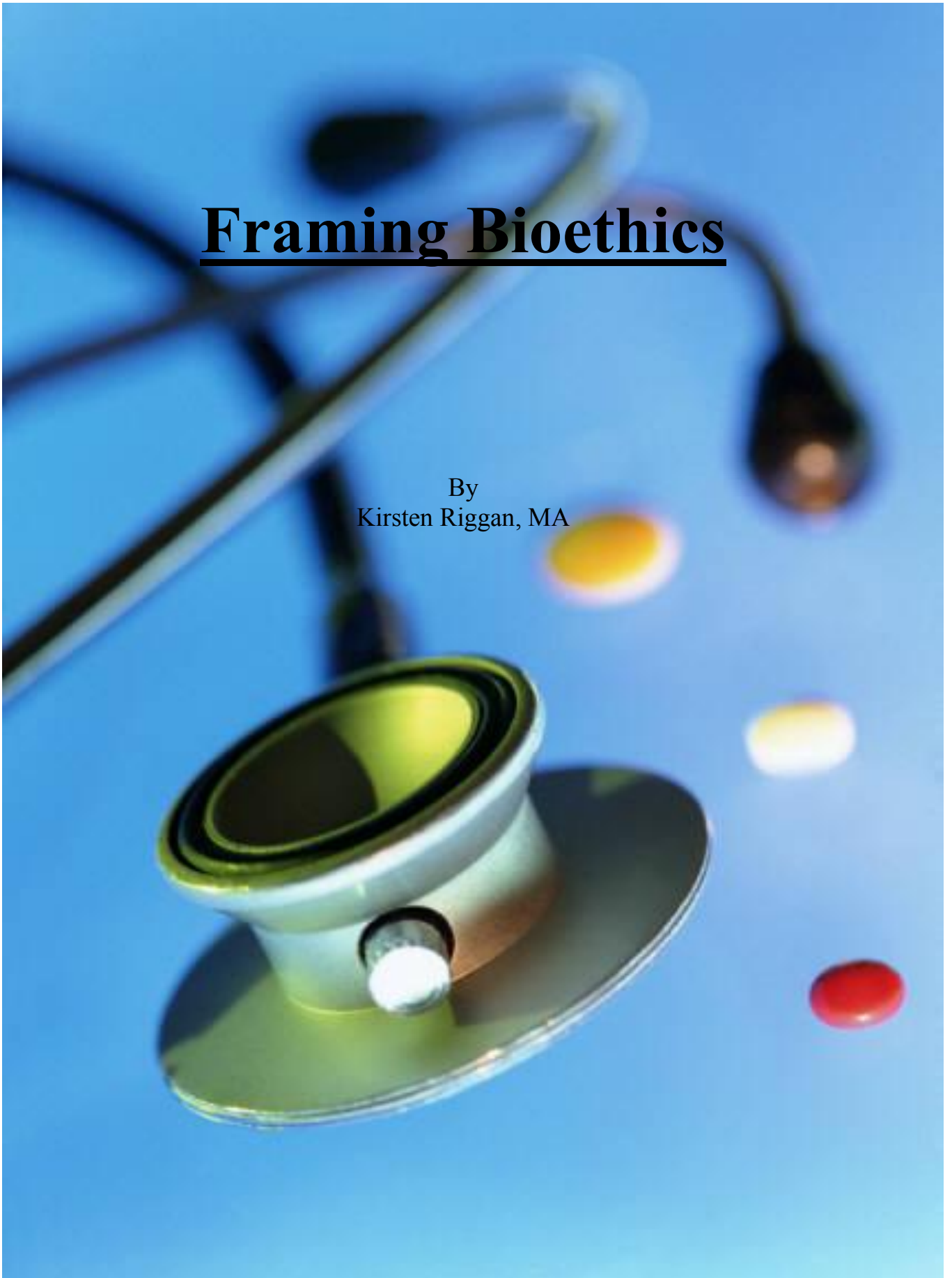


Framing Bioethics

By
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About the Author

I am a second year student pursuing a Master of Arts in Bioethics and Master of Arts in Christian Thought at Trinity International University. I received a Bachelor's of Science in Biology from George Fox University in Newberg, OR. My particular interests involve understanding the interaction between faith and science, particularly in the arena of bioethics.

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Leader's Guide

Introduction

Teaching bioethics can be a daunting task, since it requires the ability to clearly communicate scientific and theological concepts. This is especially true in settings where the audience has a wide variety of educational backgrounds, biblical knowledge, and personal experiences as is typical of most churches and Christian communities. This curriculum is designed to communicate the basic ethical concerns, scientific background, and biblical perspective surrounding each bioethics issue to the average layperson. For some, this curriculum will be their first encounter with these bioethical issues, while others may be already familiar with the scientific and theological concepts presented. Deciphering the overall level of experience of your group will take some discernment. As a leader, it may be helpful to investigate these issues more deeply before facilitating each lesson, especially if your group already has a basic familiarity with these issues. This leader's guide is meant to provide additional guidance in leading each lesson in a group setting. I hope you find these suggestions helpful as you explore these challenging bioethical issues.

Lesson Overview

The Value of Human Life

Lesson 1 is meant to provide a foundation for the remaining four lessons by providing an introduction to the special dignity and value of human life. If humans are equivalent to other forms of life, euthanasia, embryonic stem cell research, animal/human hybrids, etc. would not be as serious of an issue. This lesson also addresses the question of when human life begins from a biological and theological perspective.

Beginning of Life

Lesson 2 introduces issues involved in the beginning stages of human life such as abortion, prenatal testing, *in vitro* fertilization, and preimplantation genetic diagnosis. These issues are most frequently encountered by those dealing with unplanned pregnancy, the possibility of carrying a fetus with a congenital defect, or issues of infertility.

Genetics

Lesson 3 discusses issues in the field of genetics, including the effect of genes on behavior, genetic counseling, genetic testing, and gene therapy. This lesson provides insight on the notion of genetic determinism and the promises of genetic medicine.

Technologies and Treatments

Lesson 4 introduces issues surrounding the development of technologies and treatments including stem cell research, cloning, and animal/human hybrids. These are some of the most discussed and politically contested issues in the West. This lesson addresses the scientific feasibility of these technologies and the ethical challenges of their use.

End of Life

Lesson 5 deals with issues encountered at the end of life, including withholding and withdrawing treatment, physician-assisted suicide, euthanasia, palliative medicine/hospice care, “do not resuscitate” orders, and advance directives. This lesson highlights the importance making one’s end-of-life wishes known and offers a biblical perspective on death and the dying process.

Outline of Each Lesson

This curriculum is formatted to facilitate its use in a wide variety of settings, whether it be for a small group, an adult education class, or individual study. The suggested time frame is based on a 1-1 1/2 hour time period.

Case Study

Suggested Time Frame: 10-15 minutes

The case study is meant to provide a “real-life” scenario as a means of facilitating discussion on the ethical issues of each topic. A question or two for discussion is offered at the end of each case, although you may need to ask additional questions to stimulate discussion, or have other questions you feel are pertinent to ask.

Background Information

Suggested Time Frame: 15-20 minutes

This section provides basic background information on the issues addressed in each lesson. It is not meant to be comprehensive, but instead provide the essential information needed to carry on an informed discussion of the ethical and theological issues addressed. You may choose to go over the information together or have participants read the material beforehand to allow more time for discussion. If participants are requested to read the information beforehand, it would be helpful to take 5 or 10 minutes to go over any questions or areas that need further clarification.

Theological Perspective

Suggested Time Frame: 20 minutes

The core biblical texts used are provided at the beginning of this section. These texts can be assigned as reading beforehand, although you should take time to discuss the core principles of each passage and their impact on the issues at hand. It is encouraged that leaders take the time to become familiar with each passage and the theological concepts discussed in this section, before leading the lesson. Emphasis should be on developing a biblically informed worldview that focuses on theologically informed decision-making.

Questions for Further Study

Suggested Time Frame: 15 minutes

These questions are designed to explore the bioethical issues further and/or brainstorm ways individuals and communities can become involved in addressing these issues. They

are meant to help transition the lesson from theoretical discussion to personal engagement. These questions can be for personal reflection or for group discussion. If you choose to discuss these questions as a group, it is helpful to be aware that some individuals may not feel comfortable contributing to the discussion. In this case, it may be necessary to either reformulate the question, or ask additional follow-up questions in order to stimulate discussion.

