Chrtc 390 Module 5 Class Notes by Paul Flaman

When Does a Human Person Begin and Cease to Exist in this World?

Discussion Questions

1. When do you think you began to be a human person? Before fertilization as a pre-existing soul (cf. reincarnation); before fertilization in the mind of God; at fertilization; at some point after fertilization but before birth is complete; when birth is complete; later on in infancy or childhood; you are still not fully a person? How would you justify your view?

2. Does your position on when personhood begins affect your views on non-therapeutic research on embryos, on abortion, on treatment of infants (e.g., anencephalic infants) born with serious birth defects?

3. How would you define death? What criteria for determining the time of death do you think are the most reasonable? Why? Does your view of when death occurs affect your position on when vital organs such as the heart can be removed ethically from one human body for transplant to another human person, on allowing to die, and/or on active euthanasia? Do you think that it can ever be ethical to remove vital organs from a living person including a dying person with their consent for the benefit of someone else?

4. Compare and contrast the features of the beginning and end of the life of a human person in this world.

5. Are there any similarities and differences in the evolution of life on this planet and the development of a human embryo / fetus / child?

6. What features or characteristics are relevant to the worth/value/dignity of a human person? a) her / his / their nature or essence as a being; b) her / his / their relationships with other persons and God; c) her / his / their present functional abilities (e.g. present ability to be sentient, conscious, have subjective experiences and feelings, self-aware, have a sense of self-identity, reason, think, communicate, to relate to other persons, act as a moral agent, etc.); d) her / his /their potentialities (e.g., to develop such capacities); e) some other criteria; f) a combination of one or more of the above?

7. In the light of these issues, how would you define "human being" and "person"? What does it mean for human beings to be created in "the image of God"?

8. Is all life sacred? All *human* life? Why or why not?

9. Does neuroscience help us to answer these questions? Do you think some have used science inappropriately in discussing one or more of these issues?

10. Do philosophy and Christian theology help to answer one or more of these questions?

11. What model of interaction between science including neuroscience and religion (especially Christian theology) do you think is most helpful with regard to these and other issues?

When Does a Human Person Begin to Exist in this World?

Introduction

When does a human being or individual or person begin to exist? We can approach this question in a variety of ways including experience, science, philosophy, law, the Bible, theology, Catholic Teaching, and personal opinions. The answer to this question is not only theoretically relevant but also practically relevant since it informs moral and legal views related to the issues

of abortion, abortifacients, In Vitro Fertilization, embryo selection, discarding of embryos not wanted by the parents, research on embryos including embryonic stem cell research, and the euthanasia of infants.

Ancient Science and Philosophy

The views of the ancients were not all the same. For example, the ancient Greek philosophers Plato and Aristotle, who both have had an enormous influence on subsequent Western philosophy, differed in significant ways.

Plato (426-347 B.C.) was of the view that human and animal souls were immaterial, that they pre-existed the body, and that they were "infused" into the body at conception. Like some Eastern ancient views, which are still held by many today, he believed in reincarnation. When an individual animal or human dies its soul leaves its body and could be reincarnated in another body, human or animal (see his *Phaedo* and *Republic*). While orthodox early Christians did not accept Plato's views of the pre-existence of souls and reincarnation, they agreed that the human soul was immaterial and immortal, that it did not die with the body.

The philosophy of Aristotle (384-22 B.C.) has had and continues to have an enormous influence in the West. Aristotle was very empirical and before the development of modern science many others considered his science to be the best science available—it was very influential for more than 1500 years. Before microscopes and our knowledge of sperm, ova and fertilization, Aristotle (and the ancient world generally) viewed the woman's womb as a "garden" and the man's semen as "seed". Infertility was compared to "barren" soil. (Compare the Bible which presents a few "barren" wives.) Regarding human beings Aristotle held a delayed hominization view (*On the Generation of Animals*, Bk. 2, Chs. 1-4). He did not consider the man's semen to be a human being. For him the man's seed was the active element which

formed the maternal blood (passive element) first into a vegetative body, then an animal body and finally a human body. In his view after intercourse there was first "vegetative" life with a vegetative principle of life or "soul," then "animal" life with an "animal" or "sensitive" soul, and finally human life with a "rational" soul.

The Bible

With regard to the beginning of human life a few relevant biblical texts include the following. Ps 139:13-15 reads: "For it was you who formed my inward parts; you knit me together in my mother's womb. I praise you, for I am fearfully and wonderfully made. Wonderful are your works; that I know very well."(NRSV) The biblical Psalms are prayers to God so the "you" here is God and the "I" is the human author. Is 49:1 reads: "The LORD called me before I was born, while I was in my mother's womb he named me."(NRSV; cf. Jer 1:5) These texts speak of God having a personal "I-Thou" relationship with a human being / person before birth. Regarding Ps 51:5 saying, "Indeed, I was born guilty, a sinner when my mother conceived me," many modern readers may identify "conception," a philosophical concept meaning "beginning" or "inception" with "fertilization," a modern biological concept meaning a sperm entering an ovum. We should keep in mind, however, that the biblical author had no knowledge of sperm, ova and fertilization which were only discovered by humans with the invention of the microscope many centuries later.

Wis 8:19-20, a Jewish Greek deuterocanonical biblical text, reads: "As a child I was naturally gifted, and a good soul fell to my lot; or rather, being good, I entered an undefiled body." The author here, perhaps influenced by Greek ideas of the "infusion" of the soul, interestingly identifies first with his body and then with his soul.

