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Cardi earned his law degree from the Wake Forest University School of Law in 2013. As a law student, he served as articles editor for the Wake Forest Journal of Law and Policy. He received a master's degree in bioethics from Wake Forest Graduate School of Arts and Sciences and has an undergraduate degree in philosophy from West Virginia University.

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Bioethics: An Introduction and a Preview

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Bioethics is a difficult field of study to define with specificity. Generally speaking, it concerns the study of ethical issues that arise when medicine and science intersect with or affect human well-being, the environment and our society. In application, bioethicists review these intersections with an ethics-focused eye, guided in some degree by principles of ethics or frameworks of ethical ideals.

Hospital ethics counsels, for example, provide guidance on ethical dilemmas in patient care, considering questions such as:

- Should medical professionals treat a patient against his wishes when he objects on religious grounds, but will surely die without treatment?
- What should be done when a patient's power of attorney asks that everything be done to save the patient's life, but the patient, with questionable decision-making capacity, wants to die?
- What if medical treatment will prolong life, but also prolong suffering?

In the practice of law, attorneys are guided first and foremost by *legal* principles – the United States Constitution, state constitutions, statutes, regulations and judge-made law. Bioethicists, on the other hand, often work in areas where law does not clearly govern; thus, *ethical* principles guide the way. Insight provided by bioethicists on ethical dilemmas can inform the consequential formation of policy and drafting of law. Whether or not directly influenced by the bioethics community, elected officials consider ethics when forming policy and drafting law – they consider the *right* thing to do – placing varying degrees of emphasis on religious imperatives, the needs of the district and personal beliefs.

Ethics plays a role in how elected officials and society evaluate issues such as abortion, physician-assisted suicide and even climate change. In West Virginia, ethics plays a role in how we address the opioid epidemic, asking questions such as:

- Should regulations limit a doctor's ability to prescribe opioids?
- Should a patient with chronic pain, developed after chemotherapy, be prescribed opioids?
- What if that patient has a history of opioid abuse?

As society grows and technologies develop, new issues of interest to bioethicists and broader society arise. Human genetic engineering may allow us to eradicate genetic diseases, but some fear this will spur the rise of eugenics by allowing individuals to choose the gender, hair color and skin tone of their offspring. Moreover,



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ethical issues arise when those able to afford genetic treatment can obtain an evolutionary advantage by increasing the mental and physical abilities of their children.

Science is progressing toward the almost absurd with the ability to transplant human heads and create artificial wombs. Not only do the results of these technologies feel "unnatural," but they present identifiable ethical concerns, such as:

- Would a human with a head transplant be able to identify and connect with his or her new body?
- Would our children suffer from the absence of a mother's womb?
- Is there a risk of population control, or even Matrix-esque human harvesting?

There are companies actively pursuing the concept of cryonics – preserving the human body with the intention of reanimating the body with restored health. Even if we are never able to restore a human body through

the process of cryonics, it is undoubtedly true that advancements in technology are extending the average human lifespan. Humans in developing and developed nations are living longer than ever before, and it is plausible that the average human lifespan will exceed 100 years in the near future. Living longer is one thing, but will we be able to live longer as healthy, happy human beings? *What about overpopulation and the concern of depleting, finite natural resources?*

Advancements in science and technology will yield great benefit, but will also present ethical challenges. Bioethicists will play a role in ensuring that we will benefit from, and not be harmed by, these advancements in science and technology. By helping elected officials create new policy, and assisting researchers and ground-level health care providers in the development and utilization of these technologies, bioethicists will guide the way. V