



Moral or Unjust? Exploring Ethical Issues of Scientific Research

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Selwyn Elementary School

This curriculum unit is recommended for:
Fifth Grade Science and Literacy

Keywords: Scientific Research, Ethical Issues in Science, Ethics, Debate, Literacy in the Science Classroom, Science in the Literacy Classroom

Teaching Standards: See [Appendix 1](#) for teaching standards addressed in this unit.

Synopsis: The intent of my unit is to focus on the ethical issues surrounding scientific research. We will begin by discussing the ethics that are involved in scientific research as a whole and what the entire process encompasses. Students will have a chance to discuss and share ideas of why ethics are so important and what might happen if this Code of Ethics did not exist. Throughout the unit, students will utilize various case studies to study these ethical issues, as well as numerous reading strategies. These strategies include understanding fact and opinion, cause and effect relationships, comparing and contrasting two different viewpoints, understanding how authors use evidence to support a particular point in a text, and much more.

I plan to teach this unit during the coming year to 35 students in my 5th grade ELA classroom.

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Moral or Unjust?: Exploring Ethical Issues of Scientific Research

By: Katelyn Gardepe

Introduction

This year, I made the decision to leave the school I had been teaching at for the last 6 years and transfer to a new elementary school. The jump from David Cox Road Elementary (Title I) to Selwyn Elementary has been a large one, as the entire demographic of the students I have been teaching for the last six years changed tremendously. Selwyn is located in an affluent, suburban neighborhood in South Charlotte. The population of the school is made up of approximately 76% White, 13% Black, 7% Hispanic, and 3% Asian students. Only 22% of the students at Selwyn are receiving free and reduced lunch services.

I am currently working with approximately 95 fifth graders, the majority of which perform above grade level. Instructionally, this is a huge challenge for me because I am used to working with students who are below grade level and am always working to catch them up. This year, I will be able to change my way of teaching and really focus on taking my students to a whole new level. Challenge #2 for me, however, is that I have always taught Math and Science in my classroom. This year, I have added a block of Literacy to my schedule and am no longer teaching Science. With that being said, I thought the best way to continue incorporating my love of Science into my teaching was to integrate the subject into our Literacy curriculum. Creating a unit with a Literacy focus will not only allow me to continue to focus on our seminar topic of “How Science is Done”, but it will also allow me to familiarize myself with the Common Core English/Language Arts Standards and give me a head start into defeating this challenge.

The intent of my unit is to focus on the ethical issues surrounding scientific research. We will begin by discussing the ethics that are involved in scientific research as a whole and what the entire process encompasses. Students will have a chance to discuss and share ideas of why ethics are so important and what might happen if this Code of Ethics did not exist. Throughout the unit, students will utilize various case studies to study these ethical issues, as well as numerous reading strategies. These strategies include determining the main idea of a passage, understanding fact and opinion, cause and effect relationships, comparing and contrasting two different viewpoints, understanding how authors use evidence to support a particular point in a text, and much more.

Upon the completion of this unit, I would hope that my students have a better understanding of just how hard scientific research is! It is my goal that they learn that being a scientist is not just about going into the lab one day and coming out with a product, but a continual process of trial and error and finishing and fixing. Giving students the opportunity to look at the ethical issues also allows them to realize that the job doesn't stop at the finished product and persistence is key!

Content Background

The basis of ethics is primarily focused around the idea of knowing right from wrong. As we grow up, our parents and schooling typically teach us these differences and many

would go as far as to say it should be considered “common sense”. However, in the world of Scientific Research, it is inarguably not.

In true definition, ethics is defined as a “method, procedure, or prospective for deciding how to act and for analyzing complex problems and issues”¹. Unfortunately, ethics is very subjective because people will always see things from a different perspective based on their own individual experiences. Researchers who follow the ethical norms for their field are able to promote the aims of their research, promote values that are vital to collaboration, can be held accountable in public, and help to create public support for research projects. Ethical Principles help to determine those who are acting unethically.