In the New Testament, Lk 1:39-45 reports a meeting and conversation between Mary, the mother of Jesus, and her older relative Elizabeth, the mother of John the Baptist. Elizabeth was pregnant (in her sixth month) at the time of this encounter. The text says in part that Elizabeth "filled with the Holy Spirit" asks, "And why has this happened to me, that the mother of my Lord comes to me?" At this time Mary had only very recently conceived in her womb Jesus, the Lord (within days according to verse 39), who would thus have been at the early embryonic stage, and yet Mary is already acknowledged as "the mother of my Lord," that is, the mother of an already present person. Elizabeth also says to Mary, "For as soon as I heard the sound of your greeting, the child in my womb leapt for joy."(verse 44) A few months before the birth of her child, this human fetus within Elizabeth, already spoken of as a "child," is reported as not only very active but also as subjectively experiencing "joy".

Medieval Christian (also Jewish and Muslim) Philosophy / Theology

Thomas Aquinas (1224-74 A.D.), as well as many other Christian, Jewish and Muslim writers at the time, basically followed Aristotle's ancient science (the best available at the time) and philosophy (see above). In general they held a delayed hominization view. For Aquinas, a human person would only be present when a human body and rational soul were present (SCG, Bk. 2, Chs. 83-90; and ST, 1, q. 118). It should be noted, however, that he considered abortion to be a serious sin during all stages of pregnancy (contraception was also seen as a serious sin in general by Christians). For Aquinas abortion after a rational soul was present would have been a worse sin since it would have involved killing a human person with a rational soul.(cf. Beaumont 2012)

Protestant Reformers (16th Century A.D.)

While many Catholics, following Aristotle and Aquinas, held a delayed hominization view at the time, Protestant Reformers Martin Luther (1483-1546) and John Calvin (1509-64) did not. In line with their understanding that original sin wounded the whole person, they insisted on the full humanity of the fetus (including the soul) from conception (see Ps 51:5 above).

Modern Science including Neuroscience

First the development of the microscope, in the late 17th Century and following, led to the discovery of ova, sperm and fertilization. DNA, which carries the instructions for the development of life, was discovered in the 20th Century. Modern science and technology including ultrasound and internal cameras have also provided us with "windows" to the womb. These have allowed us to understand the development of life much better including fertilization, and various stages known as zygote, embryo, fetus, infant, child, adolescent, and adult. While many speak of stages it is important to appreciate that the development of human life is a continuum—even human fertilization is a process taking place over several hours. The heart begins to beat around 21 days after fertilization. Brain development which begins in the human embryonic stage (brain waves have been detected as early as 37 days after fertilization) continues well into old age when one considers not only the development of neurons, myelination (which is completed in the early twenties), but also the development of new interconnections between neurons with neuroplasticity.(see Pinel & Barnes 2018, Ch. 10; see, e.g., also the video: "Prenatal Brain Development": Worth Publishers, retrieved 24 May 2019 from: https://www.youtube.com/watch?v=XdN9i_ZWGho)

In the early stages of human life the emergence of consciousness (generally thought to be about 20-26 weeks after fertilization), self-awareness (sometime after birth), volition, mind and

morality are gradual.(Hepper and Shahidullah 2011) Science enables us to detect the difference between "normal" human development including a normal healthy embryo from abnormal developments such as teratomas and hydatidiform moles which no one considers to be human beings. Science can also tell us what to expect and provide us with a prognosis under certain conditions, for example, that an embryo will not develop normally if not implanted or the life expectancy of a human being with a terminal condition, for example, an anencephalic baby born alive is expected to die soon.

Different Personhood "Criteria"

Related to the development of the life of an individual of the human species there are a number of views today as to when this entity or being becomes a human being or human person. Empirical science by itself cannot settle this question. These basically involve different philosophical "criteria" for being a human being or person. In view of the heated controversies which exist in this area, it is important to ask which of these criteria (some of the main ones will be considered here) is the most reasonable?

According to Canadian law, as reflected, for example, in the 1988 Supreme Court of Canada decision of Joseph Borowski vs. the Attorney General of Canada, only a completely born child is treated as a "legal person". The legal team of Borowski led by Dr. Morris Shumiatcher, marshalled a number of recognized leading international scientists who provided evidence that a new human being begins to exist from fertilization. Among other things, Shumiatcher noted that before 1929 women in Canada were not recognized as "legal persons" even though in reality they were human beings and persons. Analogously he argued that even though the current law, which this case was trying to change, did not recognize preborn human beings as legal persons, that this was a legal fiction. The Supreme Court did not contest any of the scientific evidence

but decided that it was not its role to make new law—that was Parliament's role. In 1989 the Mulroney government brought in new legislation (Bill C-43) regarding abortion (the 1988 Morgentaler decision of the Supreme Court had struck down the earlier Canadian legislation related to abortion), which was passed in Parliament but never became law since it received a tie vote rather than the required majority in the Senate (see *Trial for Life*).

While many countries have laws which allow abortion, with fewer or more restrictions, Nicaragua on 26 October 2006 approved a law banning all forms of abortion.(Genethique.org Bioethics Press Release, 30 Oct. to 3 Nov. 2006) On April 25, 2017 the State of Alabama in the United States passed an amendment to the Constitution of Alabama of 1901, "to declare and otherwise affirm that it is the public policy of this state to recognize and support the sanctity of unborn life and the rights of unborn children, most importantly the right to life in all manners and measures appropriate and lawful." On November 6, 2018, Alabama voters approved this measure, by a margin of 59 percent to 41 percent.(Rewire.news, Legislative Tracker: https://rewire.news/legislative-tracker/law/alabama-bill-proposing-right-life-constitutional-amendment-hb-98/) On May 14, 2019 Alabama's Senate passed the most restrictive law in the U.S.A. which bans all abortions except if there is serious health risk to the mother.(*The Guardian*, retrieved 24 May 2019 from: https://www.theguardian.com/us-news/2019/may/14/abortion-bill-alabama-passes-ban-six-weeks-us-no-exemptions-vote-latest)

Susan Sherwin, a pro-choice feminist, argues in a 1995 article for a "relational" approach to personhood rather than an abstract metaphysical approach which considers the properties of a being (e.g., a human fetus) in isolation. In her view the woman carrying the fetus has the responsibility and privilege of determining its social status and value. If a woman wants to be pregnant and wants to consider the fetus within her as a child or person that is fine, but if a

woman wants to end her pregnancy with an abortion and does not consider the fetus within her to be a person then that is her prerogative. After birth, however, society can determine the status of a born child since it is now in relationship with people in society.

