Learning Activity 3: HeLa Cells & HPV Genes: Immortality & Cancer
HeLa Cells & HPV Genes: Immortality & Cancer Module

by Katayoun Chamany Updated July 2017

This case study addresses controversial issues in cell biological research, and specifically, human subjects and tissue research as it relates to informed consent, privacy, ownership, commodity, and compensation. The case draws on the history of the establishment of the first human cell line and the ways in which biology intersected with race, class, and gender in the development of this ground breaking technology**.** In this case study, you will achieve depth of understanding by adopting the role of a particular stakeholder and acquire breadth through engagement with your peers who will adopt the role of other stakeholders in a simulation that models a symposium. There are three parts to the case study: **Part I** adopting a role and presenting a position based on that person's values, expertise, and experience after reviewing the case and the biographies; **Part II** engaging in dialogue with other stakeholders; and **Part III** in which you shed your character role and use evidence from the historical and contemporary examples presented in this case study to craft an evidence-based argumentative essay that promotes particular policy changes informed by the case activities, resources, your personal values, and societal values. You are encouraged to move beyond the "gut reaction" or binary superficial responses, to relativistic reasoning, and ultimately an informed and committed position evidenced by an analysis of the risks, benefits, and tradeoffs of this position as compared to others. To create an authentic experience, what follows below is a fictionalized story (case) that was informed by real world events and individuals. This story contextualizes the challenges and introduces the charge being presented to the symposium attendees.

Part I: Character Statement (500 words), Two Questions, Counterargument (300 words), & Bibliography

Amari studied the list of possible attendees one more time. Having the responsibility of organizing an international conference symposium was definitely exciting, but it was also challenging. The World Stem Cell Summit had held a session on "The Immortal Life of Henrietta Lacks—Lessons for Stem Cell Researchers and Patients" in 2010. Attendees were asked to consider the history of the establishment of the first human cell line and the ways in which biology intersected with race, class, and gender in the development of this ground breaking technology. Now Amari was being asked to organize a symposium to address controversial issues in cell biological research and, specifically, human subjects and tissue research in the context of informed consent, privacy, ownership, commodity, and compensation. The number of stakeholders had grown exponentially since 2010, the year that Rebecca Skloot's book, *The Immortal Life of Henrietta Lacks* was published. Amari had ensured that the diversity of participants would reflect the varied approaches being taken around the world and open up room for informed and inclusive future policy making. Though many of the proposed changes outlined in the United States (US) Notice of Proposed Rule Making (NPRM) for 45 CFR46 for the protection of human subjects in research were not eventually adopted in Jan 2017, this process would serve as a good starting point for discussion, as it had produced much discussions in journals such as *Nature* and *Science*. Amari wondered if the private sector was experiencing a respite since one of the proposed changes requiring all research involving human subjects to abide by 45 CFR 46, The Common Rule, regardless of funding source was *not* adopted. Amari was pleased that Christian Lengauer, would be present as his relationship with the Lacks family and his business interests in biomedicine would provide a unique perspective. The timing of the symposium was spot on, as the recent explosion of public and private endeavors to create large biobanks would provide the participants with concrete examples and highlight some of the contentious issues. With advances in

stem cell research, more individuals were contributing cells and tissues to biomedical research, and this phenomenon could bring a new dimension to the symposium.

As the newly appointed Ethics & Justice in Science Graduate Fellow at the University of California, Santa Cruz, Amari had access to leaders in a range of fields and used those connections in assembling the attendee list. The undergraduate major in Interdisciplinary Science combined with a minor in Culture and Media Studies situated Amari well for this graduate certificate program. The social justice mission of Eugene Lang College proved useful in graduate school, especially when it came to using human tissues acquired through clinical settings. Amari had recalled learning about the Nuremberg Trials and the Belmont Report that led to the current practices and policies regarding human research subjects. But the issue of "dual use," when tissues are secured for clinical diagnosis that informs therapy and *also* used in research studies, continued to be a topic of hot debate, raising questions about autonomy, therapeutic misconception, coercion, privacy, and ownership. Amari was pleased that critics of the current informed consent like Gail Javitt and Radhika Rao, and champions of digital consent like John Willibanks and Sergey Brin would be present to discuss the advantages and disadvantages to the changes regulating research with human subjects.