Ethical Principles

Honesty: It is vital that researchers always provide honest results, data, feedback, and procedures. One should never falsify data for any intention or deceive colleagues/public.

Objectivity: Researchers must always avoid bias when choosing participants for their study. This is a vital part of collecting accurate data.

Integrity: It is important to be honest and have strong moral principles in the field of research. If a researcher agrees to share data, he/she must live up to their promise.

Carefulness: It is important to avoid careless errors brought on by moving too quickly or not being careful. Keep good records and always carefully examine your work and the work of your peers.

Openness: Be open to sharing ideas, data, and criticisms. This is an important tool for not only individual growth, but often also the growth of a project.

Respect for Intellectual Property: Honor the contributions of others. Be respectful of patents, copyrights, and other intellectual property. Never share someone else’s results as your own and give proper acknowledgement for all contributions made on your projects.

Confidentiality: Always protect confidential records. Data, notes, grants submitted for publication, trade or military secrets, and patient records should always be under high security.

Responsible Publication: Publish work in order to advance the field, not just your own career. Share your work with others to help open up doorways for more research and ground breaking discoveries.

Responsible Mentoring: Help to educate and advise students and other professionals in your field.

Respect for colleagues: Respect your colleagues and treat them with fairness.

Social Responsibility: Strive to promote social good and lessen social harm.

Non-Discrimination: Avoid discriminating against colleagues, students, or participants on the basis of race, sex, ethnicity, or other factors not related to your study.

Competence: Ensure that you are keeping abreast on the most recent developments in your field. Work to improve your competence, as well as that of the science as a whole.

Legality: Know and obey the laws and institutional/governmental policies.

Animal Care: Show proper care for animal subjects. Do not cause unnecessary harm.

Human Subjects Protection: Conduct research that minimizes harm while maximizing benefits. Respect your subjects and treat them with dignity. Ensure that they have voluntarily agreed to the study and have provided informed consent.

Some research scientists do not always follow these principles. Often this can cause ethical misconduct. Ethical misconduct is when researchers take any part in a project that is conducting unethical research. This would include fabrication or falsification of data or any other project notes, intent to deceive another researcher, intent to deceive someone else for the purpose of delaying future research on your subject, and much more. In the following case study, you will read about one example of misconduct:

“The research protocol for a study of a drug on hypertension requires the administration of the drug at different doses to 50 laboratory mice, with chemical and behavioral tests to determine toxic effects. Tom has almost finished the experiment for Dr. Q. He has only 5 mice left to test. However, he really wants to finish his work in time to go to Florida on spring break with his friends, who are leaving tonight. He has injected the drug in all 50 mice but has not completed all of the tests. He therefore decides to extrapolate from the 45 completed results to produce the 5 additional results.” (National Institute of Environmental Health Sciences, n.d.)

In the case of Tom, he has clearly made an ethical error in falsifying data. By producing the additional 5 results, he is tampering with the research and possibly affecting the entire set of results. According to research ethics policies, Tom would have committed research misconduct. However, it is important to remember that in order for misconduct to be an accurate label, the researcher must have had the intent to deceive. Honest errors for working too quickly or just being careless are not considered misconduct.

While ethical principles and norms are established, every situation is not as cut and dry as one might think. Just how some have moral dilemmas about controversial issues like abortion or the death penalty, there are an array of situations that can become controversial in Scientific Research. Take the following case for example:

“Dr. T has just discovered a mathematical error in his paper that has been accepted for publication in a journal. The error does not affect the overall results of his research, but it is potentially misleading. The journal has just gone to press, so it is too late to catch the error before it appears in print. In order to avoid

embarrassment, Dr. T decides to ignore the error.” (National Institute of Environmental Health Sciences, n.d.)