Supplemental Reading

Basic and advanced level print and web resources are suggested for each lesson for those who wish to study these issues further. These resources may or may not be written from a Christian perspective. As such, they should be read with a critical eye. You may wish to peruse or read some of these resources beforehand to familiarize yourself with additional arguments and positions (both Christian and secular) on these issues.

General Issues You May Encounter

Bioethics is by no means an easy or neutral field. Many of these issues are political hot topics and may arouse deep and passionate responses. Additionally, some of the group participants may have personal experience or are in the midst of struggling with these issues. As a leader, you should encourage your participants to be sensitive to each other as you discuss these issues together. You also may encounter individuals who wish to share stories of their own experiences or the experiences of others that may or may not be relevant to the topic at hand that can interfere with the flow of discussion. It may be helpful to offer guidelines to your group on sharing stories or personal information or suggest that any stories be shared at the end of each lesson. Additionally, any medical or scientific information offered by members of your group outside of what is listed in the curriculum should be carefully discerned and investigated, as it may not be correct depending on the source of the information.

Supplemental Reading

Listed below are general print and website resources on bioethics. The print resources have been divided by lesson chapter and by basic and advanced reading levels. The website resources include a variety of organizations involved in the field of bioethics, as well as general informational websites on bioethical issues. Some of these resources are secular in nature and should be read with discernment and for the purpose of familiarizing oneself with all sides of a particular bioethics issue or topic.

The Value and Dignity of Human Life

Basic:

- Kilner, John F. and C. Ben Mitchell. *Does God Need Our Help? Cloning, Assisted Suicide, and Other Challenges in Bioethics*. Wheaton, IL: Tyndale, 2003.
- Tada, Joni Eareckson, and Nigel M. de S. Cameron. *How to Be a Christian in a Brave New World*. Grand Rapids: Zondervan, 2006.

Advanced:

- David, John Jefferson. *Evangelical Ethics: Issues Facing the Church Today*, 3rd ed. Philipsburg, NJ: P&R Publishing, 2004.
- Fedler, Kyle D. *Exploring Christian Ethics*. Louisville, KY: Westminster John Knox, 2006.
- Hollinger, Dennis P. *Choosing the Good: Christian Ethics in a Complex World*. Grand Rapids: Baker, 2002.
- Rae, Scott B. and Paul M. Cox. *Bioethics: A Christian Approach in a Pluralistic Age*. Grand Rapids: Eerdmans, 1999.
- Rae, Scott. *Moral Choices: An Introduction to Ethics*. Grand Rapids: Zondervan, 2009.

Beginning of Life

Basic:

- Stewart, Gary P., William R. Cutrer, Timothy J. Demy, Dónal O'Mathúna, Paige C. Cunningham, John F. Kilner, and Linda K. Bevington. *Basic Questions on Reproductive Technology: When Is It Right to Intervene?* Grand Rapids: Kregel, 1998.

Advanced:

- Beckwith, Francis. *Defending Life: A Moral and Legal Case Against Abortion Choice*. New York: Cambridge University Press, 2007.
- George, Robert P. and Christopher Tollefsen. *Embryo: A Defense of Human Life*. New York: Doubleday, 2008.
- Kilner, John F., Paige C. Cunningham, and W. David Hager, eds. *The Reproduction Revolution: A Christian Appraisal of Sexuality, Reproductive Technologies, and the Family*. Grand Rapids: Eerdmans, 2000.
- Rae, Scott B. *Brave New Families: Biblical Ethics and Reproductive Technologies*. Grand Rapids: Baker, 1996.

Genetics

Basic:

Bevington, Linda K., Ray G. Bohlin, Gary P. Stewart, John F. Kilner, and C. Christopher Hook. *Basic Questions on Genetics, Stem Cell Research, and Cloning: Are These Technologies Okay to Use?* BioBasics Series. Grand Rapids: Kregel, 1998.

Advanced:

Kilner, John F., Rebecca D. Pentz, and Frank E. Young, eds. *Genetic Ethics: Do the Ends Justify the Genes?* Grand Rapids: Eerdmans, 1997.

Technologies and Treatments

Basic:

Bevington, Linda K. Ray G. Bohlin, Gary P. Stewart, et al. *Basic Questions on Genetics, Stem Cell Research, and Cloning: Are These Technologies Okay to Use?* Grand Rapids: Kregel, 2002.

Advanced:

Colson, Charles W., and Nigel M. de S. Cameron. *Human Dignity in the Biotech Century: A Christian Vision for Public Policy.* Downers Grove: IVP, 2004.

George, Robert P. and Christopher Tollefsen. *Embryo: A Defense of Human Life.* New York: Doubleday, 2008.

Kilner, John F., C. Christopher Hook, and Dian B. Uustal. *Cutting Edge Bioethics: A Christian Exploration of Technologies and Trends.* Grand Rapids: Eerdmans, 2002.

Mitchell, C. Ben, Edmund D. Pellegrino, Jean Bethke Elshtain, et al. *Biotechnology and the Human Good.* Washington, DC: Georgetown University Press, 2007.

End of Life

Basic:

Stewart, Gary P. et al. *Basic Questions on End of Life Decisions: How Do We Know What's Right?* Grand Rapids: Kregel, 1998.

Stewart, Gary P. et al. *Basic Questions on Suicide and Euthanasia: Are They Ever Right?* BioBasics Series. Grand Rapids: Kregel, 1998.

Advanced:

Dyck, Arthur J. *Life's Worth: The Case against Assisted Suicide.* Grand Rapids: Eerdmans, 2002.

Kilner, John F.; Arlene B. Miller; and Edmund D. Pellegrino (eds.). *Dignity and Dying: A Christian Appraisal.* Grand Rapids: Eerdmans; and Carlisle, United Kingdom: Paternoster Press; 1996.

Kilner, John F. *Life on the Line: Ethics, Aging, Ending Patients Lives and Allocating Vital Resources.* Grand Rapids: Eerdmans, 1992.

Mitchell, C. Ben, Robert D. Orr, Susan A. Salladay, eds. *Aging, Death, and the Quest for Immortality.* Grand Rapids: Eerdmans, 2004.

Website Resources

Bioethics Organizations

American's United for Life: <http://www.aul.org/>

Center for Bioethics and Culture Network: <http://www.thebc.org/>

The Center for Bioethics & Human Dignity: <http://www.cbhd.org/>

Christian Medical & Dental Associations: <http://www.cmda.org>

Hastings Center: <http://www.thehastingscenter.org/>

National Catholic Bioethics Center: <http://www.ncbcenter.org/>

Westchester Institute for Ethics and the Human Person:

<http://www.westchesterinstitute.net/>

Informational Websites

Bioethics.com: Global Information Source on Bioethics News and Issues:

<http://bioethics.com/>

Human Genome Project Information:

http://www.ornl.gov/sci/techresources/Human_Genome/home.shtml

NIH Stem Cell Information <http://stemcells.nih.gov/>

Introduction

It is impossible to look through any popular news source without noticing stories or reports on bioethical issues such as physician-assisted suicide, genetic testing, stem cell research, and *in vitro* fertilization among many others. Christians and non-Christians alike encounter these bioethical issues in their personal lives and the lives of friends and family. These issues are complex, challenging, controversial, sometimes political, and can arouse deep emotions and reactions. This curriculum is designed to give a general introduction to some of the most prevalent and pressing bioethics issues encountered today. It is the goal of this study to provide a deeper understanding of what these bioethical issues are, the ethical concerns they raise, as well as provide a theological framework for thinking about these issues. It is not an exhaustive study of the topics and is geared towards introducing the individual or group to the pressing issues of our day and to provide some initial answers.

So what is bioethics anyways? Bioethics is an interdisciplinary study that is concerned with the ethical and moral implications of issues in the medical and biological life sciences. Bioethics as a field draws from many different disciplines including science, medicine, philosophy, and theology. While this curriculum focuses mainly on issues typically encountered in personal life, the field of bioethics includes some not so far off areas of biomedicine and biotechnology such as cognitive enhancement, nanotechnology, robotics, and transhumanism as well as issues typically dealt with at a policy level such as the allocation of resources and the conduction of human research.

This curriculum will discuss specific issues in five key areas of bioethics including the value and dignity of human life (Lesson 1), the beginning of life (Lesson 2), genetics (Lesson 3), technologies and treatments (Lesson 4), and the end-of-life (Lesson 5). Each lesson consists of a case study meant to provide a “real-life” context of a specific issue in order to introduce some of the ethical issues involved, general background information for each issue addressed, a theological perspective discussing scriptural principles and their impact on each issue, and questions for further study or discussion. Scientific concepts and terms are introduced where necessary. It is important to be familiar with these terms, communicate our views and positions to others in our technologically advanced society. Every effort is made to explain technical terms in layperson terminology. Additional print and online resources are provided at the end of each lesson for those who wish to study these issues on a deeper level.

