

LESSON 1:

Historical Context of Humans in Research

INTRODUCTION

In this lesson, students gain insight into the historical context of human participants in research. Students participate in an activity in which they analyze four historically notable case studies where **ethics** remain unclear. Students develop their own list of ethical guidelines by creating a concept map and then comparing their guidelines to the principles outlined in the **Belmont Report**: Respect for Persons (including autonomy), **Beneficence**, and Justice. This lesson provides a preliminary understanding of the difficulties and considerations that need to be taken into account when involving humans in research.

CLASS TIME

One to two class periods of 55 minutes.

KEY CONCEPTS

Ethics is a discipline that focuses on questions of values, and a practice that requires reasoned judgments. Some ethical considerations related to human participation in research include:

- **Autonomy.**
- **Informed consent.**
- Assessment of risks and benefits.
- Selection of subjects.
- Identification of **vulnerable populations.**
- Possible compensation for participants.

Vocabulary words used in each lesson are in **bold**. Definitions can be found at the end of each lesson and in the *Master Glossary* in the *Appendix*.

LEARNING OBJECTIVES

Student will know:

- Ethical judgments are required when research is done with human participants.
- Researchers must follow ethical guidelines that result in the consideration of populations that are used for research.

Students will be able to:

- Formulate a set of “rules that should guide the use of humans in research,” compare the list against current internationally used principles, and summarize key ethical principles.
- Analyze and discuss the ethical use of human participants in historical research cases, select the principle that was most violated, and defend their choice.

MATERIALS

Materials	Quantity
Student Handout 1.1a— <i>Case Study A: Henrietta Lacks and HeLa Cells</i>	3–4 per group
Student Handout 1.1b— <i>Case Study B: The Havasupai Indians</i>	3–4 per group
Student Handout 1.1c— <i>Case Study C: The Tuskegee Syphilis Study</i>	3–4 per group
Student Handout 1.1d— <i>Case Study D: The Willowbrook Study</i>	3–4 per group
Student Handout 1.2— <i>Guiding Questions for Historical Case Studies</i>	1 per student
Student Handout 1.3— <i>Concept Mapping</i>	1 per student
Possible Answers for Student Handout 1.3— <i>Concept Mapping</i>	1
Student Handout 1.4— <i>The Belmont Report</i>	1 per student

NOTE TO THE TEACHER

To teach this unit, knowledge of ethical theories is helpful but not necessary. Additional background, one-page summaries, and a comparison chart on ethical theories can be found in *An Ethics Primer: Lesson Ideas and Ethics Background* at <http://www.nwabr.org>.

The Belmont Report (<http://ohsr.od.nih.gov/guidelines/belmont.html>) provides the ethical guidelines governing human research as a result of committee deliberations after the National Research Act was signed in 1974. These documents were crafted, in part, in response to the emerging public understanding of the treatment of the men involved in the *U.S. Public Health Service Study* (Tuskegee Study). The basic ethical principles outlined are: respect for persons (including autonomy), beneficence, and justice (see Student Handout 1.4—*The Belmont Report*).

The historical case studies used in this lesson are U.S. cases and span a time period from the 1930s to the 1970s. However, the issues surrounding each case continue to be discussed today. To further study different vulnerable populations, consider using the following studies:

- Elderly patients—Jewish Chronic Disease Hospital Study.
- Prisoners—Guatemalan Syphilis Study/Nazi concentration camp studies leading to the Nuremberg Trials.
- Decision-impaired individuals—The Terri Schiavo case.
[**Note:** This case is not research-oriented, but provides a clinical decision-making context.]

FRAMING THE LESSON

In this activity students will use case studies to explore the ethical implications of humans in research. Explain to students that the case study stories are real historical situations where researchers involved human participants in their studies. Stress that these particular cases are included because they illustrate questionable practices involving humans in research. Though the methods may (or may not) have been acceptable at the time, they do not represent current ethical practices. [**Note:** Information on supplementary resources and additional case studies can be found in *Resources* at the end of the lesson.]

TEACHER PREPARATION

- Make copies of *Student Handouts*.