In the case of Dr. T, this would not be considered misconduct. Dr. T realized his error after the publication was already sent off to print. He did not have the intent to deceive others with any of his data, his realization came after it may have already been too late. The fact that he did not make an effort to try and correct the error with the publisher or publish a correction would be seen to his colleagues as unethical, but would not qualify as misconduct.

The Public Health Service (PHS) Policy has taken steps to alleviate misconduct in the research field. The policy requires that anyone who has direct involvement in any form or fashion with PHS funds complete a basic program of instruction on responsible conduct of research. Most institutions believe in and encourage the same fundamental values as PHS for all researchers.

Animals in Research

Animals have been used in research as far back as the 18th Century. The debate over whether or not it is ethical to use them however, has not been around as long. It wasn't until about the 20th Century that historical philosophers began to address the issue of the treatment of these animals. There were three main arguments. The first was that animals have their own rights and should be able to basically decide for themselves. The second, was that researchers had a duty to their animal subjects to “take care of them”. The last argument says that some humans experience great pain from seeing animals in distress and it is their human right to not have to feel that way. When recently polled, the Humane Society found that 75 percent of the general public did not approve of experiments that subjected animals to pain or distress. Before that time, it was always thought that animals did not have the ability to hurt or understand distress.

As a result, in 1966 the Animal Welfare Act was created to set a standard for the proper treatment of animals. It has been amended four times since it has come into establishment, most recently in 1990. The Act includes provisions on how animals are obtained, housing and care for specific species (excluding mice, rats, and birds), veterinary care, and responsibility for minimizing pain and distress. Most importantly maybe, the Act requires that all institutions conducting research with animals must have an oversight committee that ensures the proper use and care of the animals.

Human Participation

Humans have also long been involved in forms of scientific research. For any researcher using human subjects as participants, a level of respect must be shown for that being. Human participants must give un-coerced consent to involve themselves in the project and are to be given the right to opt out at any time. In the same respect, they must also only be used for situations in which the benefit for the research itself is high, but the risk for the participant is minimal. At no time are researchers allowed to discriminate against any specific group of people in order to exploit them or intentionally cause risk to them.

Although these standards of ethical responsibility might seem obvious to one reading this, it has actually taken a long time for federal and institutional rules on this subject to

be developed. The Nuremberg Code was established after experiments were involuntarily conducted on prisoners at concentration camps during World War II. It now is the reason that all participants must have voluntarily agreed to participate and are required to give informed consent.

In 1964, The Declaration of Helsinki was created by the World Medical Association as a statement of recommendations for handling human participation ethically. The statement established principles that required researchers to ensure an experiment was safe for human participants before using them in their studies. Researchers must have utilized different laboratory experimentation and animal experimentation before resorting to human participation. The participation would need to cause minimal risk to humans. Research protocols would need to be examined by an outside party in order to avoid bias on the part of the researcher. The researcher must also prove to be qualified to perform the intended task. This Declaration has been amended four times since its establishment.

The National Research Act was passed in 1974. Its creation was in response to the 40-year long Tuskegee Syphilis Study. Six hundred African-American men who were infected with Syphilis were monitored for the forty-year time frame, but never treated. This act created the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research who developed ethical guidelines for human research.

Most recently, the Public Health Services Act established the role of Institutional Review Boards to protect human participation in research studies in 1985. Just a few years later in 1991, The Common Rule was adopted to provide researchers with common expectations and regulations for utilization of human participants used by all federal agencies funding research on humans.

An Institutional Review Board (IRB) is now required at every institute that conducts scientific research. This board will oversee research projects that deal with human participation and assess the benefits and risks of proposed studies. An IRB must have at least 5 members and make up a diverse team. The IRB should reflect different cultural backgrounds, races, genders, ages, experiences, and sensitivity to social issues. In cases where students are conducting research, an IRB is often not required. However, it is still protocol to adhere to the ethical policies as mentioned above.