Some of you may be wondering, “Why bioethics?” What does any of this have to do with me? While some of these issues seem distant from our personal lives, they are important to understand given the serious moral issues involved. These issues are not simple and may not be easily resolved, but it is important that Christians think through these issues due to their impact in the lives of individuals and their broad reaching implications for the welfare of society. Christians have the potential to be the “salt and light” of the earth in these areas. By coming to a fuller understanding of these bioethical issues, Christians can be prepared to give a thoughtful and informed answer to those in their sphere of influence. Additionally, these issues really do affect individuals, families, and communities and can involve great suffering. Exploring the ethics and theological implications of these areas in bioethics helps us be prepared to give comfort, counseling

and support to those who may be facing tough decisions or going through difficult circumstances.

It is my hope that you will find this curriculum to be informative on the common bioethics issues faced today and the ethical challenges they pose to Christians desiring to live their lives in accordance with Scripture. I would encourage users to send their feedback and suggestions on improving this curriculum at feedback@churchbioethics.org.

Lesson 1

The Value and Dignity of Human Life

Case Study

Sam, a 22 year old recent college graduate was involved in a serious car accident that left him paralyzed from the neck down. He suffers from incontinence, muscle spasms and constant pain. Given current medical knowledge, there is almost no chance that he will recover any muscle movement or control whatsoever. He has evaluated the current state of his life, given the low quality of his life, and feels that the negative aspects of his life outweigh the good. He has expressed a desire to end his life through assisted suicide. After all, he reasons, no compassionate person would let his dog live this way, why should he have to continue to suffer? His parents are in agreement and are now considering taking him to a state or country where assisted suicide is legal. What would you advise Sam and his parents in this situation? Does Sam's life have enough value to continue living?

* Note: This example is not merely a fictional possibility, but is modeled after a real life event. For more information on this case, see the Times article, "Second-class life not enough for injured rugby star Daniel James?" at

<http://www.timesonline.co.uk/tol/news/uk/health/article4964392.ece>

Introduction

One of the major fundamental issues in bioethics is the value assigned to human life. It is important to determine how we value human life, because this will greatly influence our perspectives on the vast majority of bioethical issues. For example does human life have equal status with other forms of life such as animal or plant life? It is also important to determine when human life begins. Does human life always begin at conception, or is there a certain point inside the womb at which the embryo becomes a full-fledged human being, or does life begin outside the womb? We also need to decide the worth of individual human lives. Are some lives worth more than others? In beginning to look at this issue, it would be helpful to understand traditional biological and theological definitions of human life.

Background Information

What Defines Human Life?

There are certain biological principles that help to define what is considered to be living and non-living. These principles include: having the ability to grow, reproduce, respond to stimuli, metabolism, and regulate internally (homeostasis). Using these categories, human beings are living creatures along with plants and animals. However, most would agree that human life is different from other forms of life, but what makes it different? From a biological perspective, humans are different from other forms of life due to our higher cognitive and physical abilities. Humans are unique amongst animal life due to our ability to reason, formulate thoughts, develop and express complex emotions, and develop and maintain complex social interactions. It would be too simplistic to say that

humans have equal status to other life forms since that is based on a merely biological frame of reference.

When Does Human Life Begin?

This question is at the heart of many of the prenatal issues examined later on. This question has been a source of contention between pro-life and pro-choice adherents, with each coming to separate conclusions. There is general consensus that new human life occurs biologically when two gametes (egg and sperm) each containing 23 chromosomes fuse together, genetic recombination occurs creating a genetically unique form of life. However, there are several views as to when personhood begins, which is usually implicit in discussions on when life begins. These views include: when self-consciousness occurs; at birth; when the fetus is viable; when brain waves are detected; when the embryo is implanted into the uterine wall; and when genetic recombination of the gametes occurs. While there are many differing views of personhood, biologically a new human being is created at the moment of conception, since this is when genetic identity begins.

Are All Human Lives of Equal Value?

As stated previously, all human life contains the same fundamental biological properties that identify humanity as members of the species *Homo sapiens*. Individual humans, however, clearly have different physical and cognitive abilities. According to some streams of thought, an individual's right to life is dependent upon their physical and mental abilities. One such perspective is utilitarianism. Utilitarianism is a dominant perspective prevalent in Western society, which believes that our actions should seek the greatest benefit for the greatest number of people. From this perspective, some lives are worth more than others based on such criteria as cost/benefit analysis, individual quality of life as well as collective quality of life. From this perspective, some lives are worth preserving and upholding more than others. This view has serious ramifications for those who are physically and mentally disabled.

A Theological Perspective

Read

- Genesis 1:26-27
- Genesis 9:5-6
- Job 31:15
- Psalm 139
- Matthew 6:26

One of the main themes of the Bible is how God relates to humanity, specifically in the realm of creation. From the creation account in Genesis, we are told that God created human beings on the sixth day (Gen 1:26-27). We are told in this passage that God created humans in his own image (*imago Dei*) differentiating them from the rest of creation. Humans are prohibited from taking another human life since all humans are created in the image of God (Gen 9:5-6). It is important to note that this command was given after the fall occurred. The creation of humans in the image of God did not change after the fall. The Bible also differentiates animal life from human life since God is

described as demonstrating special care for humans above that of the animals (Matt 6:26). From a biblical perspective, human life is inherently valuable and has special worth in the eyes of God.

Christian tradition has consistently held that every human life holds special value and dignity. This is demonstrated frequently in Scripture beginning with the creation of humans in Genesis 1:26-28. While there may be no biblical “proof text” describing in detail when life begins, passages such as Job 31:15 and Psalm 139:13-16 state that God formed us in the womb and ordained the days of our lives before they came to be. God clearly knows each unborn life indicating that the unborn do have intrinsic value as human beings. Whatever one’s individual perspective on personhood, embryos and fetuses are young human beings created in the image of God and deserve to be treated with value and respect. At the very least, they deserve the right to not be intentionally harmed. From a scientific perspective the argument for genetic uniqueness and identity demonstrates that from the moment of conception these organisms are members of the human species. This view is the only one that makes sense from both a scientific and biblical perspective.

From a Christian perspective, God views all human lives as having equal value. This includes those who are considered to have a low quality of life and/or mental capacity. Genesis 1:26-27 states that God created *all* of humankind in his image, both male and female, a concept that was unheard of in the Ancient Near East. Views that suggest that individual worth should be based upon particular characteristics are in direct contrast with biblical teaching. On the contrary, Scripture encourages that special concern be given towards those who are outcast and marginalized in society (Deut 24:18-20, Isa 1:17). Christians should seek to preserve and value all human life, since all have been created equally by God.

Questions for Further Study

- 1) What characteristics define human life?
- 2) What should our response be to others who believe human life is no more valuable than other forms of life?
- 3) How would you respond to someone who believes that a fetus only becomes a person after birth?
- 4) Should an evaluation of one’s quality of life impact our decision on whose life is worth living or not?
- 5) As Christians, how can we support a culture of life within our communities and our society at large? What specifically can we do, both as individual Christians and church communities?

Lesson 2

The Beginning of Life

Case Study

A couple in their early thirties have struggled with infertility during their ten years of marriage. They have recently met with a fertility specialist who has suggested they try *in vitro* fertilization. He has recommended that they fertilize ten eggs, freeze six and implant four. When the couple raised concerns about the possibility of having quadruplets, the fertility doctor suggested that they could selectively reduce any “unwanted extras.” The couple is concerned with this proposal, but is not sure what to do. What are the ethical issues raised by the doctor’s recommendation? How should the couple proceed?

Introduction

Issues involving prenatal life are some of the more common bioethical issues, but they can also be the most complex. These issues include prenatal genetic testing, abortion, *in vitro* fertilization, and more recently pre-implantation genetic diagnosis. These issues are complex because they involve some of the most personal desires and emotions: the desire to have children, the desire to have healthy children, concern for the life of the unborn, and concern for maternal health. One of the biggest issues is the question of when life begins. Since this was discussed in the previous session, we will simply assume that life begins at conception. For clarification, we will be using medical terminology to describe prenatal life. The term embryo will be used to describe human development from conception to the end of the 8th week, while the term fetus will be used to describe development from the 9th week till birth.

