

**Prepared Public Statement**  
**by Dr. Dennis Michael Sullivan, M.D.**

June 13, 2006

1. Good morning, Mr. Chairman and members of the Committee. My name is Dr. Dennis Michael Sullivan. I am a citizen of the state of Ohio and I reside in Beavercreek, Ohio, where I have lived since 1997. I am pleased to give my expert opinion before this committee in support of H.B. 228, and will specifically address the scientific question of the humanity of the unborn.
2. I am a physician and have been licensed to practice medicine since 1978, and in the State of Ohio since 1980. My medical degree is from Case Western Reserve University in Cleveland, Ohio, and I have completed five years of training in general surgery. I was an officer in the United States Army Reserve for six years, and served two years of active duty as a surgeon at Blanchfield Army Hospital in Fort Campbell, Kentucky. I have also served eight years as a missionary surgeon, first in the country of Haiti, and subsequently in the Central African Republic. In Africa, I served as Medical Director of an 80-bed hospital. I am a Diplomate of the American Board of Surgery, and a Fellow of the American College of Surgeons. In my active clinical practice, I have performed over 350 major procedures per year. Though I am not an obstetrician, our facility delivered over 600 babies each year, and I have extensive experience with pregnancy and its complications. Civil unrest in Central Africa in 1996 caused our return to the United States. Since then, I have served on the teaching faculty of Cedarville University and have received additional training in bioethics and philosophy. I currently direct the pre-medical program at Cedarville University, and teach human biology, which includes anatomy and physiology, advanced anatomy, pathophysiology, and developmental biology. I also teach three courses in bioethics. My current curriculum vitae is attached at the end of this testimony.
3. Advances in science and medicine have given physicians and scientists the ability to peer into the womb and to manipulate the pre-born to an amazing degree. This has led to an impulse on the part of some to

redefine fundamental understandings of when life begins or when an unborn child becomes a human being. The following discussion will show that this impulse has no scientific foundation.

4. A few definitions are in order before I begin. *Conception* is the moment when fertilization of a human egg takes place. The period from conception to birth is a 38-week span of time called the *gestation period*. Although these terms are sometimes used interchangeably, the conceptus is properly referred to as an *embryo* up to eight weeks of development, and as a *fetus* after that.
5. In this discussion, I will begin with the moment of birth and will work backwards, looking at several decisive moments along the way. It is immediately evident that a newborn baby is a living human being. This is true in spite of the fact that she is totally dependent on her mother for protection and food, and does not yet have self-awareness or reasoning abilities. In other words, her humanity does not depend on functional capacities that older humans have.
6. If a newborn baby is fully human, does humanity begin with the moment of birth? What is unique about this decisive moment? Prior to birth, the baby is completely dependent on the mother for oxygen, nutrients, and for the elimination of carbon dioxide and other wastes. The lungs are collapsed and partially filled with fluid, and there are no breathing movements. Exchange of gases, nutrients, and wastes takes place in the blood that passes through the umbilical cord and placenta, attached to the side of the uterus. At the moment of birth a number of changes take place. The umbilical cord is clamped at delivery, and the placenta separates from the uterus. This complete cessation of blood from the mother stimulates the respiratory center in the brainstem, and the baby takes her first breath. At the same time, changes take place within the heart that allow blood to flow to the lungs. The newborn baby is now “on her own.”
7. Because a baby immediately prior to birth does not have an independent existence, some would claim she is not yet a human being. Yet a moment of reflection will show the fallacy of this approach. The

actual moment of birth is not totally dependent on biological maturity. For a number of reasons (not all of them medical), a woman may undergo Caesarian section or induced labor to deliver a baby at a predetermined moment and not strictly by “nature.” Therefore, independent biological existence cannot be scientifically relevant. The arbitrary nature of this moment should be clear. The essential nature of a baby’s humanity does not change by virtue of her location.