PROCEDURE

Activity One: Guiding Questions

1. Tell the students that in this lesson they will use real-life medical case studies to explore the ethical implications of humans in research.
2. Have the students form groups of three or four.
3. Pass out one copy of the Student Handout 1.2—*Guiding Questions for Historical Case Studies* to each student and assign each group a case study to read together. Ask each group to answer the *Student Handout* questions for their case. [**Note:** Teachers may also choose to run a “jigsaw” exercise using the case studies (where one case study is passed out to each group for in-depth discussion, then new groups are formed in which students familiar with each case share what they have learned with the others in the new group).]
4. Now ask each student group to share information from their case study with the class. Encourage the class to ask clarifying questions.
5. As a class, ask students to help brainstorm a list of shared themes among the studies. To help students generate their list, have them review their notes on Student Handout 1.2—*Guiding Questions for Historical Case Studies* and use these prompts:
 - What similarities did you notice between two or more cases?
 - Did anything repeat itself?
 - What was fair/not fair?
 - How should study participants expect to be treated?
6. Record student answers on the board.

The full title of the Tuskegee Syphilis Study is “U.S. Public Health Service Tuskegee Study of Untreated Syphilis.”

Activity Two: Creating a Concept Map

7. Tell students that they will now create a concept map that shows relationships among the common ideas found in the case studies.

8. Ask students to group the answers to the questions in *Step Five* into similar themes, working either individually or in their small groups. Have them use Student Handout 1.3—*Concept Mapping* to record the major concepts from the class discussion, case study table, and brainstorming activity. Ask students to consider what they recorded on Student Handout 1.2—*Guiding Questions for Historical Case Studies*, and have them organize the guidelines further, possibly narrowing them down to three or four major categories complete with **specific examples** from each of the case studies to support their themes. The goal is to arrive at themes that parallel those of the Belmont principles (see Possible Answers for Student Handout 1.3—*Concept Mapping*).
9. Working as a class, invite students to share their concept map themes. Generate a class concept map that includes examples from each of the case studies. [Note: A useful website for how to turn a text outline into a concept map can be found at <http://www.text2mindmap.com>. Teachers may use this resource to create their class concept map.]
10. Ask students to go back and fill in any missing elements on their own concept maps (Student Handout 1.3—*Concept Mapping*). Remind students to include specific examples from each of the case studies to support their themes.

Activity Three: The Belmont Report

11. Pass out Student Handout 1.4—*The Belmont Report*. Have students compare their concept map guidelines to these ethical principles that were developed to guide human research.
12. Review each of the Belmont principles with the class, and encourage students to note similarities or differences between these principles and those on their concept maps.
13. Using Student Handout 1.4—*The Belmont Report*, ask students to give a concrete example from one of the case studies for each of the principles found in the Belmont Report.

Closure

14. Have students compare their class concept map principles to those found in the Belmont Report. Tell students that the principles described in the Belmont Report are sometimes referred to as the Belmont principles.

CONNECTION TO FORMATIVE ASSESSMENT

Revisit the statements students sorted in the *Formative Assessment*. After completing *Lesson One*, students should understand that *Statement C* is accurate. Careful reading of the Henrietta Lacks case also shows *Statement D* to be accurate (this concept will be revisited in the next lessons).

GLOSSARY

Antibody: A substance made by the body as an immune response that attacks and destroys foreign agents, such as viruses and bacteria.

Autonomy: A person's freedom and ability to make his or her own decisions.

Autopsy: An examination conducted on a dead body to determine the cause of death.

Belmont Report (Belmont principles): Created in 1978 by the U.S. Department of Health, this report established three basic ethical principles to be considered when humans participate in research.

Beneficence: Minimizing all potential harms and maximizing all potential benefits to the subject as well as to society.

Cervical cancer: Cancer of the cervix, which is the lower, narrow end of the uterus.

Clinical research: Medical research involving human participants to test new medications, treatments, methods of prevention, and therapies.

Coercion: The act of pressuring someone to do something using force, intimidation, or threats without respect for individual choice. This includes the idea that a person with few choices may find participation in a study to be so appealing that they feel they cannot decline, even if being in the study is not a good decision for other reasons.

Conflict of interest: A situation in which someone is responsible for making a decision in an official capacity (e.g., someone holding public office) that could benefit them personally.

Ethics: A field of study that looks at the moral basis of human behavior and attempts to determine the best course of action in the face of conflicting choices.

Hepatitis: Inflammation of the liver caused most frequently by viruses.

Human cell line: A continuously dividing set of cells used in medical research that are derived from a single human cell.

Inbreeding: When closely related people have children together, generation after generation.

Incidence: The percentage of newly diagnosed cases of a disease in a population.

Informed consent: A process that outlines required elements of research participation, including its risks and potential benefits, to help someone decide whether to participate. An informed consent form is used to convey essential information and is signed by the participant if he or she decides to join the study.

Penicillin: An antibiotic drug made from penicillium mold (or produced synthetically) used to treat infections and diseases.