On the other hand, pro-life feminists such as bioethicist Sidney Callahan (2018) argue that defending the innocent human fetus (who is defenceless) from being harmed or killed is comparable to women's struggle to gain the rights of persons legally in the early 1900's.

Mary Anne Warren, a contemporary philosopher describes the capacities characteristic of persons to include consciousness, thought, developed capacity to reason, intentional action, social and communicative abilities, self-awareness, and moral agency. Even late-term human fetuses in her view are not persons. According to these criteria even newborn human infants are not yet persons although she says they are very close to becoming persons.(1997) We can note here that in some human societies with very high infant mortality rates a newborn infant was not given a name until sometime after birth (e.g., 10 days).

The Canadian Medical Association's Ethics Committee in a 1991 paper considered the human fetus to be a member of the species Homo Sapiens from the beginning (i.e., from fertilization), but it only considered the human fetus to become a person at about 20 weeks later when it becomes capable of sapient cognitive awareness related to neural development.

A few other times that some think a human being or person begins to exist include 14 days after fertilization, viability and at fertilization. Norman Ford, for example, argues that the early embryo is not yet an individual human being until monozygotic twinning is no longer possible (monozygotic twinning when it occurs usually occurs earlier but can occur up until about 14 days following fertilization—the later it occurs the more likely it results in conjoined twins. Those who hold this view typically argue that one human being cannot become two.

Some (e.g., some of my students) argue that the human fetus is not a person until it is viable, that is, until it can survive outside the woman's body. As in vitro fertilization demonstrates, however, an early embryo before implantation is viable (it can live) outside the woman's body. Also, as our technology improves babies born prematurely are able to survive at earlier and earlier ages. Work is being done to develop artificial uteruses so one day the developing human may be able to undergo the whole gestation process outside a woman's body. Many think that a new human being / person begins to exist at fertilization. We will first consider official Catholic teaching and then a few authors who argue in defence of this last position.

Catholic Teaching on the Status of Human Life in its Earliest Stages

The official Catholic position related to the status of the human being in the earliest stages of its life has been presented and developed in several documents including the Congregation for the Doctrine of the Faith's 1974 "Declaration on Procured Abortion" (approved by Saint Pope Paul VI) and its 1987 "Instruction on Respect for Human Life in its Origin and on the Dignity of Procreation" *Donum Vitae* (approved by Saint Pope John Paul II), and Pope John Paul II's 1995 "Encyclical Letter on the Gospel of Life" *Evangelium Vitae*, nn. 60-63. Based on the findings of science and on human reason (philosophy) these documents speak of the human zygote which results from fertilization as already a new human being. The 1974 Declaration says in part:

> From the time that the ovum is fertilized, a life is begun which is neither that of the father nor of the mother, it is rather the life of a new human being with his own growth. It would never be made human if it were not human already…. [M]odern genetic science brings valuable confirmation. It has demonstrated that, from the first instant, there is established the program of what this living being will be: a man, this individual man with his characteristic aspects already well determined. Right from fertilization is begun the adventure of a human life, and each of its capacities requires time—a rather lengthy time—to find its place and to be in a position to act.(nn. 12-13)

Related to this it concludes that "Any discrimination [i.e., regarding the right to life] based on the various stages of life is no more justified than any other discrimination."(n. 12) Endnote 19 of this 1974 Declaration points out that:

> This declaration expressly leaves aside the question of the moment when the spiritual soul is infused. There is not a unanimous tradition on this point and authors are as yet in disagreement. For some it dates from the first instant; for others it could not at least precede nidation. It is not within the competence of science to decide between these views, because the existence of an immortal soul is not a question in its field. It is a philosophical problem from which our moral affirmation remains independent for two reasons: (1) supposing a belated animation, there is still nothing less than a human life, preparing for and calling for a soul in which the nature received from [the] parents is completed, (2) on the other hand, it suffices that this presence of the soul be probable (and one can never prove the contrary) in order that the taking of life involve accepting the risk of killing a man, not only waiting for, but already in possession of his soul.

In line with this the 1987 Instruction adds:

> … [T]he fruit of human generation, from the first moment of its existence, that is to say from the moment the zygote has formed, demands the unconditional respect that is morally due to the human being in his bodily and spiritual totality. The human being is to be respected and treated as a person from the moment of conception; and therefore from that same moment his rights as a person must be recognized, among which in the first place is the inviolable right of every innocent human being to life.(I.1)

In his 1995 Encyclical *Evangelium Vitae*, n. 60, Pope John Paul II quotes much of the above and confirms it.