8. Continuing to work backwards from birth, some have suggested that independent viability somehow determines the humanity of the unborn. Independent viability means the ability to survive outside of the womb. But this decisive moment is a “moving target.” In the 1970s, the presumed limit on viability was 28 weeks, with an occasional infant surviving birth at 24 weeks of gestation. Now such survivals are much more routine and some can live outside the womb as early as 20 weeks. Although there are many complications related to prematurity, the most significant issue is inadequate lung maturation. Surfactant, a detergent-like chemical that aids in lung flexibility, is lacking in lung tissue too undeveloped to produce it. This makes the lungs stiff, making it difficult for “preemie” babies to breathe on their own. Newer developments in drug therapy, as well as the use of artificial surfactant, have greatly improved the function of premature lungs. In short, viability as a criterion for human nature is arbitrary and depends on the current state of medical therapy. As one writer has said, “Viability measures medical technology, not one’s humanity.”
9. How about the decisive moment known as quickening? Quickening is the traditional term for when fetal movement is first detected by the mother. This usually corresponds to 16 to 20 weeks gestational age. This moment has great emotional significance for the mother, for it helps her to bond with her unborn child. Should we measure full humanity from this moment? We should not, for science has demonstrated quickening to also be an arbitrary moment. Indeed, a simple ultrasound examination may

demonstrate fetal movement as early as 9 weeks. Whether or not the mother detects such movement should have only emotional significance.

10. How about neurological function? Some have proposed that sentience, or the ability of the fetus to experience pain, should be a determinant of humanity. However, since pain is a subjective phenomenon, it would be difficult to be certain at what stage it may be experienced by the unborn. Some have argued that an entity that does not experience pain cannot be harmed. But this confuses the awareness of harm with actual harm. Real injury can take place to a human being without his awareness, such as the stealing of property or bodily damage to a loved one. Furthermore, if sentience is the basis for full humanness, then those who are unconscious at the moment are not human. This applies to each one of us when we are asleep, so this definition of humanity is clearly absurd.
11. A second major reason to consider sentience or neurological development as determinative is because of the use of neurological criteria for declaring a person dead. The idea here is that, for transplant purposes, “brain death” (a better expression is “death by neurological criteria”) is defined as the cessation of brain function. This can be determined by an electroencephalograph (EEG) or by cerebral blood flow studies. By analogy, some propose that “brain birth,” the beginning of a fully integrated nervous system, is the point at which humanness begins. Yet this analogy fails because the two situations are vastly different. There is a huge difference between *no more* and *not yet*. In other words, the brain dead person has ceased to have any potential for brain activity, while the unborn child has a future capacity, yet unexpressed, for mental functioning.
12. By the end of the eighth gestational week, the developing embryo has a distinctly human appearance. As mentioned earlier, this is when the scientific term changes from embryo to fetus. Could this be an indicator of humanity? There is no doubt that, like quickening, human appearance causes an emotional response. Yet congenital defects or disease may so disfigure certain adult individuals that they no longer

*appear* human. We should not wish to support simple prejudice against disfigured adults or against the very small individuals in our midst.

13. As this survey of decisive moments before birth has shown, it makes no sense to deny the full humanity of the unborn at any time. In fact, conception is the biological moment when human life begins. This is genetically when a new human being comes into existence, with the full complement of DNA in the form of 46 chromosomes. This makes him a unique living human member of the species *Homo sapiens*. This biological fact is not a value judgment, and does not derive its force from moral or legal considerations. It is scientifically true and uncontestable.
14. To further elaborate, some would claim that the key ethical question in the matter of abortion should be phrased: "Is an unborn child alive?" This is clearly the wrong question, for there is nothing more alive than an unborn baby, unless an untoward medical event occurs, or unless an outside interfering force interrupts this state. Others would phrase the relevant ethical question as: "Is an unborn child a human being?" From a scientific point of view, of course it is. It is simply a human being at an early stage of development, a stage that every one of us has passed through. The real question before us is this: "How should we as a society treat these fellow human beings among us?" That is the question for this legislative body to decide.