Schizophrenia: A mental illness resulting in greatly impaired thinking, emotional responses, and behaviors.

Stakeholder: A person with an interest or concern in something.

Stories of origin: Stories that recount how something (or a people) came into being.

Syphilis: A sexually transmitted disease caused by bacteria, which can cause skin lesions. Left untreated, syphilis can cause inflammation, meningitis, and other central nervous system damage, as well as cardiovascular damage. Syphilis can remain in the body undetected for many years (latency), and symptoms can appear more than 40 years later.

Tissue sample: Bodily fluids (e.g., blood or saliva) or tissue (e.g., cells, skin, bone, or muscle) for use in research.

Type II Diabetes: A chronic medical condition that affects how the body metabolizes sugar (glucose). Type II Diabetes typically begins in adulthood and patients are not usually dependent on the use of insulin to control their sugar levels.

Undue influence: Is exerted when a person of higher power or authority takes advantage of another person; undue influence can often include coercion.

Vulnerable (populations): Groups that may be exploited for use in research, e.g., children, people who are illiterate, and prisoners.

RESOURCES

Additional notes on the Henrietta Lacks case study (optional for teacher to share):

The Lacks family was contacted by researchers many years after the HeLa cells had been established in culture and were asked to voluntarily provide biological samples. Researchers obtained consent from the family, but the family's understanding was that the researchers would be testing them for cancer. The Lacks then donated samples but did not hear further from the researchers.

Johns Hopkins University received the original HeLa tumor cells for research after they were collected from Henrietta Lacks. The university used them for research but did not sell or make any profit from the cell line. Cells were also given free of charge to many labs around the world for research purposes.

As of 2012, it is legally permissible for clinicians, institutions, or researchers to store patients' biological samples for research without their consent if the tissue is considered medical waste and all information that identifies the sample with a person has been removed. When a patient undergoes routine medical procedures, etc., he or she often signs an informed consent form that enables doctors or researchers to use tissues for further study.

Additional notes on the Havasupai case study (optional for teacher to share):

A six-minute film from *The New York Times* about the importance of informed consent and the Havasupai Indians can be found here: <http://video.nytimes.com/video/2010/04/21/us/1247467672743/blood-journey.html>.

Additional historical case studies involving humans in research can be found in *Lesson Four of The Science and Ethics of HIV Vaccine Clinical Trials*, available from <http://www.nwabr.org>.

The case studies are:

- *Yellow Fever in Cuba* (Walter Reed's early use of informed consent)
- *Prisoner Experiments* (Nazi experimentation on concentration camp victims)
- *AZT and Pregnant Women in Developing Countries* (the use of placebos in the absence of existing proven therapy)
- *Behavior in Young Boys* (using young boys to study the effects of fenfluramine on behavior)

Additional notes on The Willowbrook Study (optional for teacher to share):

Hepatitis A is a mild inflammation of the liver that causes flu-like symptoms; it can be contracted through contact with feces that contains the virus. Hepatitis B is a more severe form of the disease that also affects the liver; it is contracted through the exchange of infected body fluids. Approximately 50% of patients who have Hepatitis B are unable to overcome it and have what is called chronic hepatitis. These people must monitor their medications so they won't develop liver failure, a potentially deadly condition.

EXTENSION

Ask students to choose from the suggested list of cases involving vulnerable populations in the *Teacher Background* section of this lesson, or have them research another case study online.

SOURCES

Henrietta Lacks and HeLa Cells

Batts, D.W. (2010, May 10). Cancer cells killed Henrietta Lacks—then made her immortal. *The Virginian Pilot*. Retrieved from: <http://hamptonroads.com/2010/05/cancer-cells-killed-her-then-they-made-her-immortal?cid=posld#rfq>.

Biba, E. (2010, January 25). Henrietta everlasting: 1950s cells still alive, helping science. *Wired Magazine*. Retrieved from: http://www.wired.com/magazine/2010/01/st_henrietta/.

Keiger, D. (2010, June 2). Immortal cells, enduring issues. *Johns Hopkins Magazine*. Retrieved from: <http://magazine.jhu.edu/2010/06/immortal-cells-enduring-issues/2/>.

McKie, R. (2010, April 4). Henrietta Lack's cells were priceless, but her family can't afford a hospital. *The Observer*. Retrieved from: <http://www.guardian.co.uk/world/2010/apr/04/henrietta-lacks-cancer-cells>.