Amari recalled how shocking it was to imagine biomedical research before tissue culture and biobanking techniques existed. As an undergraduate Amari had read Hannah Landecker's book *Culturing Life: How Cells Became Technologies* in a medical anthropology course to obtain an alternative narrative to the establishment of the first human cell cultures. In the late 1940s there was an effort to shift the public perception of scientific research from something that could lead to the development of the atomic bomb to an area of research that could lead to new therapies. The US government invested heavily in biomedical research as outlined by the report *Science The Endless Frontier* authored by Vannevar Bush, the Director of the US Office of Scientific Research and Development. The report was published in 1945 in response to President Roosevelt's call to use science for social good and, specifically, to improve the quality of life and address health concerns such as cancer and infectious diseases while bolstering economic development. Donating or contributing tissue for this endeavor was seen as a public duty and often no informed consent process was used.

But Amari also remembered that on the 50th anniversary of the report, over fifty social scientists convened at two conferences to lend a critical eye to the notion of "unfettered" scientific research and published their proceedings in *Science The Endless Frontier: Learning from the Past, Designing for the Future*. Futhermore, Landecker and others pointed out that the collection of human tissues from clinics and hospitals was happening at a time when equal rights were not yet in place for African Americans, when the US Public Health Service was conducting unethical research on minority populations at Tuskegee and in Guatemala, and cell research had not yet become a multibillion dollar business. Most life scientists during this time received 70% of their funding from the federal government. With the passage of the Bayh-Dole act in 1980, biomedical therapies developed with federal funding were no longer the property of the federal government. Instead, non-profits, universities, and other entities receiving federal funds could develop and have intellectual property rights for profitable biomedical therapies that would be protected by patents.

This privatization shift in the life sciences escalated in the late 1990s when a fierce competition to complete the human genome sequencing project occurred pitting the public and private sector against each other. Craig Venter led the private venture and claimed that the public initiative was lagging behind due to inefficiency and lack of potential profit motive. His team and others began to patent gene sequences. As part of the Ethics & Justice curriculum at UC Santa Cruz Amari had studied the Myriad court case in which Judge Sweet ruled in favor of the American Civil Liberties Union (ACLU) and the Association of Molecular Pathology stating that gene sequences are part of nature and not patentable. This decision relinquished

the BRCA genetic test for breast cancer susceptibility from the strict patent and licensing agreements put in place by Myriad. Some of this work had been spearheaded by social justice advocate and population geneticist, Mary Claire King. King had used a combination of classical and molecular genetics to identify BRCA gene variants associated with elevated risk of breast and ovarian cancer in some families. King and others felt that the commercialization of the life sciences was restricting open access and communication among scientists. Not surprisingly, projects like BRCA Share were launched in response to an increased need for access to large datasets to improve public health.

Around the same time that the human genome project was ramping up, many universities were creating profit-making arms funded by both federal money and private donations from alumni. One of the most contentious patent disputes that was reviewed in the Ethics & Justice courses was that involving the non-profit organization Wicell, where patents were issued to the Wisconsin Alumni Research Foundation (WARF) for James Thomson's work on the isolation of human embryonic stem cells. Not only were patents for the cells themselves secured, exclusive patents and reach through rights on the protocols used to derive and maintain the cells in culture were also put in place. Though the patents were challenged in 2006 and 2014 and are set to expire in 2015, the financial burden has been significant with academic researchers paying $5000 to gain access to a cell line and companies paying over $100,000 to develop therapeutic products using these cell lines. Amari had been following this case and just learned that the US Supreme Court refused to hear the case brought by Consumer Watchdog and the California Institute of Regenerative Medicine researcher Jeanne Loring against Wicell, because the court did not believe that they had been sufficiently harmed and, thus, had no legal standing.

This history would prove important for the symposium, but the field was moving quickly regarding informed consent, research with human subjects and tissues, and industry support for large-scale biobanking construction. On December 1, 2015, Wales became the first country in the United Kingdom (UK) to develop a soft opt-out option for the collection of human tissues and organs from cadavers. Unless a citizen opted out on line or via phone before this date, the default is presumed consent for organ donation to research or clinical treatment. Also in 2015, Planned Parenthood came under fire for providing fetal tissue for research despite being within the limits of the law, Apple and Sage Bionetworks launched ResearchKit to collect data using mobile devices, Google X life science division launched a biobanking project, and President Obama followed the UK's lead in creating a public biobank through the creation of a Precision Medicine Initiative. This last project would link data on lifestyle and genetics using the DNA and information from one million volunteers. Because of backlash that occurred when communities were not involved in the design of large-scale biomedical research projects, the President emphasized the need for community involvement that would ensure procedural justice in the collection, assemblage, and access of the data. Additionally, the project was being analyzed in light of health disparities and a working group was sorting out whether data would be delivered to participants, and if so, what complexities needed to be addressed. The recent decision to abandon a policy statement put forth by the American College of Medical Genetics to share genetic information for 56 possible genetic variants any time a person is subjected to a diagnostic genetic test, was the result of general consensus that individuals should have some autonomy in opting out of some genetic information.