**Dennis Michael Sullivan, MD, MA (Ethics), FACS**  
Professor of Biology (Human Biology, Bioethics)  
Cedarville University  
*Curriculum Vitae*

***Degrees***

B.S. (Chemistry, 1974): Youngstown State University, Youngstown, Ohio  
M.D. (1978): Case Western Reserve University, Cleveland, Ohio  
M.A. (Bioethics, 2004): Trinity Graduate School, Deerfield, Illinois

***Postgraduate Training***

1978-1980: University of Kentucky Medical Center, Department of Surgery, Lexington, Kentucky  
1980-1983: Wright State University Affiliated Surgical Program, Dayton, Ohio  
1986-1988: 36 Semester Hours towards M.Div., Luther Rice Seminary (New Testament emphasis)  
1987-1988: French language study, University of Laval, Quebec City, Quebec, Canada  
1995: Training in ophthalmologic surgery, ECWA Eye Hospital, Kano, Nigeria (3 months)

***Hospital Appointments***

Staff Surgeon, U.S. Army  
Colonel Florence A. Blanchfield Army Community Hospital  
Fort Campbell, Kentucky  
July, 1983 to October, 1985

Staff Surgeon  
Emmanuel Medical Center  
Cayes-Jacmel, Haiti, West Indies  
October, 1988 to July, 1991

Medical Director  
Baptist Mid-Missions Hospital  
Ippy, Central African Republic  
August, 1993 to May, 1996

**Current Position**

Professor of Biology (Human Biology, Bioethics)  
Cedarville University  
Cedarville, Ohio (at Cedarville University since September, 1996)

### *Honors and Awards*

Omicron Lamda Biology Honorary Fraternity: 1974  
Phi Kappa Phi National Honor Society: 1974  
Summa Cum Laude Undergraduate Degree: 1974  
Diplomate, American Board of Surgery: 1985 (Recertified: 1996)  
Fellow, American College of Surgeons: 1996  
Full Professor with Tenure, Cedarville University: 2003

### *Professional Affiliations*

American Medical Association: since 1983  
Christian Medical Association: since 1996  
Center for Bioethics and Human Dignity: since 1999  
American Scientific Affiliation: since 2004

### *Teaching Experience*

1988-1996: Haiti and Central African Republic:  
Human Anatomy and Physiology (classroom courses conducted in French)  
Pathophysiology, pharmacology, surgical technique (informal instruction in hospital, clinic, and operating room)

1992: Cedarville College:  
Human Structure and Function

1996-Present: Cedarville University:  
Human Anatomy and Physiology  
Human Structure and Function  
Advanced Anatomy  
Advanced Clinical Physiology  
Pathophysiology  
Principles of Bioethics  
Bioethics and the Human Experience  
Introduction to Research Methods  
Developmental Biology  
Bioethics Colloquium

2004-Present: Wright State University School of Medicine:  
Social and Ethical Issues in Medicine (volunteer adjunct instructor)

### ***Research and Writing Interests:***

Exercise Physiology  
Biomedical Ethics

### ***Publications:***

1. Sullivan DM, Hook TR, Griffen WO, "Biliary Tract Surgery in the Elderly." *American Journal of Surgery*, 143:218, 1982.
2. Hyde GL, and Sullivan DM, "Fogarty Catheter Tamponade of Ruptured Abdominal Aortic Aneurysms." *Surgery, Gynecology, and Obstetrics*, 154:197, 1982.
3. Sullivan DM, Francis JW, and Sellers JA, "Reviving the Saracen's Head: A Commentary on the New Biotechnologies," *Ethics and Medicine*, **15:3**, 1999.
4. "Op-Ed" article on partial-birth abortion for *Dayton Daily News*: "Common Sense Should Rule the Debate," January 28, 2001.
5. "The Need for Exceptions to Ethical Guidelines," policy comment on "Ethical and Policy Issues in Research Involving Human Participants," *National Bioethics Advisory Commission*, Feb. 16, 2001.
6. Sullivan, DM, "A Thirty-Year Perspective on Personhood: How Has the Debate Changed?" *Ethics and Medicine*, **17:3** (2001).
7. Sullivan, DM, "The Conception View of Personhood: A Review," *Ethics and Medicine*, **19:1** (2003).
8. Sullivan, DM, "Would God 'Play' This Way?" (letter), *Perspectives on Science and Christian Faith*, **56:3**, September, 2004.
9. Sullivan, DM, "Euthanasia Versus Letting Die: Christian Decision-Making in Terminal Patients," *Ethics and Medicine*, **21:2** (2005).
10. Sullivan, DM, "Stem Cell Research and Moral Complicity," published on the World Wide Web, at <http://www.pregnantpause.org/ethics/complicity.htm>, February 15, 2006.
11. Sullivan, DM, "The Oral Contraceptive as Abortifacient: An Analysis of the Evidence," to be published in *Perspectives on Science and Christian Faith*, September, 2006.
12. Sullivan, DM, "Stem Cells and Moral Analogies: An Ethical Analysis of Utilitarianism and Moral Complicity," rough draft completed.
13. Sullivan, DM and Jones WI, Crommitt, A "An Exercise Laboratory in Anatomy and Physiology," rough draft completed.