Skloot, R. (2000, April). Henrietta's dance. *Johns Hopkins Magazine*. Retrieved from: <http://www.jhu.edu/jhumag/0400web/01.html>.

Skloot, R. (2010). *The Immortal Life of Henrietta Lacks*. New York, NY: Crown Publishers.

Havasupai Indians

Coconino Regional Partnership Council, (2008). *2008 Needs and Assets Report*. Retrieved from: http://www.azftf.gov/RPCCouncilPublicationsCenter/Coconino_Need_and_Assets_Report_2008.pdf.

Doody, D. (2010, August 20). The Havasupai Tribe's search for justice in diabetes research case. *Utne Reader*. Retrieved from: <http://www.utne.com/Science-Technology/Havasupai-Tribe-Diabetes-Research-Arizona-State-University.aspx>.

Harmon, A. (2010, April 21). Indian Tribe wins fight to limit research of its DNA. *The New York Times*. Retrieved from: <http://www.nytimes.com/2010/04/22/us/22dna.html?pagewanted=1>.

Tuskegee Syphilis Study

Centers for Disease Control and Prevention, (2011, June 15). *U.S. Public Health Service syphilis study at Tuskegee: The Tuskegee timeline*.

Chadwick, A. (2002, July 15). Remembering Tuskegee [transcript]. *National Public Radio*. Retrieved from: <http://www.npr.org/programs/morning/features/2002/jul/tuskegee/index.html>.

Heller, J. (1972, July 22). Syphilis victims in U.S. study went untreated for 40 years. *The New York Times*. Retrieved from: <http://pages.uoregon.edu/eherman/teaching/texts/Heller%20Syphilis%20Victims%20in%20U.S.%20Study.pdf>.

Northwest Association for Biomedical Research. (2008). *Case study: Syphilis in African American men*.

The Willowbrook Study

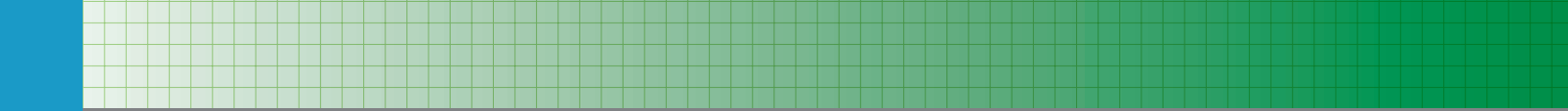
Associated Press. (2011, March 1). Victims of sinister medical procedures included residents of Staten Island's infamous Willowbrook State School.

Havesi, D. (2010, September 25). Robert W. McCollum, who studied viral diseases, dies at 85. *The New York Times*.

National Institutes of Health Office of Science Education. (2009). *Exploring Bioethics*.

Trilogy's Place. (2010, November 27). My (un) forgotten brother, pt. 2 [open.salon.com web log comment]. Retrieved from: http://open.salon.com/blog/trilogy/2010/11/27/my_un_forgotten_brother_pt_2.

U.S. National Library of Medicine. (2011, 16 October). Hepatitis A. *PubMed Health*. Retrieved from: <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0001323/>.



Case Study A: Henrietta Lacks and HeLa Cells

Henrietta Lacks died when she was 31 years old in a segregated hospital ward for “coloreds” in Baltimore, Maryland on October 4, 1951. Lacks was a poor, black woman from an uneducated family who had worked in the tobacco fields in Virginia almost all of her life. She married young and had five children.

Soon after the birth of her youngest child in 1950, Henrietta discovered a lump in her body. A doctor at a free clinic ward for colored people examined her lump and the diagnosis was **cervical cancer**. The doctor performed a routine medical procedure to collect **tissue samples** from her cancerous tumor. At the time, it was common for doctors to send tissue samples to research facilities so that cells could be studied to learn more about many diseases. The rules for getting **informed consent** from patients were much less strict than they are today. Henrietta’s doctors did not inform her about what they were doing or get her permission for the tissue collection, though they did get consent from her husband to perform an **autopsy** after her death.

On the same day that Henrietta passed away, Dr. George Gey [pronounced “guy”], a leading researcher who had been trying to establish the successful growth of a stable **human cell line**, appeared on television to present his contribution to the fight against cancer. Dr. Gey introduced to the world the first successfully grown human cell line, which he termed “HeLa” in honor of the human patient who had unknowingly donated to the cause— Henrietta Lacks.