Philosophy and/or Theology which Supports Catholic Teaching

John Gallagher, although also a Catholic theologian, limits his treatment to the empirical and philosophical in his small book, *Is the Human Embryo a Person?*(1985) Related to human beings he distinguishes the activities of a person (e.g., thinking, talking), the person's powers or capacities (e.g., to be conscious, to think, to speak, to learn another language), and the being of a person (as a living organism). Among other things, he notes that a person does not always exercise (in activities) their capacities, for example, one's power to think when one sleeps or to

learn another language. He points out that if we consider the same person in this life at the ages of 2, 5, 25 and 50, for example, there have been significant changes in size and development, and some changes in the person's present capacities, but there is no doubt that this person is the same person on the level of being as a living organism. Just like a cat or dog is identified with a particular kind of living organism so is a human person identified with a particular kind of living organism. On the level of being Gallagher reasons that this individual person began to exist when the individual living organism that he or she is began to exist. He goes backward from after birth to the different stages when some argue that a person begins to exist such as at birth, viability, and when the fetus becomes capable of consciousness, but points out that there is no evidence at all that a new individual living organism begins to exist at these times. The only evidence we have is that a new living individual organism begins to exist at fertilization, or in the case of identical twins another new living organism begins to exist when a totipotent cell or group of cells separates from the original organism to form a second individual living organism.

Related to some arguing that a human zygote, embryo or fetus is not yet a person but only has the potential to become a person, Benedict Ashley and Kevin O'Rourke (1997, Ch. 9.1; cf. Ashley, deBlois and O'Rourke 2006, 3.2) distinguish passive potentiality (consider the potential of clay to be molded into a sculpture) and active potentiality (consider a sculptor's potential to actively form some clay into a sculpture). They point out that a normal human zygote (not, e.g., a hydatidform mole or a teratoma which are abnormal growths) has the "active" potentiality for self-development, to develop all human capacities such as consciousness, to speak and to reason, to exercise moral responsibility freely, and so forth. It does not need to be acted on by an external agent to do so such as clay to become a sculpture. These human capacities are already present in a latent (epigenetic) way in a human zygote and it only needs some time and the right

environment to develop and express these. Even an adult chimpanzee, for instance, does not have this kind of active potentiality. It does not have a human nature as does the human zygote. In line with this they argue that a living human zygote (also embryo and fetus) already is a human person with active potentiality for self-development and to grow like the rest of us human persons. On the other hand, a human sperm or human ovum before they unite, each by themselves, are not members of the human species and do not have this active potentiality, whereas when they unite to form a human zygote, we now have a new member of the human species, a new human person in our midst. With regard to the delayed hominization view of Aristotle and Aquinas (see above), based on their understanding of the biology of human reproduction which is now outdated, Ashley and O'Rourke point out that with modern biology we now know that the human embryo now contains from the beginning (the zygote stage) all the information and active potentiality necessary to develop the brain and bring it to the stage of adult functioning. Thus according to Aristotle and Aquinas' philosophical principles the human zygote has the active potentiality of self-development to be already and actually a human person.

The late William E. May in an article, "The Moral Status of the Embryo,"(1992) counters several claims arguing for delayed hominization. He presents evidence that the human zygote has within itself the potential to develop into an adult human person (i.e., it does not receive any new molecular information from the mother); that the preimplantation embryo is already an individual member of the human species (individual cells or groups of cells at this time are not actually totipotent but act as parts of the whole preimplantation embryo—they only become actually totipotent if separated, that is, in the case of actual identical twinning[1]); and that the

[1] Compare, e.g., a slip removed from a plant which develops into a new individual plant. The original plant was only one plant but a slip once removed is then totipotent, that is, it has the capacity to develop all the parts of a new individual plant. Identical twinning in humans is a form of "asexual" reproduction comparable to other forms of asexual reproduction where part of an organism (e.g., an amoeba) separates and becomes a second organism.

preimplantation embryo is a human person. Modern biology shows that with fertilization a new body comes into existence which is already a human body. According to St. Thomas Aquinas a body cannot be a human body unless it is formed by a human or intellectual soul. Therefore, the human zygote according to May is already a human person with both a human body and soul. Elsewhere May counters various arguments for delayed hominization in the light of modern biological evidence and sound Thomistic philosophical principles. With regard to human persons he speaks not only of developed or actualized capacities but also of the radical capacity of the human zygote to develop these (2008, Ch. 5.3. See also Flaman 1991; and Miklavcic and Flaman 2017; and Condic 2018).

I basically agree with Catholic teaching, and Gallagher, Ashley and O'Rourke, and May with regard to the beginning of human life. I would add that in the light of the profound union of the human person (compare the Bible and human experience) it makes sense that God would create the human spiritual soul when the individual's body begins to exist. The person is identified not only with one's mind / soul (inner self) but also with one's body. What happens to one's body and brain, also before birth (e.g., Fetal Alcohol Effect), affects one as a person. When we touch the body of a person we touch the person. In the Christian New Testament, salvation includes the whole person. Not only the human soul can experience eternal life but also the human body with bodily resurrection patterned on the bodily resurrection of Jesus.

Some criteria with regard to personhood require certain capacities to be present here and now such as the presence of sapient cognitive awareness (see the Canadian Medical Association's Ethics Committee above) or even more capacities such as self-awareness and moral agency (see Warren above). It is interesting that authors arguing for certain present capacities do not all agree on which capacities are essential. Also, it seems to me that such an

approach to personhood opens the door to all kinds of unfair discrimination since we are all different and not exactly equal in terms of present capacities. To avoid such arbitrary forms of discrimination, I think it is better to understood personhood as related to the nature of the being, for instance we human beings all share a common human nature in spite of our many differences, including our stage of development, size, age, abilities and disabilities, and thus we are all persons with an equal fundamental dignity.

In this section a number of different views have been presented as to when a human person begins to exist in this world. What do you think? Which view or views do you consider problematic or most consistent or an accurate understanding of reality?

When Does a Human Person Cease to Exist in this World?