Background Information

Abortion

As of 2005, over a million fetuses are aborted each year in the United States alone. These abortions can be elective, meaning the abortion is chosen for reasons other than medical purposes or they can be therapeutic, meaning that the abortion is performed when the pregnancy constitutes a threat to the health of the mother. There are several ways that the abortion of an embryo or fetus can be induced or performed. Early stage abortifacients include Plan B (“Morning After Pill”) and IUDs (Intrauterine Device), which prevent the implantation of the embryo into the uterine wall. Medical abortions are abortions caused by taking the medicine Mifeprex that causes the lining of the uterus to thin. This type of abortion can be performed only in the first nine weeks of pregnancy. Surgical abortions remove the fetus and placenta usually through vacuum aspiration and can be performed up until approximately the 20th week.

Prenatal Testing

Prenatal testing generally refers to a series of procedures during pregnancy to identify chromosomal abnormalities and inherited genetic conditions of the fetus. Some prenatal tests are diagnostic, which means that they can determine if the fetus has a particular

genetic defect, whereas others only indicate the probability that the fetus has a congenital defect. While these tests can help prepare expectant parents for challenges their child may face, many such parents choose to abort their fetus upon receiving a positive result for a congenital disorder. Prenatal tests include amniocentesis, chorionic villi sampling, and maternal blood screening. Amniocentesis involves taking a small amount of fluid containing fetal cells from the amniotic sac and genetically testing the fetal cells for genetic abnormalities. This procedure is usually performed around the 15th week of pregnancy and carries a slight risk of miscarriage. Amniocentesis can also be performed between the 32nd and 39th week of pregnancy to determine the lung development of the fetus if early delivery proves necessary. Chorionic villus sampling is performed between the 10th and 12th week of pregnancy. This test involves the removal of placental tissue and carries a 1% risk of miscarriage. It cannot determine the presence of neural tube defects. While pre-natal genetic tests are usually accurate, like any test, there is a measurable risk for false positives. Maternal blood screening (Triple Screen or Quadruple Screen) examines the levels of alpha-fetoprotein, a protein produced by the fetus, and two or three additional pregnancy hormones present in the blood of the mother. The levels of these substances can indicate if there is higher risk for a chromosomal abnormality such as Down syndrome or a neural tube defect.

***In Vitro* Fertilization**

In vitro fertilization is a procedure used to help infertile couples conceive a child. The egg and sperm of the parents or donors are joined in a Petri dish (*in vitro*) and the resulting embryos are allowed to develop to the blastocyst stage (approximately 4-5 days) and are either implanted in the uterus of the mother or are frozen for later use. Typically, more embryos are created than will be used since *in vitro* fertilization may take a few cycles in order to be successful and since not all embryos survive the thawing process (approximately two-thirds survive). Multiple embryos are usually inserted into the uterus of the mother at the same time, since some may not implant into the uterine wall. If more embryos implant than can be safely carried to term, some embryos can be selectively reduced (aborted) to improve the chance of survival of the remaining fetuses and subsequently improve maternal health.

Pre-Implantation Genetic Diagnosis

Pre-implantation genetic diagnosis is a relatively new procedure that is used in conjunction with *in vitro* fertilization. When the embryo reaches the eight-cell stage, a single cell is removed from the embryo and tested for particular genetic disorders. This procedure is typically performed if there is a chance that the embryo carries an inherited genetic disorder from one or both parents. This genetic testing will also reveal the sex of the embryo and can be used as a means of selecting the sex of the embryo. Although currently uncommon, this procedure can also be used to screen for genetic factors that are unrelated to the medical health of the embryo, such as eye or hair color, or for the controversial purposes of “savior siblings” selected for potential umbilical cord blood or bone marrow donors for an older sibling in need for a transplant. There is a risk in this procedure for embryo harm leading to miscarriage of the implanted embryo. Due to the newness of this procedure, there has not been sufficient scientific study on the long term health effects of children that are the result of this procedure.

A Theological Perspective

Read

- 1 Samuel 1-2
- Psalm 127:3-5
- Galatians 6:2
- Matthew 25:14-28

Issues surrounding the beginning of life are some of the most common and challenging bioethics issues individuals and couples face. These issues can include an unexpected pregnancy, infertility, concern for passing on an inherited disorder, the discovery that the fetus has a congenital disorder, and pregnancy complications that threaten the life or health of the mother or fetus. For Christians seeking to live their lives in a manner that is pleasing to God, they should turn to biblical teachings and principles when dealing with these difficult life circumstances. This may mean choosing the more difficult or unpopular path.

There is strong scriptural support indicating that life begins at conception. While there may be no single biblical “proof text” describing when life begins, texts such as Genesis 9:5-6 and Psalm 139 support the idea that it is wrong to intentionally take human life, including that of the unborn, with very few exceptions¹. Abortion often is seen in our society as a quick fix for an unwanted pregnancy, due to either an unplanned pregnancy or a problem with the fetus. While it may be perceived as a lesser evil to terminate a pregnancy than to continue with the pregnancy and deal with the hardships that may follow, this does not lessen the fact that ending a pregnancy is terminating a human life, which violates God’s command against destroying life that has been created in God’s image (Gen 9:5-6).

Many individuals rely on prenatal genetic testing to determine whether to continue on with a pregnancy or not. Prenatal testing can be valuable for both the parents and fetus if it is believed that the fetus carries a higher than normal risk for a congenital disorder. While prenatal testing can be beneficial for parents to help prepare them for the challenges they may face or to take any preventative measures for the health of the mother or fetus, it should not be done for the purposes of aborting a fetus based upon the results of this testing. Christians should seek God’s wisdom and guidance when considering prenatal testing. Preimplantation genetic diagnosis (PDG) is sought as a means of selecting embryos for implantation based upon their genetic makeup. While the motivations of parents who seek PGD may be well intentioned (to avoid passing on a genetic disorder or to provide a bone marrow transplant for an older ill sibling), this technology may be used for selfish or morally shallow purposes and gives credence to the idea that embryos (and thus a child) are commodities or products of reproduction, instead of a human life that is to be valued, cherished, and respected. Additionally, since embryos will be discarded or destroyed based upon the results of this testing, the temptations presented by the use of PDG makes it a less than desirable option for

¹ Christians are divided on whether abortion is permissible in cases where there is a high risk that both the fetus and mother will die, such as ovarian or uterine cancer, however these cases are rare.

Christians, since it frequently leads to the violation of the life principle established in Scripture.

The issue of infertility can be a difficult issue for couples to face. One thinks of Hannah and her desperate prayer to God to give her a child after struggling with infertility. (1 Samuel 1-2) Hannah's situation is even more pitiable due to the fact that she was ostracized for her infertility since a woman's status in the Ancient Near East was often attached to her ability to bear children. While Christians should be encouraged to investigate the medical causes and possible treatments for male or female infertility, as they would for any other medical condition, particular attention should be given to the ethics of many of the reproductive technologies that are available today. Reproductive technologies such as IVF can involve the destruction of human life and as such would violate the life principle reflected in Scripture, unless done in a responsible manner in which no embryos or fetuses are harmed or destroyed. Additionally, biblical principles of stewardship should help guide the decision to pursue reproductive assistance, as many of these procedures can be quite expensive, painful and have relatively low rates of success. In a world of limited healthcare resources, allocation issues should be a concern for us all.

The advent of reproductive technologies has led some to view the idea of having biological children as a right instead of as a privilege. This contrasts with Scripture, where children are described as a blessing from the Lord (Ps 127:3-5). Children are gifts that carry great responsibility, not products to be made or purchased at almost any cost or moral expense. While God miraculously intervened and granted Hannah's request to have a child for his divine purposes and subsequently blessed her with additional children in response to her faithfulness, there is little biblical evidence to suggest that God intends for all infertile couples to have their own biological children. While it is difficult for those struggling with infertility to hear, and while it must be stated with the utmost sensitivity, it is God who opens and shuts the womb (1 Sam 1:5-6). God may have special purposes for infertile couples such as adoption, foster parenting, or other ministries.

Christians should be encouraged to turn to God and seek his wisdom and counsel when contemplating these issues. It is important for Christians encountering or struggling with issues surrounding reproductive ethics to be in a supportive community where they can share their concerns and challenges. Christian communities should seek to be both physically and spiritually supportive of those struggling with these issues regarding abortion, infertility, genetic disorders, and difficult pregnancies. It is especially important for Christians to be sensitive to couples who might be dealing with infertility, since this is an extremely personal and painful issue for many couples. Individual Christians and churches interested in engaging their communities on this issue should be encouraged to think comprehensively about these issues and seek involvement in ways in which they can promote life, through coming alongside those in difficult reproductive circumstances and encouraging or financially supporting adoption or foster care.