As Dr. Gey was presenting his discovery, scientists all over the world were being given HeLa cells for free to conduct their own studies. The HeLa cell line became an essential resource for medical research in many labs worldwide. Soon, many companies began mass producing HeLa cells for commercial research use, reaping millions of dollars in profits that would never have been possible without Henrietta’s cells. HeLa cells have since been used in many ways, including testing vaccines, learning about genetics, research into cancer and AIDS, and developing drugs. It took decades, and the help of a journalist, for the family to learn what had happened to their mother’s cells.

Henrietta was buried in an unmarked grave for almost 60 years, until 2010. Her headstone has now been marked with her name and an inscription that reads “In loving memory of a phenomenal woman, wife, and mother who touched the lives of many. Here lies Henrietta Lacks (HeLa). Her immortal cells will continue to help mankind forever.”

Henrietta’s family never received any part of the billions of dollars that HeLa cells brought (and continue to bring) to many companies. In fact, since Henrietta was never informed that her tissue had been collected, for more than 20 years after her death, her family was unaware of the robust industry Henrietta’s cells helped launch or her “immortal” status.

The Lacks’ family and children are still economically disadvantaged. Many of Henrietta’s descendants can’t afford health insurance or treatments that have been made possible by direct work with the HeLa cell line. Deborah, the fourth of Lacks’ children, describes the situation: “Truth be told, I cannot get mad at science, because it helps people live and I’d be a mess without it. But I won’t lie. I would like some health insurance so I don’t got to pay all that money every month for drugs my mother’s cells probably helped make.”

This summary is based on a true story. Please see the Sources section for reference information.

Contributed by Myra Amon, Redmond High School, Redmond, WA.

Autopsy: An examination conducted on a dead body to determine the cause of death.

Cervical cancer: Cancer of the cervix, which is the lower, narrow end of the uterus.

Human cell line: A continuously dividing set of cells used in medical research that are derived from a single human cell.

Informed consent: A process that outlines required elements of research participation, including its risks and potential benefits, to help someone decide whether to participate. An informed consent form is used to convey essential information and is signed by the participant if he or she decides to join the study.

Tissue sample: Bodily fluids (e.g., blood or saliva) or tissue (e.g., cells, skin, bone, or muscle) for use in research.

Case Study B: The Havasupai Indians

The Havasupai Indian tribe lives in the state of Arizona, deep in the Grand Canyon, relatively isolated from the rest of U.S. society. The tribe's language, called Pai, is spoken by all of its approximately 639 members. Only a few members of the tribe have graduated from an English-speaking high school. Unemployment is very high in the community and income is mostly dependent on seasonal tourism. To access medical facilities, tribal members must either hike for miles on a steep trail or leave the canyon via horse or helicopter.

In the 1960s, the tribe began seeing a very high **incidence** of **Type II Diabetes** among their members. As a result, many of the members suffered poor health, and some needed to have limbs amputated to treat the disease. In 1989, members of the tribe contacted researchers at Arizona State University (ASU) to figure out how to control the disease and treat members of the tribe.

Researchers had already established that a neighboring tribe, the Pima Indians, had a genetic link to diabetes. The researchers sought to investigate whether the Havasupai had a similar genetic link to the condition. The researchers from ASU received money in 1990 from the university to carry out the investigation. From 1990 to 1994, many tribe members were recruited for the study. To participate, the members signed a general consent form that stated the research they would be participating in would "study the causes of behavioral/medical disorders." The Havasupai research subjects provided blood samples. In turn, the tribe received limited medical care.

In 1991, the research study yielded a paper that showed that there was no direct evidence to link the tribe's genes to diabetes.

After the initial study was conducted, researchers continued to use the Havasupai's blood for research on **schizophrenia**, **inbreeding**, and patterns of human migration. The migration research is notable because the Havasupai never agreed to the use of tribal members' blood for research that might contradict the tribe's traditional **stories of origin**. The tribe became aware of this additional research in 2003, when one of the tribe members was invited to a talk at ASU where a doctoral student presented information from a study that used Havasupai blood samples. Carletta Tilousi, a tribe member who attended the ASU presentation, remarked, "I'm not against scientific research. I just want it to be done right. They used our blood for all these studies, people got degrees and grants, and they never asked our permission."

The tribe members who contributed blood samples for research purposes did not know that their blood was being used to study other conditions in addition to diabetes. The Havasupai tribe sued ASU and received \$700,000, several forms of additional support and resources for the tribe, and in 2010, the return of all their remaining blood samples.

This summary is based on a true story. Please see the Sources section for reference information.

Contributed by Myra Arnone, Redmond High School, Redmond, WA.

Type II Diabetes: A chronic medical condition that affects how the body metabolizes sugar (glucose).