Teaching Strategies

Accountable Talk: Students will work throughout this unit to have academic conversation about the topics at hand. Students will be encouraged to build on each other's ideas and take different perspectives on their topic. It will be important for students to really work with their teams in order to gain all of the content needed to have a successful debate.

Debate: Students will conduct research on their case study in order to participate in a debate with another team who is analyzing the same case. Students will be instructed to understand different perspectives of their topic as they will not yet have an idea of which perspective they are going to argue in the debate. Throughout the debate, students will need to work collaboratively in order to build a strong case for their case study project.

Graphic Organizer: The graphic organizer will help students to brainstorm ideas about their case study, but also make sure they are looking at specific content that will help them see their case in various ways.

Read Aloud: We will begin our unit with a read aloud from “The Immortal Life of Henrietta Lacks”. Students will come together to analyze what it is that the hospital and the family are arguing is unethical and ethical on the topic.

Turn and Talk: Students will work together often to discover ideas to share. With this strategy, students will turn to their neighbor for approximately a minute to discuss their ideas on the topic at hand.

Note-Taking: Students will need to conduct research and take notes in order to create a case for their case study. Students will need to listen closely as others share information in order to create an analysis and form an opinion of each case.

Gallery Walk: Students will complete a Gallery Walk in order to view various case studies around the classroom. In this Gallery Walk, students will use a writing utensil to jot down ideas on a piece of chart paper that discuss the case study. Students will be encouraged to add to the ideas of others, ask them questions pertaining to their ideas, or simply tell them they agree or disagree and why.

Activities

Day One: Introduction to Unit

Materials: “The Immortal Life of Henrietta Lacks” spark notes excerpt
<http://www.shmoop.com/the-immortal-life-of-henrietta-lacks/summary.html>, *Discovery Education video, large construction paper*

Bring students together on a carpet or at their seats to read the excerpt from “The Immortal Life of Henrietta Lacks” aloud. After reading, have students turn and talk with their neighbor to discuss the following:

What happened to Henrietta Lacks?

Who is right, the scientists or the family of Henrietta Lacks? Why do you think so?

After about 2 minutes, have students come together again for the class discussion. Allow students to share their ideas and have a group discussion about what happened to Henrietta and whether the family was just in their thinking or the hospital in their actions. Maybe both?

Explain to students that we will be analyzing cases similar to Henrietta’s in order to better understand the ethics behind scientific research and just how tough some cases can be. Send students back to their seats for additional conversation about the ethical principles involved in cases like this.

Play 5-minute video, “Introduction to Sociology: Ethical Research Principles” from Discovery Education to begin the conversation about ethical standards.

<https://app.discoveryeducation.com/player/view/assetGuid/083f26a2-d0b5-42dd-a3dc76b1cc4b9d91>

Use the ethical principles listed above in this unit to assign to students. Have students pair up to create a small poster for each of the ethical principles listed. Assign each pair one principle to work on. (Depending on class size, you may need to give a few groups more than one principle to work on-- there are 16 total on this list.)

Day Two: Case Study Analysis

Materials: *Ethical Principles Note-Taking Sheet, 1 case study from Appendix 2*

Have students share their posters they made for the ethical principle they were assigned. As each pair presents their principle, the other students should be jotting down notes in order to create a list of all of the principles to refer back to throughout this unit. You may want to use the Ethical Principles Note-Taking Sheet as a guide for students.

Ask students why they think it is important to have a Code of Conduct for scientific research projects. What would happen if people did not follow these ethical principles?

Give the students a case study of your choice. Various options have been provided in the Appendix of this unit. (*I have not specifically assigned them because some cases can be a bit controversial. I believe it's probably best for teachers to choose the ones that fit best for their students.*) In groups of four, have students analyze the case study in order to deem it ethical or unethical. Students should use the Moral or Unjust? Graphic Organizer to help analyze all sides of the argument.

Bring students back together to share their ideas. Create a T-Chart on chart paper to keep posted for the class. Label one side "ethical" and the other side "unethical". Record student arguments and discuss together.