Questions for Further Study

- 1) How can Christians actively seek to reduce the number of abortions performed each year? What can your church do?
- 2) Is it ever advisable for a Christian to test fetuses for genetic and congenital disorders? How can we provide support for those who do?
- 3) What factors should Christians consider before they utilize reproductive technologies? How might your church raise awareness on these issues?
- 4) What is a biblical perspective on the desire to have children? Does the command to “be fruitful and multiply” mean that couples should use all means possible to have children?
- 5) How can individual Christians and churches support infertile couples?

Lesson 3

Genetics

Case Study

Jane is a 39 year old woman whose family has a high prevalence of breast cancer. Both Jane's mother and aunt were diagnosed with the disease in their mid-40s and eventually died from metastatic breast cancer. Jane is considering having genetic testing for the BRCA1/BRCA2 genes to help determine her risk for developing breast cancer.

However, Jane's brother and sister are opposed to Jane being tested since they do not want to know if they too have a genetic risk for developing cancer. While Jane is sensitive to their concerns, she would like to understand her genetic risk in order to take preventative measures if necessary. What factors should Jane consider as she is making her decision?

Introduction

The field of genetics has seen rapid changes within recent years, leaving many to feel lost in the shuffle. Despite the fact that medicine increasingly is becoming more "genetics focused," there still is much confusion amongst the general populace over what role one's genetic makeup has in influencing our identity and our behavior. Do our genes influence more about us than simply eye and hair color? If our genes influence a particular behavior, does that make the behavior excusable? There is also confusion over what role we as human beings should play in changing that genetic makeup; for instance, does such involvement violate God's role as creator? Recent medical advances have allowed for the genetic testing of many diseases and conditions, even at the embryonic level. Recently it has become possible to correct the "faulty" genes that cause genetic disorders, though this is still not widespread. In order to understand the ethical issues involved in the field of genetics, it is important to understand first what genes are, what they influence, what resources and technologies are currently being used, and what is the potential of genetic medicine to treat and heal disease.

Background Information

What are genes?

Genes are units of hereditary material that correspond to a segment of one's individual DNA (deoxyribonucleic acid). DNA has been described as the blueprint of each individual, since DNA provides the instruction for the development and function of all components of our bodies. Genes are involved in influencing individual characteristics or traits such as eye color, height, and intelligence. While there are some traits that are caused by only one gene, most traits are caused by multiple genes working in combination with each other. Genes also have been implicated in many disorders. Genetic disorders can result from a single defective gene or from the interaction of several defective genes. Other diseases such as cancer are multifactorial, meaning that they are the result of genetic influence in combination with environmental factors. Genes often have different roles to play in the human body and can be involved in multiple systems pathways and can have different functions for each pathway. The ability of

genes to express themselves (be activated or turned on or off) can be influenced by the physical environment, even at the cell level. It is important to note that genotype (genetic instructions) does not necessarily indicate phenotype (observable characteristics) because of the environmental factors involved in the expression of genes. While genes do predispose individuals to develop certain characteristics or disorders, genes by themselves do not necessarily determine physical outcome, with the exception of a few particular genetic disorders.

Genes and Behavior

Recently, certain genes have been identified as influencing human behaviors such as aggression, addiction, and novelty seeking. This has brought much interest and speculation over how genes influence behavior. Essentially this discussion is wrapped up in the famous “nature vs. nurture” argument. What is more influential on our behavior, nature (our genes) or nurture (our environment and personal experiences)? The answer to this question is that it depends. Many behaviors are influenced by a combination of our genes, the environment influencing the expression (the turning “on and off”) of these genes, and personal experiences, such as one’s early home environment. One method scientists use to investigate how genes influence behavior is through the study of identical and fraternal twins. Identical (monozygotic) twins are genetically identical, whereas fraternal twins are not, allowing researchers to identify traits that have strong genetic influence in comparison to those that have little genetic influence, or are the result of a shared or unique environment. Most scientists agree that with the exception of certain disorders and behaviors genes only predispose, not predetermine, the development of particular behavioral traits in individuals.

Genetic Counseling

Genetic counseling is a service provided to prospective parents by many hospitals and other medical institutions to determine the risk of passing on a genetic disorder to their offspring. This risk is determined after a careful evaluation of family medical history and medical records. Based on this information, the counselor can suggest genetic testing for particular disorders for one or both parents and provide interpretation of the results.

Genetic counselors also provide supportive counseling related to the results of the specific genetic tests and the genetic risk of passing on a genetic disorder. Many couples pursue genetic counseling for different reasons, e.g., a particular disorder runs in one or both families (or ethnic groups), they have struggled with miscarriage, they have already given birth to a child with a congenital defect, or an ultrasound or prenatal blood testing indicates a possible birth defect. Some couples elect to not have biological children based upon the results of their genetic risk, or elect to have an abortion if it appears the fetus has a genetic disorder. Others wish to use the information gained to prepare for whatever challenges may lie ahead or in case certain precautions need to be taken during or after the course of pregnancy.

Genetic Testing

Genetic testing examines the DNA of an individual in order to test for specific genes affiliated with a particular disorder or condition. This testing can be “diagnostic,” where the tests are performed to diagnose an existing condition, or “predictive,” where the risk

of developing a genetically linked disorder, such as cancer is determined. Genetic testing usually is performed if there is sufficient reason to suspect that an individual has a particular genetic disorder or if concerns exist regarding the passing on of a defective gene to their offspring. This information can be important to know in order to initiate treatment or if preventative measures can be taken. Currently, more diseases and conditions can be diagnosed than can be treated. While this testing is usually performed by a medical professional trained in genetics or genetic counseling, certain companies have recently marketed “home” genetic testing in response to legitimate fears over genetic discrimination². Due to the risk of false positives that all genetic tests carry, it is generally encouraged that all testing be performed in consultation with a medical professional.

Gene Therapy

Gene therapy involves correcting defective genes involved in a particular genetic disorder so the disorder can be treated, cured, or prevented from manifesting itself. This is usually accomplished through “swapping” a normal gene for an abnormal gene, repairing the gene to its normal state, or by altering the expression of the gene (the activity of the gene). Gene therapy typically utilizes viruses, also known as vectors, to carry the “new” gene to the cell and insert the gene into the patient’s DNA. There are several challenges to using gene therapy including immune rejection of an inserted gene, immune response to the virus, misinsertion of the gene, or the possibility that the gene correction may only be transient instead of permanent. There are two basic types of gene therapy, somatic and germline. Somatic gene therapy involves the correction of fully differentiated cells, which means that only the individual who is treated will be affected. Germline therapy involves the correction of the genes in reproductive cells (egg or sperm), which will affect any future offspring. While applications of germline gene therapy for humans are still largely in the future, somatic cell gene therapy has been used in a number of cases to correct particular disorders caused by single-gene defects. Somatic gene therapy is still at the experimental stage and should only be conducted with great precaution and as a last resort.

A Theological Perspective

Read

- Ephesians 4:20-32
- Philippians 2:1-5
- Matthew 4:23-24, 14:14

The discovery of DNA has given us a wonderful opportunity to ascertain the complexity of God’s creation, especially our own. The confusion over the role that individual genetic makeup plays in influencing our identity and behavior has led some to fear the “genetic revolution” as well as accuse scientists of “playing God” by seeking to

² As of 2008, Congress passed the Genetic Nondiscrimination Information Act outlawing discrimination by health insurance companies and employers based upon the results of genetic testing.

correct faulty genes or prevent the transmission of genes through genetic testing and counseling. While not all Christians are in agreement, many believe that involvement in genetic based medicine is part of the dominion God has given humanity over creation. The attempt to correct or influence individual DNA should always be made in accordance with biblical principles and with the utmost concern for the safety of the individuals affected by these changes. While the ethics and safety of each new scientific endeavor should always be examined, it is important not to react without a thorough understanding of the science and purposes of these endeavors.

As Christians, it is important to remember that our identity is in Christ, and not in our genes. While such sayings as “it’s in my genes” or “I was born this way” are popular colloquialisms, they are overly simplistic and even misleading. With Christ all things are possible (Phil 4:13), including the ability to overcome negative circumstances and genetic influence on behavior. We should be careful not to ascribe more weight to genes than is empirically warranted. While there may be strong genetic predispositions towards certain behaviors, this does not lessen the personal responsibility individuals have over their own actions and attitudes. In fact, the opposite may be true. If we have knowledge of a genetic risk for behavior that causes a propensity to sin, individual responsibility increases in order to prevent committing such sin. Those in Christ should be encouraged to “put off the old self” and seek to be transformed into the image of Christ (Eph 4: 20-32, 2 Cor 5:17).