Type II Diabetes typically begins in adulthood and patients are not usually dependent on the use of insulin to control their sugar levels.

Inbreeding: When closely related people within an isolated group have children together, generation after generation.

Incidence: The percentage of newly diagnosed cases of a disease in a population.

Schizophrenia: A mental illness resulting in greatly impaired thinking, emotional responses, and behaviors.

Stories of origin: Stories that recount how something (or a people) came into being.

STUDENT HANDOUT 1.1c

The Tuskegee Syphilis Study

Case Study C: The Tuskegee Syphilis Study

(Formally known as the U.S. Public Health Service Tuskegee Study of Untreated Syphilis)

From 1932 to 1972, the U.S. government conducted a study that focused on understanding the long-term effects of untreated syphilis, a sexually transmitted disease caused by bacteria. The original intent of the study was to show that the disease was “potentially...the same in African Americans and Caucasians.” The government claimed it wanted to study the effects of the disease so that it could develop programs to help treat syphilis in the local community.

The Tuskegee Syphilis Study, named after a college for black people called the Tuskegee Institute, took place in Macon County, Alabama. The study involved the active recruitment of poor, black, male sharecroppers. The researchers conducting the study told the men that they would be treated for “bad blood,” a term that was used in the local community to describe the symptoms of syphilitic disease—fatigue, fever, sores, and muscle aches.

The study, which was supposed to last up to nine months, continued for more than 40 years. Initially the study was approved by the Alabama state government with the expectation that the men would be treated for the disease. Researchers treated the men with the standard use of mercury and bismuth. These highly toxic remedies were sometimes fatal, and were only slightly effective since the cure rate was less than 30 percent and the treatment lasted several months.

Of the 600 men who enrolled and who consented, 399 men had syphilis and 201 did not have the disease. Although the men gave their consent, they were never informed about the research itself or that some of them actually had syphilis. In exchange for their cooperation, the men were promised free medical care, free meals, free travel to and from the clinics, and insurance for burials so that their families would not need to worry about the cost of their deaths.

In 1947, **penicillin** became available and was widely distributed as a highly effective treatment for syphilis; it became the standard of medical care for this disease. Although the researchers were aware that penicillin was effective against syphilis, they wanted to observe the consequences of the disease over time. The infected men in the study were never made aware of nor offered penicillin treatment.

In 1972, the study ended when a reporter wrote about the research in *The New York Times*. An advisory committee was formed to look into the study and strongly advised the researchers to stop the study. The men and their families received \$10 million in a settlement, and received healthcare for their wives and children. More than 100 men in the study died from syphilis-related complications, and some of the patients’ wives and children also contracted syphilis, which is sexually transmitted and can be passed to the fetus during pregnancy. The patients and their families did not receive a formal public apology from the U.S. government until President Bill Clinton apologized in 1997.

This summary is based on a true story. Please see the Sources section for reference information.

Contributed by Myra Arnone, Redmond High School, Redmond, WA.

Penicillin: An antibiotic drug made from penicillium mold (or produced synthetically) used to treat infections and diseases.

Syphilis: A sexually transmitted disease caused by bacteria, which can cause skin lesions. Left untreated, syphilis can cause inflammation, meningitis, and other central nervous system damage, as well as cardiovascular damage. Syphilis can remain in the body undetected for many years (latency) and symptoms can appear more than 40 years later.

Case Study D: The Willowbrook Study

Warren was the fourth child and first boy born to a wealthy New York family in the 1950s. He was well loved by his sisters and parents. By the age of two it became obvious that Warren was different. When he was finally diagnosed as “profoundly retarded,” in the terms used at that time, his parents, who were unable to care for him, put him into one of the best care homes in New York. The family eventually faced financial problems and Warren was moved to Willowbrook State Hospital.

Willowbrook was opened in 1947 as a place to take care of New York’s mentally disabled population. Most patients were sent there as children when family doctors recommended that they needed more care than families could provide. The institution was plagued with **hepatitis** outbreaks throughout its first decade of operation. Recent estimates show that nearly 50% of patients living at Willowbrook in its early years of operation contracted hepatitis.

When the study began in the mid-1950s, the distinction between the various types of hepatitis was not known. The conditions at Willowbrook led Dr. Saul Krugman and Dr. Robert McCollum to believe that it would be an ideal place to study hepatitis to discover a possible cure for the disease. This could benefit both current and future children residing at Willowbrook. Letters describing the study were sent to parents of Willowbrook patients, asking permission for their children to participate. The short letter described how some patients would receive **antibodies** called gamma globulins that researchers hoped would provide long-term protection against hepatitis. Parents could tour an improved residential hospital wing set aside especially for study participants, meet with research staff, and ask questions about the study. Only children whose parents signed the permission form could participate in the study.