Introduction

When does an individual human being or person cease to exist in this world? (In the next chapter we will consider the question of whether or not an individual human being or person can continue to exist in some real way beyond life in this world in some kind of afterlife.) In some ways akin to the beginning of life, we can approach the question of the end of the life of a person in this world in a variety of ways including experience, science, philosophy, law, the Bible, theology, Catholic teaching, and personal opinions. The answer to this question is not only theoretically relevant but also practically relevant since it informs medical, moral and legal views related to determining the time of death. This is very relevant for the transplantation of vital organs such as the heart from recently deceased human beings, as well as whether or not life support ought to be continued, and whether or not a human body can be autopsied, embalmed, buried or cremated.

Human Experience

Certain signs that death has occurred were widely accepted until the development of life-prolonging technologies in the Twentieth Century such as ventilators and heart-lung machines. These can sometimes keep breathing, the heart beating and blood circulation continuing for a long time after the person seems to have permanently lost consciousness and the ability to deliberately speak and/or to act, or to respond. These signs that death has occurred included that the person's breathing, heartbeat and blood circulation had stopped and the person could not be resuscitated. This is naturally followed by temporary rigor mortis and the decomposition of the body. A human corpse or cadaver was and is no longer considered to be a human person. Once technologies including the transplantation of vital organs like the lungs and heart were

developed, and it was often possible with certain artificial means of assistance to keep breathing, heart beat and blood circulation going for some time, even after very severe head and brain injuries, new questions arose with regard to determining the time of death. A main reason for this is that many people and societies do not think it is ethical to kill one person by removing vital organs to transplant to another person or persons for their benefit.

If the human being is never expected to regain consciousness—consider the Persistent Vegetative State [PVS]—can they be considered dead even though they are breathing and their heart is beating without artificial assistance? Or, if the whole brain including the brain stem has irreversibly ceased to function can the person be considered dead? In the latter case since the brainstem controls breathing, if it has lost all functions irreversibly, breathing will not continue naturally. Once the heart, which is not controlled by the brain, is deprived of oxygen it will also stop beating unless breathing and oxygen levels are maintained with the help of a machine.

As transplant technologies improved, the demand for human organs and tissues to save the lives or to improve the quality of life of many people increased. Beginning in the 1960s this precipitated the development of a new criterion for determining the time of human death in the medical community. In 1981 the United States President's Commission rejected defining death in terms of the irreversible cessation of the function of the neocortex of the brain (someone in a PVS is not dead). It advocated a Uniform Definition of Death Act whereby "an individual who has sustained either (1) irreversible cessation of circulatory and respiratory functions or (2) irreversible cessation of all functions of the entire brain, including the brain stem, is dead." This definition became widely accepted medically, legally, philosophically and theologically. For example, a Working Group of the Pontifical Academy of Sciences in 1985 and again in 1989 accepted "that the total and irreversible absence of the function of the entire brain is as valid a

criterion for determining that death has occurred as the traditionally accepted cardio-respiratory indications of death."(May 2008, 321) For a related good short video see "Understanding Brain Death – English" featuring neuroscientist Dr. Paul Ratzker, M.D. (retrieved 24 May 2019 from: https://www.youtube.com/watch?v=Ffqz-vKZO5Q). Some controversies, however, remain both with regard to whether or not "brain death" means that the human person has died, as well as with regard to criteria to determine that "brain death" has occurred. We will consider some different views regarding these below.

The Respective Roles of Science and Theology

Human sciences including medical sciences and neuroscience inform us that certain human abilities and functions may be lost suddenly, for example, loss of speech or certain movements due to significant injury of the brain as a result of a massive stroke, a gunshot wound to the head, and so forth. On the other hand, end of life deterioration and loss of functions is often gradual and progressive such as with many diseases including terminal cancers and dementia. Science and related technologies can provide us with various prognoses concerning diseases, that is, what to expect with the use of certain treatments or not using them. We also know that not all of the cells in a human body die at the same time. Hair and nails, for example, continue to grow for some time after a person is considered dead. Science informs us that dying is a process.

Philosophy, religions and theology have addressed certain questions related to the meaning of dying and death. For example, certain traditional societies and religions, such as traditional Christianity, which affirms the immortality of the human soul, and others who believe in reincarnation, understand death as an event, the moment when one's spiritual / immaterial soul leaves one's body. Empirical science which examines the tangible cannot detect this moment.

Philosophy and theology have also addressed ethical questions related to dying such as should we seek to avoid death and prolong life, sometimes or always? Is it ever ethical to act to cause or hasten death (consider suicide and euthanasia)? A consequentialist ethics (consider, e.g., utilitarianism) judges an action or omission moral if the good consequences or results are greater than the evil consequences (as explained by Ashley, deBlois and O'Rourke 2006, Ch. 1.3). The Hippocratic tradition in medicine affirms that we should act to benefit patients, avoid harming them, and that we should not assist them to commit suicide (Oath of Hippocrates). The traditional Christian view holds that we should not do evil to try to achieve good (see Rom 3:8). This includes that we should not deliberately cause or hasten human death, of oneself or another, by action or omission. On the other hand, Catholic teaching affirms an ethical position, which in this area is shared by many others, that justice and a properly ordered love will lead us to use means including medical means to prolong human life which are proportionate, which offer a reasonable hope of benefit to the patient without causing grave burdens to the patient or others. We are not ethically obliged to use means to prolong human life which are disproportionate, which either do not offer a reasonable hope of benefitting the patient or which cannot be carried out without grave burdens.(see, e.g., CCC, nn. 2276-83)

Coma, Persistent Vegetative State, Locked-in Syndrome, Minimally Conscious State

Before considering common tests and signs to determine that "death" of the entire brain has occurred, let us briefly consider a few conditions related to severe but not complete brain injury or disorders. A **coma** is a state of prolonged unconsciousness generally lasting a few days to a few weeks. A person in a coma lacks sleep-wake cycles and is unresponsive to stimuli including light, sound and pain. Comas are often assessed using the Glasgow Coma Scale and

the Rancho Los Amigos Scale. A coma can be medically induced or is the result of trauma or a stroke, etc., which causes damage to the cerebral cortex, the outer layer of the cerebrum of the brain, and/or the reticular activating system, a structure in the brain stem. Some comatose individuals gradually regain consciousness, some progress to a vegetative state and some die.(see "Coma," WFE, 16 May 2019)