Genetic counseling can be a beneficial experience for many prospective parents who desire to avoid passing on a genetic disorder to their offspring or wish to prepare themselves for any challenges that may lie ahead. This is especially true if any preventative measures can be taken to lessen the severity of a congenital disorder. Couples who feel the risk is too great may choose to avoid having biological children of their own out of concern for passing on a debilitating disorder to their offspring. This decision is personal and should be made only after seeking God’s wisdom and guidance. Genetic testing also can be a valuable avenue for individuals to pursue if there is reasonable concern that an individual has inherited a genetic disease. Currently, however, more genetic disorders can be diagnosed than can be treated or prevented. With this in mind, genetic testing might not be the best use of resources if we are medically unable to either prevent or treat the genetic disorder for which the testing was performed. Additionally, genetic testing often reveals familial genetic makeup and may identify risks of a genetic disorder affecting more people than the individual being tested. Christians are called to seek the good of others (1 Cor 10:24, Phil 2:1-5) and should take into consideration all those who might be affected by genetic testing.

Christ’s ministry on earth was filled with healings of individuals who struggled with physical disorders. While these miracles of healing served to display the power of God manifested in His Messiah, Jesus performed these miracles out of a sense of compassion (Matt 4:23-24, 14:14). Christians should seek to emulate the love and compassion displayed by Jesus Christ. God has given us the ability to understand, treat, and even heal disease, and therefore we should welcome the opportunity to do so through somatic gene therapy. We should, however, ensure that as with any treatment, it is a responsible use of the dominion God has given us over the earth, it is safe not only for this generation, but for future generations as well, and that it is used in a way that honors the purposes of God. Gene therapy is a nascent technology and should be used with extreme

caution. Because our understanding of genetics is incomplete, it would be unwise to attempt germline gene therapy, since this could have unintended disastrous consequences, even if pursued for benevolent purposes. Gene therapy should only be used to treat and to heal and never for selfish enhancement purposes. If used responsibly, genetic medicine can be an additional opportunity to follow Christ's command to take care of the sick (Matt 25: 31-46).

Questions for Further Study

- 1) Does having a genetic predisposition towards a particular negative behavior make that behavior excusable?
- 2) When would it be appropriate for a Christian to seek genetic counseling? Is this a field Christians should be involved in?
- 3) What factors should Christians consider before seeking genetic testing?
- 4) Are there circumstances where gene therapy might violate God's role as creator? What about using gene therapy for enhancement purposes?
- 5) How can Christians seek to exercise our "dominion over the earth" wisely in the realm of genetic medicine?

Lesson 4

Technologies and Treatments

Case Study

Sarah is a recently hired research assistant in a genetics lab working on finding treatments for Parkinson's disease using adult stem cells. Her principle investigator recently obtained a private grant from a Parkinson's Advocacy group for the purpose of investigating treatments for Parkinson's using embryonic stem cells. Sarah's principle investigator has asked her to begin harvesting embryonic stem cells from discarded embryos from a fertility clinic. In order to harvest the stem cells, she will have to destroy the embryo. She is uncomfortable doing this and expressed her concern to her principle investigator, who responded, "Why would you be concerned over harvesting cells from an unwanted, discarded bunch of cells?" How should Sarah respond?

Introduction

Recent scientific research involving stem cells and cloning has been touted by many in the scientific world as the likely cure to an unlimited number of medical conditions and disorders that cause suffering and "low quality" of life. While it should be the goal of medicine to relieve suffering and seek the advancement of health, it is important not to rush ahead with these technologies without carefully considering their ethical and societal implications. The science behind these technologies can appear difficult to understand, but with some basic information the practical and ethical issues become readily apparent. It is important as Christians to think critically about these issues and to engage our society on the relevant ethical issues emerging out of these technologies. This lesson will attempt to provide basic information on the scientific background of these technologies, as well as discuss the preliminary ethical issues these technologies pose.

Background Information

Stem Cell Research

Introduction

Stem cell research seeks to find cures and treatments for many diseases, disorders, and injuries including Parkinson's disease, multiple sclerosis, diabetes and spinal cord injuries. Stem cell research is part of a branch of medicine known as "restorative or regenerative medicine" which seeks to restore the body back to its natural state of health. Stem cells are precursor cells (early cell forms) that give rise to specific cell types found in the human body. Stem cells are being studied to understand how diseases develop in the body so that we can discover how to better treat or cure disorders. Stem cells are also being investigated as a means of providing tissue or organ transplants to patients. There are two fields of stem cell research: embryonic and adult.

Embryonic

Embryonic stem cells are cells harvested from embryos approximately 4-5 days after conception. The embryos are destroyed in the process of harvesting the stem cells. Theoretically these cells have the potential to differentiate into the more than 200

different cell types found in the human body. Currently there are several scientific obstacles to using embryonic stem cells for treatments including tumor formation, genome instability (causing an increase in mutations and the rearrangement of chromosomes and genes), and immune rejection by the patient. This research is controversial, since many question the ethics of destroying human embryos for such purposes. Others argue passionately that this research poses no significant ethical issues, since at least for now, the embryos are typically donated from fertility clinics and would most likely be discarded anyway. Despite the alleged promise of embryonic stem cells, no treatments for diseases have resulted from this research. Currently, embryonic stem cell research is legal within the U.S., but is only eligible for federal funding under certain restrictions.

Adult Stem Cell Research

Adult stem cells are precursor (undifferentiated) cells found in multiple tissues in the body, such as the bone marrow, liver, and brain. The term “adult” is somewhat of a misnomer, since these cells can be found in early human fetal and infant development as well. These cells give rise to the specific cell types needed in a particular tissue. For example, hematopoietic stem cells found in bone marrow give rise to all the different types of blood cells such as red blood cells and the five types of white blood cells that need to be continually replenished in the body. Therapies from adult stem cells do not have the same ethical or clinical problems as embryonic stem cells, since these cells are harvested from the patient’s own body (thus avoiding the need to destroy embryos), and therefore pose little risk of immune rejection. Multiple treatments are currently being used in patients as a result of adult stem cell research. While embryonic stem cells theoretically are more advantageous to use than adult stem cells, recent advances in adult stem cell research appear to offer these same advantages without the drawbacks. This research includes the development of induced pluripotent cells (iPS or iPSCs), which are fully differentiated cells that have been directly reprogrammed into cells that have embryonic stem cell-like properties, including the ability to develop into all the cell types of the body. More recently, a fully differentiated cell type (adult cell) has been directly transferred into another type of cell in mice, leading to the possibility that this type of adult cell reprogramming can be performed in humans.

Cloning

Introduction

In 1997, Ian Wilmut at the Roslin Institute in Edinburgh, Scotland made international headlines when he cloned “Dolly” the sheep. Since this scientific feat, there has been much speculation over the ethics and uses of cloning. The term cloning refers to the process of making a genetically identical copy of biological material or an organism. In popular media, cloning usually refers to creating an identical organism through asexual reproduction. Sometimes cloning is referred to by the name of the process in which cloning is performed: somatic cell nuclear transfer (SCNT). In the process of SCNT, the nucleus of an adult donor cell is transferred into an egg, which has had its nucleus removed. All DNA is stored in the nucleus of the cell, with the exception of mitochondrial DNA which is found in the egg. The egg with the inserted nucleus is treated with electricity or chemicals in order to stimulate cell division resulting in an

embryo. The embryo is then allowed to develop for approximately 4-5 days at which point it would be either implanted into a uterus and carried to term (reproductive cloning) or destroyed in order to harvest embryonic cells (research cloning).

Research Cloning

Research cloning, sometimes known as therapeutic cloning, is performed for the purpose of harvesting stem cells from the cloned embryo. This method of cloning has been proposed as a solution to overcome the immune rejection of embryonic stem cells in humans, since in this case embryonic stem cells are created using a cell from the patient's own body. It has also been theorized as a possible method of producing organs for transplantation thereby alleviating the shortage of donor organs available for transplant, but the feasibility of this is highly questionable. The U.S. public is divided over the ethics of this type of human cloning.

Reproductive Cloning

Reproductive cloning is performed with the intention of producing offspring and has been proposed as a means of assisting couples struggling with infertility. Currently only animals have been successfully cloned, although there have been reports of several attempts to clone humans, none of which have been substantiated. The clones produced so far have resulted only after numerous failed attempts. There is significant concern that human cloning would require the use of hundreds of eggs in order to produce one viable clone. The majority of the U.S. public is opposed to human reproductive cloning.