The study included two groups. The first included patients such as Warren who had been living at Willowbrook for some time, and were likely to get hepatitis whether they were in the study or not. The second group included patients who were essentially healthy and were newly admitted to Willowbrook. Warren’s group had two categories: children who received the antibodies, and children who did not. The healthy children who were new arrivals at Willowbrook all received the antibodies. During the study, some of the children unknowingly were deliberately infected with hepatitis by consuming the live virus, which was extracted from the feces of infected children. Some children were not infected at all. The children who were purposefully infected in the study tended to have milder reactions than children who contracted hepatitis naturally from other children in the hospital. A public outcry ultimately closed the study in the 1970s.

Warren was one of the last to leave Willowbrook when the facility closed in 1987. He now lives in a special care home where his sister communicates with him on a regular basis.

The Willowbrook Study showed that hepatitis can be divided into multiple types, which has allowed doctors to specify the type of treatment that is appropriate, and has led to a reduction in hepatitis outbreaks.

This summary is based on a true story. Please see the Sources section for reference information.

Contributed by Erin Larson, Federal Way School District, Federal Way, WA.

Hepatitis: Inflammation of the liver caused most frequently by viruses.

Antibody: A substance made by the body as an immune response that attacks and destroys foreign agents, such as viruses and bacteria.

STUDENT HANDOUT 1.2

Guiding Questions for Historical Case Studies

Name _____ Date _____ Period _____

Complete the following chart with your group after you read through your case study. Record information from the other case studies presented by other groups in your notebook.

	CASE STUDY:
1. What good came out of the research? What was the importance of the study?	
2. What things were not fair or are questionable about the research or its process?	
3. Who was involved in the case? Directly? Indirectly?	
4. Was everyone involved fully aware of and did they agree to be part of all aspects of the research?	
5. What was society's role in the case?	
6. How did social issues (e.g., poverty, education, religion) influence the case?	
7. What core values were in conflict in this case?	

STUDENT HANDOUT 1.3

Concept Mapping

Name _____ Date _____ Period _____

Thinking back to the guidelines/rules your group recorded and the information you've collected on all of the case studies, review your guidelines and categorize them by major components/shared themes. You may want to make a concept map that shows how your group decided to categorize the guidelines.

STUDENT HANDOUT 1.4

The Belmont Report

Name _____ Date _____ Period _____

The Belmont Report—Guidelines for Using Human Subjects in Research

The Belmont Report was created in 1978 by the U.S. Department of Health to establish some basic ethical principles to be considered when people participate in research.

1. Respect for Persons

- *Description:* Respect for individuals and their **autonomy**; obtain informed consent.
- *How is this applied?*
 - o A person has the right to make choices, hold views, and take actions according to his own beliefs.
 - o If a person does not have the capacity to make her own choice, she must be protected from harm.
 - o A person must enter into research voluntarily and must be informed in an adequate manner.
 - o To truly respect a person's autonomy, he must be able to give genuinely informed consent with full knowledge of both harms and benefits of the study.

On the back of this paper, give an example of how this principle was upheld or not from one of the case studies.

2. Beneficence (or maximize benefits/minimize harms)

- *Description:* Beneficence stresses “doing good” and “doing no harm” by minimizing all potential harm(s) and maximizing all potential benefit(s) to the subject as well as potential benefit(s) to society.
- *How is this applied?*
 - o There is an obligation to minimize the harm/risks to the greatest extent possible.
 - o Maximize the potential benefits.
 - o Ensure the rights and well-being of the patient take precedence over the needs of science.

On the back of this paper, give an example of how this principle was upheld or not from one of the case studies.

3. Justice

- *Description:* Be fair in the distribution of the benefits and in bearing the burden of research.
- *How is this applied?*
 - o The benefits and burdens of the research should be justly distributed.
 - o Guard against using **vulnerable populations**.
 - o Ensure fair selection of research participants.
 - o Guard against **coercion** and **undue influence**.
 - o Avoid potential financial or other **conflicts of interest**.

On the back of this paper, give an example of how this principle was upheld or not from one of the case studies.

Autonomy: A person's freedom and ability to make his or her own decisions.