The disparities issues was important to Amari, especially in light of biobank projects that actually required participants to pay to participate, be paid to participate, or to have enough knowledge about potential downstream profits, or to understand the scope of research and the difference between opt-in v. opt-out programs. Moreover, Amari was concerned that participants were not being adequately informed about risks and benefits to the community in which the research samples are collected. Amari had asked health and law scholars Javitt and Palmer to present their critiques of "informed consent" as currently employed, and share their proposals for other practices that might promote trust and faith in marginalized

communities. Amari hoped that this would open up dialogue with social justice scholars Ruha Benjamin and Hannah Landecker, and representatives from non-profits seeking equitable access to health and research such as MoreMarrowDonors.org and UPROS, and the National Congress for Native Americans. These symposium participants would bring new ideas forward for equitable practices of recruitment and diversification of biobanks as well as access to the products of biomedical research.

Given the conflation of economic and health disparities, Amari, was pleased that Sergy Brin co-founder of Google and supporter of the Parkinson's Progression Markers Initiative had agreed to attend and was looking forward to hear his rationale for pay-for-participation practices. Equally important for the symposium were the views of patients who had successfully or unsuccessfully taken control of their biospecimens. Though John Moore, was not able to secure property rights to his samples he did successfully win his case regarding lack of informed consent, and Amari had invited his daughter to the symposium to bring this view forward. Amari had also reached out to Ted Slavin who took ownership of his biomaterial due to his business savvy, thereby controlling access to a unique biological resource that eventually led to the production of the first Hepatitis B vaccine. His company, Essential Biologicals was a game changer in the field of tissue rights. The recent development of the HeLa Genome Data Access Working Group also placed control in the hands of family members. This Working Group, comprised of scientists, ethicists, and Lacks family members serves as a gatekeeper providing permission to researchers to use the HeLa cell line for biomedical research only; no ancestry or population research is permitted. The decision to ban ancestry research was most likely informed by the case of the Havasupai v. Arizona State University. The Havasupai claimed that their DNA samples were used to conduct research on human migration patterns without their consent and that that data was in conflict with their sacred creation story. In an effort to highlight the multiple narratives of these historic cases, Amari had confirmed that representatives from the Lacks Family and the First Nations would be in attendance and had also scheduled a theatrical performance of the play "Informed Consent" followed by a short reading by Charnell Covert, creator of the play "They Called Me HeLa" on the first night of the symposium.

With only a few weeks left before the symposium commenced, Amari shot off an email to the attendee list in hopes of sparking some initial discussion online via the conference portal. Since the symposium session would be relatively short, Amari wanted some of the discussion to take place in advance of the symposium, allowing for more robust dialogue during the session. To ensure that everyone was on the same page, Amari decided to include a trajectory of policies and practices to frame the discussion.

> Dear Colleagues
> We are very pleased that you will be joining us for Revolutionizing Informed Consent Regional Conference Symposium "Informed Consent and Biobanks: Who, What, How, and When?" As you know, the conference is an interdisciplinary forum that brings ethicists, scientists, clinicians, and industry leaders together to explore practical and theoretical issues related to the acquisition of human tissues and cells. Because scholars and activists holding expertise in a range of disciplines and professional practices can inform the questions at hand, we expanded our attendee list to include scientists, sociologists, anthropologists, patients and their families, and policy scholars. Because of this diversity, we ask that *in advance* of the symposium, each attendee provide a written statement (500 words) regarding their expertise, position, and/or proposals, and a counterargument (300 words) to those who might oppose your position or proposals. Because the symposium is designed to showcase diverse views, you can expect that some attendees will hold opinions that oppose your own, but may not be familiar with your area of expertise or experience, so please provide a bibliography for your statement and counterargument. We also ask that you pose one question to each of two attendees to get the conversation started. Because our time is limited for the face-to-face dialogue we anticipate that doing some groundwork prior to the symposium will lead to more robust and meaningful conversation. We

have taken the liberty to provide you with some resources to ground our work and these include the **Trajectory of Shifting Policies and Practices**, a **Stakeholders Possible Connections Chart and Annotated Biographies and References**. We apologize in advance for any misrepresentation of anyone's views or position; our intent was to stimulate conversation. As a reminder, we are planning on publishing the conference proceedings in a special issue of *IRB: Ethics & Human Research* and the format for these paper submissions might be useful during your preparation for the symposium and a number of **Questions to Consider** have been provided for your review. We look forward to seeing you soon.