Animal/Human Hybrid Embryos

In 2008, the first cytoplasmic animal/human hybrid embryos were created in the U.S. and the United Kingdom. The method of producing hybrid embryos is the same as with cloning, although an animal egg is used and the nucleus is from a human cell. The creation of animal/human hybrid embryos was suggested as a means of solving the research shortage of donor eggs. The primary purpose of creating these hybrid embryos is to harvest and study embryonic stem cells. In the U.K., these embryos must be destroyed 14 days post-conception, although currently these embryos have not survived past a few days of development.

A Theological Perspective

Read

- Matthew 22:37-40
- Romans 3:8
- Genesis 1:26, 28
- Psalm 8:6-8

The recent developments in research and therapeutic technologies offer exciting promises for the treatment of diseases, although many also pose new moral and ethical challenges that need to be confronted and addressed. God has given humans the ability to investigate the world, comprehend the complexities we find, and create new applications of this knowledge in order to decrease human suffering and improve the quality of life.

This God-given intelligence and reason should always be used for God's glory and the benefit of others. With this in mind, Christians should support the efforts of science to alleviate suffering and find treatments and cures for diseases. Indeed the development of treatments and therapies seems consistent with the commandments to "love the Lord with all our mind" and to "love our neighbor as ourselves (Matthew 37-40). That being said, just because we have access and the ability to use certain technologies and treatments, does not mean that we should use it, especially if they are developed in a manner contrary to sound biblical and ethical guidelines. For Christians especially, it is important that all new technologies and treatments are developed and used in accordance with biblical principles and general ethical guidelines.

While embryonic stem cell research has been publicized as the "gold standard" for stem cell research, this research involves the destruction of embryos. As such, it cannot be justified from a Christian perspective since by destroying nascent human life it violates the life principle established in Scripture. It is true that many justify this research with the argument that the embryos used are left over and will be discarded anyway, so they might as well be used to benefit others. Scripture states however, that we are never to "Do evil so that good may result" (Rom 3:8). This line of thinking is dangerous and leads to the exploitation of the most vulnerable of humanity. In contrast, adult stem cells pose no significant moral or ethical issues that would prevent their use as therapies and treatments. Given the impressive number of therapies derived from adult stem cell research, resulting in the curing of disease, this research should be encouraged and supported as a means of taking care of the sick (Matt 25:36).

While cloning has received significant media attention, the ethics and scientific feasibility of cloning have not. Whole organism cloning is not an easy feat. So far, cloned animals have only resulted after numerous failed attempts (it took 276 tries in order to clone Dolly the Sheep). Given the vast number of eggs that would be needed to clone just one human being, either for research or reproductive purposes, it seems highly impractical to pursue advances in cloning. Additionally, research cloning violates the life principle established in Scripture, since cloned embryos are created for the sole purpose of harvesting embryonic stem cells, which destroys the embryo. While the desire of infertile couples to have children is understandable, reproductive cloning is not an ethical means of overcoming infertility, since this method violates the "one flesh" principle of Genesis 2:24, which indicates that offspring are to be the result of a husband and wife becoming "one flesh." It is also does not seem wise to have offspring with only the genetic material from just one parent, since this could cause confusion to the child and may cause tension between the couple. Given the many health and developmental problems animal clones have demonstrated, it seems best to avoid reproductive cloning altogether.

While humans have been given "dominion" over the earth (Gen 1:26, 28; Ps 8:6-8), this dominion does not mean that humans have the liberty to do whatever we wish with God's creation. Christians are to live their lives according to biblical principles and consider how their actions affect others. God clearly delineated the created order as described in Genesis 1:24-25 and that order should be respected. The word dominion should instead be understood in the sense of "caretaker" or stewardship, since the "The earth is the Lord's" (Ps 24:1). We are to care for all of creation, but we should limit our creative activity when it violates the divinely created order. The creation of

animal/human hybrid embryos violates our human dignity by merging human life with animal life; this is unethical from a biblical perspective. There is also significant evidence that the development of animal/human hybrid embryos will not result in any viable treatments that would benefit humanity, leaving many to rightly question why this research is being pursued in the first place. God has entrusted us with his creation. It is important that each new scientific endeavor be pursued within the physical, moral, and ethical boundaries set in place by God, since only then will this research truly be beneficial to all of humanity.

Questions for Further Study

- 1) What are some basic arguments against embryonic stem cell research (both theological and scientific)?
- 2) What is wrong with creating human clones for our own purposes, for purposes of research or reproduction?
- 3) Are there any medical or scientific activities which violate the “dominion over the earth” mandate given to humans by God?
- 4) From a Christian perspective, what should the goals of medicine and science be? How can Christians ensure that scientific research accords with the will of God?
- 5) Would it ever be ethical for Christians to take part in research that involves the destruction of embryos or the creation of “new” forms of life?

Lesson 5 **The End of Life**

Case Study

Joe, a 72-year-old father of three has been brought into the hospital after suffering from a debilitating stroke that left him unconscious and paralyzed on his left side. His three children have come into the hospital to manage his medical treatment, since their mother recently passed away. Because of some difficulties in the medical decisions the family encountered when their mother was dying, the children encouraged their father to complete an advance directive, but he never got around to filling out the form. The doctor has informed the children that there is a 20-30 percent chance that their father will regain consciousness if placed on an artificial ventilator with artificial nutrition and hydration. However, there is also a chance that he will never recover and will remain comatose and paralyzed. The physician wants to know if she should begin these treatments or issue a DNR (“do not resuscitate”) order. What should the children do?

Introduction

The fear of death and suffering during the dying process are two of the most common fears individuals face. With the advances in medical technology it has become possible to prolong life through such means as artificial ventilators and artificial nutrition and hydration (feeding tubes) that previously had not been possible. While these technologies allow many ill individuals the chance to recover their health, they also introduce new ethical issues in society over initiating or discontinuing life support, especially in situations where the patient’s wishes are not known. On the opposite side of the spectrum, assisted suicide and in some places, euthanasia are becoming an acceptable means of ending one’s life. While many argue that assisted suicide and euthanasia help patients to die in a “dignified” manner, others question if it is the role of patients to decide when they die and whether the role of the physician as healer is violated by participating in patients’ deaths. It is now more important than ever to be informed about the ethical issues surrounding end-of-life decisions, to be aware of the resources available for end-of-life care and to make individual wishes known regarding end of life treatment.

Background Information

Withholding and Withdrawing Treatment

Some of the most difficult decisions regarding end-of-life care surround the initiation, withholding, or withdrawing of life-sustaining medical treatment such as respiratory ventilators or artificial nutrition and hydration (feeding tubes). These decisions are especially difficult when the patient is unable to participate in the process and when their wishes are unknown. Some patients (or their families) do not wish to initiate life-sustaining treatment for fear that they will have participated in the death of the patient by “pulling the plug.” This is a faulty perception, since the underlying disease or condition is always the cause of death in terminally ill patients, even when treatment is discontinued. While it may seem better to withhold initiation of life-sustaining treatment than to discontinue treatment, ethically there is no difference, since it can be difficult to

know if life-sustaining treatment will be beneficial to the patient unless it is initiated. It may be that by withholding treatment, the patient is prevented a chance for recovery. Additionally, if the treatment causes more harm than benefit to the patient, it might be more burdensome to the patient to continue treatment.

Physician-Assisted Suicide

Physician-assisted suicide (PAS)³ is any suicide that is performed by a patient with the assistance of a physician who provides the medication, but does not administer it. It is different from euthanasia, where the physician directly administers the lethal medication. In the U.S. physician-assisted suicide was legalized in the states of Oregon and Washington upon passage of referendums in 1997 and 2008, respectively.⁴ Under this legislation, patients can request life-ending medication (typically barbiturates) from their physician. Both states require that the patient be 18 or older, be a resident of the state, and be terminally ill with less than six months to live as confirmed by two physicians. These two physicians must declare that the patient has unimpaired judgment. There is a 15-day waiting period between the first verbal request and a second written request. Additionally, patients must wait 48 hours between the written request and the writing of the prescription. There have been several issues and concerns with the practice of physician-assisted suicide in Oregon. A recent study performed by Oregon Health and Science University suggested that one in four terminally ill patients requesting physician-assisted suicide suffer from clinical depression,⁵ which calls into question the patient's decision-making capacity. Additionally, the Oregon Health Plan (the state funded health care plan) has come under scrutiny for covering the costs of physician-assisted suicide, but not covering other end-of-life care or medical treatment due to the expense.⁶

Euthanasia

Euthanasia is the intentional ending of the life of a patient by others. Euthanasia can be active, meaning the patient is killed through a lethal act, such as the administration of lethal medication, or passive, meaning that the patient's death is brought about by intentional inaction, such as withholding treatment that could clearly save the life of the patient. There are three types of euthanasia: voluntary, nonvoluntary, and involuntary. In voluntary euthanasia, the patient consents to being euthanized, whereas with nonvoluntary euthanasia the patient is euthanized without their explicit consent. Involuntary euthanasia is where the patient is euthanized against their wishes. Voluntary active euthanasia is currently legal in Belgium, Switzerland, and the Netherlands. In the

³ Some individuals prefer the term "physician-assisted death/dying," however this is simply an attempt to lessen the moral implications of the original phrase.