14. Sullivan, DM, "Human Genetic Transformation: What are the Biblical Limits?" rough draft completed.
15. Sullivan, DM, "Human Personhood, Bioethics, and Some Insights from Natural Law," rough draft completed.

***Research / Training Grants:***

- 1) Cedarville Technology Incentive Grant, "Human Histology Web Site," May 1998.
- 2) Cedarville Faculty Scholarship Summer Grant, "The Bioethical Implications of Personhood," May 2000.
- 3) Cedarville Technology Incentive Grant, "A Web Site for Bioethics" May 2001.
- 4) Cedarville Faculty Scholarship Summer Grant, "Stem Cells and Moral Analogies," May, 2003.

***Scholarly Review Activities:***

1. Reviewer, *Hole's Human Anatomy and Physiology*, 8th Ed., by Shier D, Butler J, and Lewis R, WCB/McGraw-Hill Publishers, 1998.
2. Reviewer, *Anatomy and Physiology: The Unity of Form and Function*, 2nd Ed., by Saladin, Kenneth S, WCB/McGraw-Hill Publishers, reviewed December, 1998, publication date January 2000.
3. Reviewer, *Anatomy and Physiology*, 5th Ed., by Seeley R, Stephens T, and Tate P, WCB/McGraw-Hill Publishers, reviewed December, 1998, publication date January 2000.
4. Reviewer, *Human Anatomy and Physiology: A Functional Approach*, by Joseph Crivello, McGraw-Hill Publishers, reviewed October, 2003.
5. Reviewer, medical journal *Vaccine*, published by Elsevier, 2004-2006.

***Additional Scholarly Activities:***

- 1) Faculty Seminar Presentation: "A Physician Looks at Crucifixion," Cedarville College, April 10, 1998.
- 2) Visiting Professor, Republic of Vietnam, June 15 – 25, 1998:
  - a. Five-day seminar: "Cardiovascular Anatomy and Physiology: An Integrated Approach," Medical College of Hue, Republic of Vietnam, June 16-20, 1998.
  - b. Clinical lectures: "The Abdominal Exam," and "Highly Selective Vagotomy," Hue General Hospital, Republic of Vietnam, June 18-19, 1998.
  - c. Seminar: "Methods of Anatomy/Physiology Integration" Medical College of Hanoi, Republic of Vietnam, June 23, 1998.