A person in the **Persistent Vegetative State** (PVS) may experience sleep-wake cycles with partial arousal (they may open their eyes) but not true awareness or cognitive function. Such patients generally breathe spontaneously but require hydration and tube feeding. PVS involves complete unawareness of oneself and one's environment. It involves complete or partial preservation of hypothalamic and brain-stem autonomic functions, and variably preserved cranial nerve and spinal reflexes. There is no evidence of sustained, reproducible, purposeful, or voluntary behavioural responses to visual, auditory, tactile, or noxious stimuli. PVS can be caused by acute traumatic brain injuries (e.g., caused by an automobile accident), non-traumatic brain injuries (e.g., caused by a stroke or heart attack resulting in a lack of oxygenated blood to parts of the brain), or degenerative and metabolic brain disorders (e.g., in some elderly people). Many PVS patients recover, in particular from posttraumatic PVS within the first year. For example, in one study of 84 patients with a firm diagnosis of PVS after closed-head injury, "41% became conscious by 6 months, 52% regained consciousness by 1 year, and 58% recovered consciousness within the 3-year follow-up interval." Of those who recovered within one year, 14 of them (27%) became independent. The study was unable to identify "predictors of recovery from the vegetative state."(Levin et al. 1991, 580-5) Recovery from non-traumatic PVS after 3 months is "exceedingly rare" in both adults and children; and recovery from PVS resulting from degenerative and metabolic brain disorders is unlikely after several months. Life expectancy of

PVS patients may range from 2-5 years; survival beyond 10 years is unusual but it does happen and in some of these cases the person regains consciousness.("Persistent Vegetative State," WFE, 16 May 2019; and Looy 2005).

Locked-in Syndrome is a condition in which the patient is aware but is unable to communicate verbally due to paralysis of most or all of their muscles due to damage to specific regions of their lower brain and brain stem. Some are able to communicate by voluntarily blinking their eyelids, for example. For those with complete locked-in syndrome, however, we can only communicate by measuring their brain activity, that is, with functional MRI or EEG (these are briefly explained below), in response to questions. For example, the patient is asked to imagine that they are playing tennis if they want to respond "yes" to a question or to imagine themselves walking around the house if they want to respond "no." In one study neuroscientist Adrian Owen found that of 23 patients thought to be in a PVS state, 4 of them (17.4%) were in a locked-in state and able to respond intelligently to questions. By communicating with such patients we are able to know their wishes and improve their quality of life.("Locked-in syndrome," WFE, 17 May 2019; Knapton 2017; Kirkey 2012; and Neergaard 2010)

The **Minimally-Conscious State** is distinct from both PVS and Locked-in Syndrome. In this state the patient only has a partial preservation of conscious awareness. Their ability to communicate either verbally or by moving a finger or blinking, for example, or with the help of brain imaging technologies is inconsistent.("Minimally-conscious state," WFE, 17 May 2019)

Some Medical Technologies and Tests Used to Assess Brain Damage and Death

A CAT (Computerized Axial Tomography) scan uses special X-Rays to produce cross-sectional images of the body including the brain. An EEG (electroencephalogram) measures the brain's electro-magnetic activity. An MRI (Magnetic Resonance Imaging) is used to assess soft tissue damage and tumors. A PET (Positron Emission Tomography) scan with the use of certain radioactive material in the blood measures blood flow in the brain. A SPECT (Single Proton Emission Computerized Tomography) scan is better than an MRI for measuring blood flow in deeper brain areas.

James DuBois (2009) points out that, "The specific tests for determining death using neurological criteria will continue to change as technology develops and as the quality of our data improves."(167) Typical findings for determining death using neurological criteria include deep coma, absence of brain-stem reflexes, and apnea. DuBois notes that:

> [Establishing that deep coma] is irreversible ordinarily requires knowledge of the cause and exclusion of states that can mimic brain death, such as locked-in syndrome, hypothermia, and drug intoxication. Among other things, clinical examination of brain-stem reflexes should indicate no pupil response to bright light, no ocular movement, no corneal reflexes, and no gag or cough reflex. Finally, an apnea test is conducted to demonstrate that there is no respiratory effort even when the patient is taken off the ventilator and carbon dioxide levels are allowed to drop into a range that should stimulate respiratory movement …. Ordinarily, when the diagnosis is clinical then the examination is repeated after an interval. "Most experts agree that a 6-hour observation period is sufficient in adults and children over the age of 1 year. Longer intervals are advisable in young children."(NY State Department of Health *Guidelines*, 6)
>
> …. A variety of confirmatory tests exist, including angiography (e.g., computed tomography, magnetic resonance, and radionuclide imaging, electroencephalography, nuclear brain scanning, and transcranial Doppler ultrasonography. Which test is used is often determined according to hospital policy, physician preference, medical contraindications, or simple availability….
>
> No one has ever recovered from [whole] brain death when it has been correctly determined….(167)