Coercion: The act of pressuring someone to do something using force, intimidation, or threats without respect for individual choice. This includes the idea that a person with few choices may find participation in a study to be so appealing that they feel they cannot decline, even if being in the study is not a good decision for other reasons.

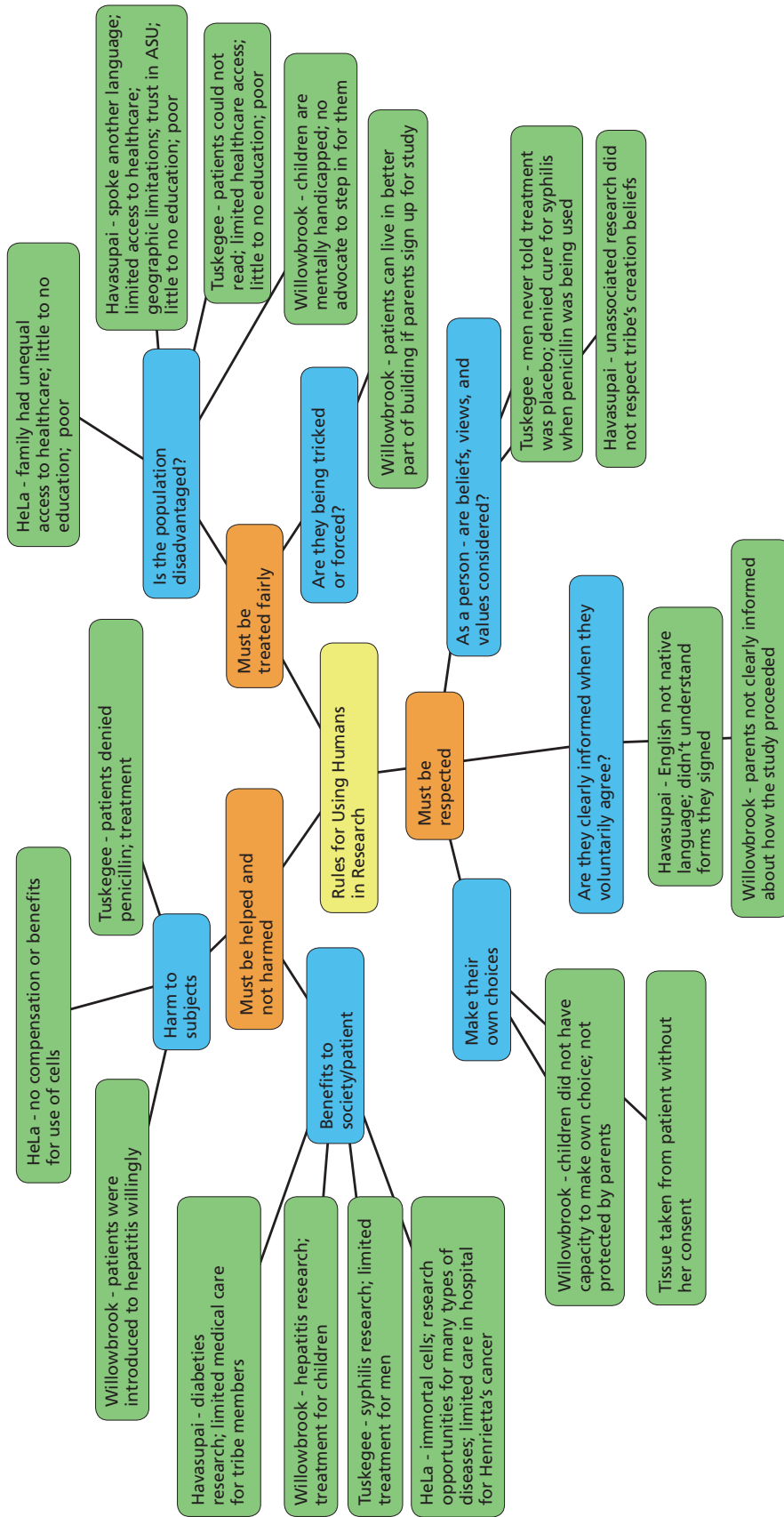
Conflict of interest: A situation in which someone is responsible for making a decision in an official capacity (e.g., someone holding public office) that could benefit them personally.

Undue influence: Is exerted when a person of higher power or authority takes advantage of another person; undue influence can often include coercion.

Vulnerable (populations): Groups who may be exploited for use in research, e.g., children, people who are illiterate, and prisoners.

Possible Answers for STUDENT HANDOUT 1.3

Concept Mapping



Concept map created at <http://www.text2mindmap.com>.