the use of toxic therapy in human subjects whose judgment and insight may already be challenged by the profound impact of cancer on their lives. True informed consent may be impossible to obtain. Clinicians performing research are caught in a conflict of interest between scientist and healer. Attempts to perform rigorous, statistically correct research may result in a less individualized, more utilitarian approach to human subjects. These ethical dilemmas and others discussed may be applied to other areas of clinical research.

Mutual Interests, Mutual Concerns: Transplantation in a Managed Care Environment. Gwen Mayes, M.M.Sc., Chief, Operations and Analysis Branch, Human Health Services Division of Transplantation.

The escalating cost of health care in the past two decades has led to an ever-increasing number of Americans enrolling in managed health care plans. Health maintenance organizations and preferred provider organizations are the two dominant types of managed care organizations in the United States; by 1995 over 50 million Americans were enrolled in one or the other. Managed care supporters, including many physicians and patients, argue that managed care plans provide higher quality of care than any individual physician can offer because the plans coordinate each individual patient's medical care, promote prevention medicine and wellness, and meticulously monitor quality. Their opponents, however, say that managed care constitutes a grave threat to the quality of traditional medicine and undermines the patient-physician relationship. Transplantation is especially vulnerable in a managed care environment because of the complex and unpredictable clinical course that transplant patients face, especially as waiting times to transplant lengthen. This presentation will provide a general overview of the trends of managed care, discuss advantages and disadvantages of "managing" patients at centers of excellence, and identify the areas of mutual interest and mutual concern facing the transplantation community in a managed care environment.

Ethical Issues in Food Science and Technology. Susan Sumner, Ph.D. Virginia Polytechnic Institute & State University, Blacksburg, VA 24060.

A growing demand for a more abundant and a safer food supply confronts food scientists every day. Throughout the food industry and at universities, food scientists are conducting research to address these two needs. New ingredients and processing technologies are being developed to improve the safety and quality of our food system. Some of the more recent innovations include bioengineered tomatoes, bioengineered plants, food irradiation, lowfat products, and improved nutritional quality of food products. One challenge of the world food supply is that enough quality food is produced but it is not produced in the right locations to feed all of the world's people. In most countries there are strict labeling guidelines for food products. A new ingredient or technology must be proven safe, and meet all federal requirements before it can be used by the food industry. Consumers play a major role in the acceptance

of this new technology. In the case of food irradiation, scientific research has proven the technology to be safe, but consumer acceptance is only starting. Therefore, the food industry has not widely adopted the practice of food irradiation. Consumers also have concerns about the use of new food ingredients that might cause an allergic reaction. All of these concerns are valid and need to be addressed by the food industry. This presentation will deal with the consumer concerns and give examples of how the food industry is dealing with ethical issues.

Organ and Tissue Donation and Transplantation. James S. Wolf, M.D., Director of Medical Affairs, United Network for Organ Sharing, 1100 Boulders Parkway, Suite 500, Richmond, VA 23225.

Surgical procedures of organ replacement and the modification of the recipient to maintain these organs long term are one of the most notable achievements of modern medicine. Medical techniques are well-developed and successful long-term results currently can be expected in 75-80 % of patients undergoing organ transplantation. However, as in no other aspect of medical treatment, transplantation requires that a viable human organ be obtained in order to treat the patient with end-stage organ failure. Ethical problems of organ transplantation today include methods to ensure that every member of society accept organ and tissue donation as a fundamental human responsibility and make plans to donate upon their death, legislative and medical methods for obtaining these organs, and methods by which a scarce resource can be distributed to all potential organ recipients in an equitable manner. It is these three aspects of clinical transplantation which occupy an ordinate amount of time for the professional transplant community. Current methods to resolve these inhibitions to transplantation involve the combined efforts of transplant professionals, government, and citizens of the country.