When there is irreversible cessation of all brain functions including the brain stem breathing will soon stop, as well as heart beat and blood circulation. These can often be continued longer with mechanical ventilation, etc., which is often done to keep organs in good

condition for transplant purposes. In most cases though, these bodily functions cannot be continued for more than a few days even with artificial assistance. In a few rare cases, however, some bodies have been maintained for months (e.g., a female body has been maintained to sustain a pregnancy until viability) or even years—the longest case involved a four-year old boy whose body underwent growth and sexual maturation while being maintained for twenty years.(Nguyen 2016, 260-3) Such bodies with declared whole brain death and maintained with artificial means including a ventilator and tube feeding demonstrate many "signs of life," including not only heartbeat and breathing but also maintaining body temperature, processing food, etc. Ashley, deBlois and O'Rourke (2006) hold that "these functions are not those of the human organism as a unified entity, but merely a residual life at a level of organization comparable to that of plants and lower animals."(6.3; cf. DuBois 2009, 168)

Definitions of Death and Criteria for Determining the Time of Death

As noted above, determining that a human person has died is relevant to decisions regarding life-prolonging technology, organ transplants, and burial or cremation. As a biological organism the death of a human being can be considered like the death of any other organism. Ashley, deBlois and O'Rourke (2006) define death as occurring when an organism ceases to function as "a specific, unified, homeostatic system" (6.3). On the other hand, Robert Taylor (1997) defines death as the event that separates the process of dying from the process of disintegration. Philosophies and religions which hold that human beings have immortal souls, as we noted above, also speak of the death of a human person as involving the separation of the material body and the spiritual or immaterial soul.

Also as noted above, the criterion for determining that death has occurred of total brain death, that is, irreversible cessation of all brain functions including the brain stem, is widely

accepted today—medically, legally, philosophically and theologically. Ashley, deBlois and O'Rourke (2006) defend this in the light of their definition of death above. Once the brain develops (compare the development of a human brain beginning in the embryonic stage) an organism is no longer unified when all of the brain functions have irreversibly ceased. At that point the human soul (form) is no longer able to "inform" the body (matter) according to their Thomist view (6.3).

Today some, however, argue for partial brain death criteria. For example, Eike Henner Kluge (1992) argues that a patient in a Persistent Vegetative State (PVS) is dead in a "psycho-social" sense as a "person," since the higher brain functions related to specifically human capacities including cognitive self-awareness have irreversibly ceased to function (281-2). Ashley, deBlois and O'Rourke (2006), however, disagree saying:

> …[W]e do not believe that partial brain death is sufficient to declare that a person is dead or without moral standing. We do not believe that death should be certified as long as patients are able to maintain *spontaneous* breathing and heartbeat, because this constitutes strong evidence that the brain, as the seat of the essential unity of the human body, is still living, even if it is not evidencing its higher functions.(6.3)

I also consider partial brain death criteria to be problematic because many patients with a firm PVS diagnosis later regain consciousness (see above). As well there is a danger that partial brain death criteria would be extended to mentally disabled and senile people who have weak signs of "human life" (cf. Ashley and O'Rourke 1997, 403-4). Pope John Paul II (2004) strongly affirms that:

> …[T]he intrinsic value and personal dignity of every human being do not change no matter what the concrete circumstances of his or her life. A man [human person], even if seriously ill or disabled in the exercise of his highest functions, is and always will be a man, and he will never become a "vegetable" or an "animal."
>
> Even our brothers and sisters who find themselves in the clinical condition of a "vegetative state" retain their human dignity in all its fullness. The loving gaze of God the Father continues to fall upon them, acknowledging them as his sons and daughters, especially in need of help.(739)

The National Conference of Catholic Bishops of the United States Doctrinal Committee (NCCB Committee 1996) also affirms that we should consider living human anencephalic infants, who if born alive usually die within a few days or weeks, to be human persons, even though they may be lacking higher parts of the brain.

Among ethicists there has been a controversy with regard to whether or not providing nutrition and hydration to those in a PVS is beneficial to them and thus "ordinary" obligatory proportionate means of prolonging their lives (see, e.g., NCCB Committee 1992, 32-49). Related to this consider the following real case: In 1990 Terri Schiavo, who was a practicing Catholic, perhaps due to a potassium imbalance, suffered brain damage and was diagnosed by some doctors as being in a permanent vegetative state (PVS). She was kept alive by tube feeding for about 15 years. Her husband said she would have wanted the tube feeding stopped in such a condition. Terri's parents and some other doctors thought that she exhibited some signs of consciousness. Her parents wanted the feeding to continue and offered to take care of her. A number of courts agreed with Terri's husband that stopping the tube feeding was in Terri's best interests. This case was very controversial and some others argued that stopping feeding would involve murdering her by starvation. Florida's legislature enacted "Terri's law" to restart her feeding. A higher Florida court ordered the feeding to be stopped again and the matter went to the Supreme Court of the United States which did not allow any other legal avenues to restart the feeding. Terri died in March 2005, thirteen days after the tube feeding was stopped the last time.("Terri Schiavo case," WFE, retrieved: 2 Oct. 2019)

What do you think? Was Terri's husband right or were her parents? Was providing Terry nutrition and hydration by tube ordinary proportionate and obligatory means or

extraordinary disproportionate and non-obligatory means of prolonging her life? Concerning this whole issue, in 2004 Pope John Paul II affirmed that:

> …[T]he administration of water and food, even when provided by artificial means …. should be considered in principle ordinary and proportionate, and as such morally obligatory insofar as and until it is seen to have attained its proper finality, which in the present case consists in providing nourishment to the patient and alleviation of his suffering….
>
> … Death by starvation or dehydration is in fact the only possible outcome as a result of their withdrawal. In this sense it ends up becoming, if done knowingly and willingly, true and proper euthanasia by omission.(739-40)

Related to Taylor's definition of death (see above), he argues for the "permanent cessation of the circulation of blood" as the proper criterion for determining the time of death. He appreciates that this view is problematic regarding organ transplants. I also see this as problematic in the case of someone who experiences "permanent cessation of the circulation of blood" before brain death. Consider someone who has a massive heart attack or is shot through the heart and a heart transplant or heart-lung machine is not available in time. The person could still be conscious for a brief time and it would take several minutes under normal conditions for them to experience complete and irreversible cessation of all brain functions.