- d. Seminar: "Teaching Exercise Physiology," Medical College of Haiphong, Republic of Vietnam, June 25, 1998.
- 3) Sullivan DM, Bowersox R, and Zwart HH: "Thiamine Deficiency and Cardiac Failure," Clinical Research Proposal, Franciscan Medical Center, Dayton, Ohio.
- 4) Proposal: "Towards a Holistic View of Design." Templeton Foundation, November, 1998.
- 5) Medical Team Visit to Kouma Medical Center, Chad, Africa: July 21 – August 20, 1999:
  - a. Twenty-hour seminar: "Cardiovascular Anatomy and Physiology: An Integrated Approach," Koumra Medical Center, Koumra, Chad (for African health care workers, conducted in French).
  - b. Clinical Instruction in Pathophysiology and Clinical Medicine for African health care workers
  - c. Operating room instruction in General Surgery
  - d. Instruction in medicine, surgery, and obstetrics for Cedarville College students
- 6) Human Interactive Physiology Project, Advisory Panel (McGraw Hill Publishers), August 1999 – June 2001
- 7) Visiting Professor, Republic of Vietnam, December 4 – 21, 1999:
  - a. Five-day Medical Student Seminar: "Clinical Neuroanatomy and Neurophysiology: An Integrated Approach," Hanoi Medical College, Republic of Vietnam, December 6-10, 1999.
  - b. Clinical lecture: "Exercise Physiology," Hanoi, Republic of Vietnam, December 10, 1999.
  - c. Two-day Medical Student Seminar: "Selected Topics in Neuroanatomy and Neurophysiology," Medical College of Hue, Republic of Vietnam, December 16-17, 1999.
  - d. Medical Faculty Seminar: "Teaching Critical Thinking in Anatomy and Physiology," Medical College of Hue, Republic of Vietnam, December 17, 1999.
- 8) Medical Team Visit to Ippy Medical Center, Central African Republic: August 2, 2000 – August 28, 2000:
  - a. Twelve-hour seminar: "Cardiovascular Anatomy and Physiology: An Integrated Approach," Ippy Medical Center, Ippy, CAR (for African health care workers, conducted in French).
  - b. Clinical Instruction in Pathophysiology and Clinical Medicine for African health care workers
  - c. Operating room instruction in General and Ophthalmic Surgery
  - d. Instruction in medicine, surgery, and obstetrics for Cedarville University students

- 9) Co-Chairman, Conference on Bioethical Issues, Cedarville University / Mount Vernon Nazarene University (annually in the fall): 2000 – present.
- 10) Course Development: *Principles of Bioethics*, first taught September, 2001.
- 11) Course Development: *Advanced Human Anatomy with Cadaver Dissection*: Cedarville University, taught June, 2002 and May, 2005.
- 12) Research Proposal (CCCU): *Transhumanist Ethics in a Post-Modern World*, January 2004.
- 13) Course Development: *Bioethics and the Human Experience*, first taught January, 2005.
- 14) Panel Discussion: *Religion in Medicine*, Medical College of Toledo, April 20, 2005.
- 15) Coordinator: Pre-Med Camp, “The Heart of Medicine,” June 20-24, 2005.
- 16) Presentations: “Human Personhood and Bioethics,” Summit Ministries, June 28, 2005.
- 17) Paper presentation: “Teaching Bioethics Across the Disciplines: A “Survival Kit” for Undergrads,” International Bioethics Conference, Chicago, IL: Center for Bioethics and Human Dignity, July 16, 2005.
- 18) Paper Presentation: “Stem Cells and Moral Analogies,” Pro-Life Science and Technology Symposium, Dayton, OH, September 24, 2005.
- 19) Public Debate: “Ethics of Human Embryonic Stem Cell Research,” with Robert Reese Ph.D. (Wright State School of Medicine), and Ann McWilliams Ph.D. (United Theological Seminary), First Presbyterian Church of Fairborn, October 18, 2005.
- 20) Course Development: *Developmental Biology*, first taught January, 2006.
- 21) Invited Presentation: “Ethical Controversies in Stem Cell Research,” Cafe Scientifique, Cox Arboretum, January 26, 2006.
- 22) Invited Presentation: “Stem Cell Research: Medical Promise and Moral Problems,” MENSA Annual Regional Gathering, April 1, 2006, Doubletree Hotel, Dayton, Ohio.
- 23) Public Debate: “Assisted Suicide: Compassionate Care or Slippery Slope?” with Robert Reese Ph.D. (Wright State School of Medicine), and Ann McWilliams Ph.D. (United Theological Seminary), Cedarville University, April 4, 2006.
- 24) Volunteer adjunct instructor: *Social and Ethical Issues in Medicine* (Wright State University), 2005-present.