Sincerely,
Amari Vega
Ethics & Justice in Science Graduate Fellow
Co-Chair of the Symposium on "Informed Consent and Biobanks: Who, What, How, and When?"

You will be assigned to play the role of a particular character/stakeholder for the duration of the simulated conference symposium. You will be expected to defend this stakeholder's position, even if it differs from your own. The roles include figures that span scientists, patients, policymakers, industry leaders, bioethicists, sociologists, activists, feminist scholars, and physicians. After reviewing the ***Trajectory of Shifting Policies and Practices****, the* ***Stakeholders Possible Connections Chart and List of Annotated Biographies and References,*** *and* ***Questions to Consider*** *you will write a statement. Be sure to know basic biographical information about your character and the character's specific interest in using human tissue for research or biomedicine. The references below each biography provide you with some background. Review the list of other stakeholders who will be present and consider who might ask which questions and who will answer these questions posed in the conference session as prompts for discussion. A quick Google search can provide you with more information about your character role or any others you find interesting.*

For PART I you will write and post a statement that addresses the following:

- ***Who*** *Are You? The 500-word character statement will state who you are, what expertise or experience you draw upon, and the unique perspective you bring to the discussion.* ***This statement should clarify your position regarding practices and policies regarding human tissue/DNA collection, research, and data sharing with specific attention to issues of privacy, ownership, commodity and compensation****. Consider which stakeholders at the symposium serve as allies and which will oppose your stance or perspective and be sure to highlight these. You may want to review the list of questions associated with the position paper (Part III). Remember that not everyone in attendance has necessarily vocalized a position specifically about informed consent, but they do hold views on the use of bodily tissues in research, or the role of payment, compensation, or acknowledgement, or access to goods created with public funds. Cite your sources and include a bibliography.*

- ***What*** *are two questions you hope to have answered? As you construct your profile, questions may arise. Pose one question to each of two stakeholders that you hope to have addressed during the symposium. Remember that not everyone in attendance has necessarily vocalized a position on human tissue and DNA research, but they do hold views on the use of bodily tissues in research, or the role of payment, compensation, or acknowledgement, or access to goods created with public funds for biomedical research.*

- ***How*** *will you answer to those that disagree with your position or rationale? The symposium is designed to showcase diverse views on the same subject and, thus, you can expect that some stakeholders will hold opinions that oppose your own. Prepare a ~300 word statement that outlines the opposition and the evidence you would provide to counter your opposition's evidence and argument. Cite your sources and include a bibliography.*

Part II Symposium Session Oral Role-Play & Dialogue

Based on the online postings last week, Amari knew it would take some expert facilitation to ensure that all views would be heard during the symposium. With past experience in intergroup dialogue, Amari was confident that the symposium would run smoothly. Once everyone was seated, Amari set the stage:

"Thank you everyone for attending our symposium and participating in the online conference portal. We asked that you consider a number of questions regarding the collection and use of human tissues and cells and many of you provided responses online. As one attendee wrote, 'Should human tissues and cells be treated as sacred gifts, commodities that result from performed labor, or resources whose retrieval results in profits requiring compensation or payment to the donor?' We all agree that as cell research advances there is a need for democratic deliberation concerning the status of tissues and cells, the cost of "labor" surrounding their retrieval, manipulation, and storage, and issues of access to genomic data or downstream biomedical products. In the United States, the evolution of the Common Rule, regarding the protection of human research subjects falls short of addressing the commercialization aspects associated with cell and biomedical research. Moreover, some have claimed that the informed consent process has morphed into a business contract in which donors relinquish the rights to their bodily materials and any potential profits if biospecimens are de-identified. Across the world, we continue to see a dynamic range of possibilities in the protocols and practices surrounding the acquisition of human tissue samples, including presumed consent and tiered consent. These practices and policies are designed to enlarge databases in both the public and private sector. Will advances in science and technology eliminate or exacerbate human tissue and DNA markets? Will new techniques in cell purification and amplification from "waste" such as tissues from cadavers, placenta, umbilical cord, menstrual blood, and fat lead to other types of compensation schemes in an effort to diversify the supply in public and private stem cell banks. Given economic disparities, will those of lower economic status find themselves being targeted to create this initial supply of cell and genomic data, or will these compensation schemes provide equitable participation in research and access to biomedical knowledge and products? If informed consent is designed to provide patient autonomy, should contracts of liability rules be put in place that require researchers to fully disclose intended downstream developments?