Some others such as Dr. Alan Shewmon (see, e.g., the detailed summary by May 2008, 323-52) and Dr. Doyen Nguyen (see, e.g., 2016 and 2017) have questioned that whole "brain death" equals death of the person. In the light of some living bodies of those diagnosed with whole brain death surviving for years with minimal life support including artificial ventilation and feeding (see above), as well as a few cases of persons having revived after brain death was mistakenly declared, they have also raised serious questions about the tests to determine "brain death." Nguyen, for example, argues, in the light of Thomas Aquinas' view that the whole spiritual soul is present in every part of the body, that even if there is complete loss of brain

function, if the rest of the body is living with some life support, then we still have a living human organism and person in our midst.(2017, 167-75).

Since a brain is a necessary organ for sensory and rational activities, William E. May (2008), however, concludes that

> …[A]n entity lacking a brain simply cannot be a mammalian, much less a human, organism because not only can it not engage in sensory activities (a prerequisite for rational activities) but also, unlike a human person in the embryonic stage, it lacks the radical capacity to do so…. The person has indeed died …. [A] post-embryonic brainless organism simply does not have the active potency or radical capacity to generate a brain… "bodies" that really are brain dead are *not* human or even mammalian.(352-3)

Along similar lines James DuBois (2009), referring to Kenneth Iserson, speaks of the body with complete brain death as a "physiologically decapitated body" comparable to anatomic decapitation. He argues that it is "repugnant to common sense and good metaphysics, namely, that both a severed head and a decapitated body are living substances if separately maintained alive. To be completely consistent, one would actually need to hold that they are *both* the *same* living human being that existed prior to the decapitation—a view that flatly contradicts the unity required to be a human being…"(168)

What do you think of these various definitions of death and criteria for determining the time of death? I agree with Ashley, deBlois and O'Rourke's definition and criterion which are also widely accepted, as well as the views of May and DuBois explained above. Along similar lines, in an address to the International Congress of the Transplantation Society, Pope John Paul II (2000) said, "…the criterion adopted in more recent times for ascertaining the fact of death, namely the *complete* and *irreversible* cessation of all brain activity, if rigorously applied, does not seem to conflict with the essential elements of a sound anthropology," that is, the unity of the human person. He goes on to say that these criteria can be used for ascertaining death with "moral certainty," that is, beyond a reasonable doubt, for the purposes of organ transplantation

(cf. also Hanley 2020). In view of the serious questions raised by Shewmon and Nguyen with regard to the tests to determine complete brain death, I think that any benefit of the doubt that the person may be still alive should favour supporting their living. While we cannot expect absolute certainty in such matters we need to have at least moral certainty that we are not hastening or causing the death of a person by removing vital organs from them.(see DuBois 2009, 171)

The Bible and a Christian Understanding of Human Death

The Jewish-Christian scriptures present the human person as an animated body. When a person dies the life / soul / spirit (Hebrew *nephesh*; Greek *psyche*, e.g. Lk 12:20) departs. Gen 2-3 presents death as a consequence of the sin (eating from the "tree of the knowledge of good and evil") of the first human beings (God does not allow them to eat of the "tree of life"). The *Catechism of the Catholic Church* (CCC 1997) points out that the biblical text is using "figurative language" here (n. 390). Biblical scholars explain that the literary genre of Gen 2-3 is a pre-historical, pre-scientific kind of narrative. It is mainly focusing on who we are in relationship to God. "Knowledge" in the Hebrew text is in an active sense. It is not about discerning what actually is good or evil according to God's created order but about deciding for oneself what one will consider to be good and evil (compare moral relativism today; see NJBC 1990, 2:5). Wisdom, a Deuterocanonical book of the Jewish scriptures, 1:13 states that "God did not make death and he does not delight in the death of the living."(NRSV) In the New Testament, Rm 5:12-14 teaches that death came through human sin. Since all have sinned all die. Grace and life are offered to all through Jesus Christ (Rm 5:15-21).

The Second Vatican Council's Pastoral Constitution on the Church in the Modern World *Gaudium et Spes* (Vatican II 1965), n. 18, speaks of human death as a mystery. Among other things, it says that humans would have been immune from bodily death had they not sinned.

Death in a biological sense is natural and not a consequence of sin per se since plants and animals which do not sin die too. God who is all powerful could have kept human beings immune from natural biological death of the body had they not sinned but they sinned and God did not spare us death. Compare the figurative language in Gen 3 where after the first humans sinned they are banished from the garden and not allowed to eat from the tree of life to be able to live forever. The Christian faith affirms that Jesus Christ rose bodily from the dead and that at some time in the future there will be a general bodily resurrection of all human beings. God's plan of redemption from a Christian perspective includes liberation from all of the consequences of sin including death in all of its senses including death of the human body.(see, e.g., CCC 1997, nn. 976-1060) Ashley, deBlois and O'Rourke (2006) speak too of dying as not merely passive for the human person but that:

> … [D]eath is an active consummation, a maturing self-realization that embodies what each person has made of himself or herself during life. Death becomes a ratification of life, not merely an inevitable process… It is an event beyond our control, yet also a personal act in which the freedom of the person is intimately involved. Dying with Christ is an adventure; it is a consequence of, but it need not be a condemnation for, sin…. [T]his view of death seems to describe more clearly the experience of Christ, who offered his life rather than have it taken from him, who completed his love and generosity in the final act of obedience to the Father: "It is consummated" (Jn 19:30). [They think this understanding of death can enrich our lives.](6.1)

How do you understand human death? Does a human person continue to exist in any real sense after bodily death? That question is considered in the next chapter.