⁴ Physician-assisted suicide is also legal in Montana through a trial court ruling as of December 6, 2008, although this decision is currently being challenged by the Montana Attorney General.

⁵ Linda Ganzini, Elizabeth R Goy, and Steven K Dobscha, "Prevalence of depression and anxiety in patients requesting physicians' aid in dying: cross sectional survey." *British Medical Journal* 337 (2008): a1682.

⁶ Susan Donaldson James, "Death Drugs Cause Uproar in Oregon," *ABC News*, August 6, 2008, <http://abcnews.go.com/Health/story?id=5517492>. Accessed April 14, 2009.

Netherlands, there has been concern over euthanasia performed on patients without their consent. According to a study performed by the Dutch government in 1991, approximately 4 percent of cases (approximately 6,000 individuals) of euthanasia in the Netherlands were involuntarily euthanized.⁷ In 2005, 1.7% of all deaths in the Netherlands were reported to be the result of euthanasia.⁸

Palliative Medicine/Hospice Care

Palliative medicine is a branch of medicine that seeks to provide sufficient pain relief and management of symptoms. The goal of palliative medicine is not to cure, but rather to improve the quality of life of patients with chronic or terminal illness. While palliative medicine is distinct from hospice care, it is often a significant and important component of hospice care. Hospice care seeks to provide holistic treatment for imminently dying patients through meeting the patient's physical, emotional, and spiritual needs. Hospice care seeks to help patients to die in the best manner possible through providing pain relief, comfort, and support. In addition to medical staff, chaplains, social workers, and volunteers are involved in patient care and family support.

DNR/Advance Directives

A “do not resuscitate” or DNR order is a written request placed in the patient's chart requesting that no attempt be made to revive a patient through cardiopulmonary resuscitation (CPR), including chest compressions, assisted respiration, electroshock treatment, and injections of medications to “restart” the heart) if the patient's heart or breathing stops. This request is usually made when a patient is terminally ill and does not wish to be resuscitated due to quality of life concerns or in cases where resuscitation with CPR is felt to be futile. Without a DNR order, medical staff are obligated to attempt resuscitation through all means possible, even if the patient has a terminal illness. A DNR order is not a request to discontinue treatment or care of a patient. Even if a DNR order is issued, medical staff are required to continue treatment and comfort care of the patient. An advance directive is a legally binding document that enables an individual to make medical decisions on behalf of a patient in the event the patient becomes unconscious or lacks decision-making ability (Durable power of attorney (DPA)). Advance directives also allow the opportunity for a patient to state their preferences regarding medical care and life support treatment (Living Will). These forms help ensure that the wishes of a patient are known and carried out. The Center for Bioethics & Human Dignity offers an advance directive form with instructions available at http://www.cbhd.org/downloads/Advance_Directive.pdf.

⁷ P.J. van der Maas and J.J.M van Delden, “Euthanasia and other medical decisions concerning the end of life.” *Lancet* 338 (1991): 669.

⁸ “Evaluation – Summary: Termination of Life on Request and Assisted Suicide (Review Procedures) Act.” The Hague: ZonMw, May 2007. Available at <http://www.minvws.nl/en/themes/euthanasia/default.asp>.

A Theological Perspective

Read

- 1 Corinthians 15
- John 11:25-26
- Philippians 1:19-26
- 1 Corinthians 6:19
- Job 13:13-15
- 2 Corinthians 1:3-5

Death and dying can be difficult and uncomfortable subjects to discuss, as they are reminders of human mortality and the fragility of life. Death is in many ways a frightening prospect for most of us and brings out what seems to be universal fears of pain, being alone, and of the unknown. The Bible is not silent on this issue, but rather seeks to provide a theological understanding of death and address human fears. Death is most importantly described as a defeated enemy that Christians need not fear (1 Cor 15: 26, 54-56). Indeed, Christ not only defeated, but destroyed death (2 Tim 1:10). Christians can rest assured that though they die, they will live and be in the presence of God (John 11:25-26). Many Christians may share the sentiments of Paul of being torn between being alive on earth or to depart and be present with Christ (Phil 1:21-26). However, death is not something Christians are supposed to pursue. Christians are to seek to live their lives in a manner that is honoring to God in life or death (Phil 1:20). While death is an unnatural reality, Christians can take comfort in the promises of God's provision of comfort and presence in difficult times. In Isaiah, God states that he will be with us and sustain us in our old age (Isa 46:4). Christians should be reminded that with God, there is nothing we need to be afraid of (Ps 23:4, 27:1) and that there is nothing that can separate us from the Lord our God, including death (Rom 8:37-39).

Christians are called to uphold and value human life. Death is a reality that stands in conflict with this desire. Some individuals believe that life must be upheld at any cost through all medical and technological means possible (the "vitalist" position). This preservation of life, however, may cause more suffering than is necessary. While Christians are to uphold life, there is no biblical evidence to support the belief that life must be artificially continued at great physical, emotional, and financial expense to the patient and the patient's family. Other individuals believe that when life-sustaining treatment causes more suffering and harm than medical benefit, it is morally acceptable to discontinue life-sustaining treatment and focus on providing the best possible means of comfort and for the individual as the dying process progresses. Deciding to withdraw life-sustaining treatment requires much wisdom, discernment, and counsel. Christians recognize that it is God who determines the length of the days of our lives (Deut 32:29, Job 14:5). Because of this, Christians should be willing to release life into God's hands, knowing that God is sovereign over both life and death.

While physician-assisted suicide and euthanasia are becoming more commonly accepted means of ending life, they stand in direct opposition to the teaching of Scripture. The Bible teaches that our life is not our own (1 Cor 6:19). Our decisions and actions towards the end of life do matter. Paul reminds his audience that in both living and dying

we are to honor Christ with our bodies (Rom 14:8, Phil 1:20). The Bible records several instances of suicide, including the famous example of Saul (1 Samuel 31). In each of the instances of suicide recorded in the Bible, it is not presented as an honorable option. Additionally, Job refused to take his life into his own hands, but instead chose to continue to trust in the faithfulness of God to see him through his physical and emotional suffering (Job 13:13-15). The practice of PAS and euthanasia is disconcerting to many physicians because it undermines their role in society as healer, and it also violates a key principle of the original Hippocratic Oath (“I will neither give a deadly drug to anybody if asked for it, nor will I make a suggestion to this effect”). Two of the most common reasons for pursuing physician-assisted suicide and voluntary euthanasia are inadequate pain control and a fear of becoming a burden on families and loved ones. These fears can be easily remedied with adequate palliative care and the support provided through hospice care and an involved church community.

The goal of providing adequate end-of-life care should be crucial for caregivers, physicians, and society in general. Many of the physical, emotional, and spiritual needs of patients in the process of dying, as well as the needs of their family members can be met through hospice care. Hospice care is an area in which individual Christians and church communities could be actively involved. Christians can provide support for the terminally ill and their loved ones in other ways, through providing caregiver or respite support, meeting practical needs (providing meals, helping with cleaning, shopping, etc.), or simply providing a listening ear. By meeting these needs Christians can participate in sharing each other’s burdens and providing comfort (Gal 6:2, 2 Cor 1:3-5). It is important for individuals to be proactive when it comes to prepare for end-of-life care and decision-making. Completing an advance directive can help alleviate the (future) burden of decision making by family members and allows for individual wishes regarding life-sustaining treatment to be known.

Questions for Further Study

- 1) What do you think are the greatest fears of those who are terminally ill?
- 2) How can Christians help to relieve the fears of those who are dying?
- 3) How can your church community be involved in hospice care and in the lives of those who are terminally ill?
- 4) What information should you consider when filling out an advance directive?
- 5) What factors should you consider when removing life-sustaining treatment?