As invited scholars and activists spanning a wide range of disciplines, practices, and identities, we ask you to bring your expertise with health, science, and social justice in the international, national, and local sector to determine the best way forward for informed consent regarding human biobanking. As questions were distributed in advance of the symposium, we ask that you jump right in and begin to engage in robust consideration of some of the proposals that have been laid out including donor recruitment and incentivization schemes, opt-in v. opt-out models, identifying v. anonymizing samples, compensation v. gift models, and access to publicly funded research and technological innovation. Be mindful that we are striving for deliberative dialogue not debate and this brief overview is a gentle reminder of the differences.

As Co-Chair

1. As a gentle reminder, I ask that when you respond to the chair or a peer for the first time that you 1) state your name, your relationship to, or interest in, policies surrounding informed consent, cell, or genomics research, 2) what unique perspective you bring to the conversation, 3) which positions around the table with which you identify, 4) which positions around the table with which you take issue,

and 5) direct questions to participants, which will then lead to an answer by the next person who will introduce themselves prior to answering the question. Remember you must *try* to have at least one of your two questions answered, so pose one from the start.

2. I ask that each participant monitor time and keep the conversation moving among participants. If you have not heard from someone and would like to, consider asking that individual to weigh in on a particular discussion point or question.

In character, you should arrive at the symposium prepared to address any questions that may have been posed in the online environment, provide a clear statement on where your character stands, and use language that is inclusive to promote dialogue not debate. As you engage in the symposium and listen to your peers explain their position to those around the table, you may recognize that the same evidence can be used to support or refute a solution. The role-play provides a wide range of views very quickly and allows you to engage with the material broadly through peer learning. You are expected to engage with other stakeholders in this discussion. It is important that you extemporaneously join the discussion, and provide succinct and relevant points of view. As the discussion moves quickly it is best to refrain from reading any prepared statements and instead to have a set of bullets, questions, and abbreviated notes on hand.

PART III: Post-symposium Written Personal Policy/Position Paper

It had been a busy week, but the symposium was a success in its ability to create a space for dialogue and exploration of places of compromise. The diversity of the group was vital and allowed each attendee to share, learn, and challenge various solutions to address the needs of bioresources for biomedical research. Amari noticed that some attendees had developed a tolerance for views that opposed their own and were able to find common ground despite the differing value systems of the participants. Though each attendee would be drafting a paper to be included in a special issues journal, some universities and colleges had sent students to attend the symposium and had asked them to submit a position paper based on their experience. Amari thought it would be interesting to read these position papers. Since the students had no prior knowledge of the controversy, their opinion would be shaped by the discourse at the symposium and the brief biographies list and references provided to them. Amari wondered if the students would arrive at similar or divergent positions, given that each one would shape their response based on different life experiences and personal values. How would the students fare at merging their personal views with that of such a wide range of activists and scholars? Amari opened the email containing the zip file of student papers to find out. Amari wanted to mentor these students to a successful publication in the Penn Bioethics Journal dedicated to undergraduate interdisciplinary work or to present their policy proposal to the Debating for Democracy National Conference dedicated to civic engagement.

*To prepare for this assignment, you will shed your character role, and write a policy position paper in which you must evaluate the various models for biospecimen acquisition and compensation in an effort to take a position on the use of public funds for the establishment of a national database/ biobank designed to support biomedical research (~2000 words). You must defend **your** (not your character's) position and decide whether this use of public money is warranted, or whether other models prove to be more ethically and scientifically relevant. Regardless of the source of funding, you must also consider recruitment tactics for the collection of biospecimens, the use of compensation to bolster donations, and policies regarding the control of these specimens. The range of stakeholders involved with the symposium allows you to extrapolate from the singular historical case of Henrietta Lacks and the HeLa cell line to the collection and use of human biospecimens in cancer and biomedical research in shaping your policy stance. You are not*

constrained by the views of your character, and instead are expected to grapple with multiple points of view. Consider who were your allies, what evidence was brought to bear to support your position. Carefully explain and examine the biological, social, ethical, and legal dimensions of issues involved and any implications for policy. You should ground your recommendations in evidence, paying close attention to social values, risks, benefits, and tradeoffs of any one position and the implications of such a decision for procedural and distributive justice. The strongest proposals will be those that use precedent or existing structures to promote social change, but a revolutionary proposal can also be presented if the evidence base can support it. The most convincing proposals are those that can pre-empt opposition and identify places of agreement. Think of how to build coalitions. This is not a response paper to the experience of the role-play symposium but, rather, an academic position paper that puts forth evidence for specific policy. You have been given a list ***Questions to Consider*** *and a* ***Grading Rubric*** *is provided to help you direct your efforts.*