Day Three: Case Study Gallery Walk

Materials: *5-6 case studies from Appendix, chart paper, markers or pens*

Prior to lesson: Print Gallery Walk case studies using 5 or 6 case studies from the Appendix of this unit. Paste each case study in the middle of a large piece of chart paper before hanging up or laying out around the room.

Today, students will conduct a Gallery Walk of various case studies regarding ethical issues. Students will have 5 minutes at each case study to write notes about why they think the case might be ethical or unethical and what principles it might violate or uphold on either side of the argument. The catch to today's Gallery Walk is that there will be no talking. In groups, students will use a marker or pen to write their notes around the case study on the chart paper it is pasted to. Students may, and should, respond to others written ideas on this paper so that everyone can see their conversation. As students rotate around the room, they will be able to build on others ideas and get a good understanding of how others view each case study.

Upon completion of the Gallery Walk, assign a student group to each of the 6 case studies. In their group, they will analyze the case study and the student conversation that took place on the chart paper around the case study. Groups will work to determine at

least 3 reasons why the case might be ethical and 3 reasons why the case might be deemed unethical.

Share student responses with the class.

Day Four: Case Study Projects-Research

Materials: *3 case studies (enough copies of each for two groups to work on one case study), internet, Case Study Analysis worksheet*

Using the case studies from the Appendix, assign a case study you have not yet used to each group. Two groups should be paired with one case study as they will each take different sides on Day Two.

Today, students should work to explore their case study with their group. They should use technology to research more about their case study and the effects the topic has on the subject, the scientist, and the environment as well as the intention of its success. Students should weigh all of these pieces of research to determine whether or not the project is something that should move forward or be stopped by an Internal Review Board.

Students should use the *Case Study Analysis* worksheet to help gather ideas. This can also be completed through the use of technology by creating a presentation or using a collaborative document for students to share their thoughts on.

Day Five: Case Study Projects- Taking a Different Perspective

Materials: *3 case studies (enough copies of each for two groups to work on one case study), internet, Case Study Analysis worksheet*

Today, students will continue working on the research for their case study ensuring that the case will benefit more than it will harm and follows all of the ethical principles. However, you will ask students to not only work to determine the reasons this case is ethical, but also to explore the reasons why it is not. *What implications would lead someone to deem this case study unethical and why?*

Tell students that tomorrow, the two groups studying each case study will take part in a debate and they will need to be ready to argue their case in order to win. However, neither group knows which side they will be on until the minute the debate starts. With that being said, students need to ensure that they have closely examined both sides of their issue and continue working on their research today.

Students should work to continue filling in their *Case Study Analysis* worksheet.

Day Six: Case Study Project- Debates (Culminating Activity)

Materials: *Debate Rubric*

Students will have about 10 minutes to meet with their teams before the debates begin. Call students together to go over the rules and expectations for today's debate.

1. Students who are not currently in the debate will listen carefully acting as the Review Board for their peers. Students should be working to fill out the rubric for the teams currently participating in the debate. At the end of the debate, these rubrics will be used to anonymously determine the winner of today's debate. They must listen carefully!
2. Students who are in the debate will take turns accordingly. Students in the same group will work together to get their point across, but will not interrupt each other and will allow for others to share their ideas.
3. Each team will get three chances to speak and rebut to the other teams claims. The rotation will be every 2 minutes, giving each team a total of 6 minutes to prove their claim and a total of 12 minutes for the entire debate.

You can have students toss a coin for the side they will defend or use another strategy if you choose. Begin debates. After each pair of teams concludes their debate, have the Review Board (those students not in the debate) meet to discuss the information from their rubrics. Teams will tally up their scores for the debate. Collect the scores for each group to determine the side with highest score. This will determine the winner of the debate.

Allow each team to present this same way.

When all debates are completed, gather the class for a discussion about scientific research and ethical principles. Generate ideas about the following:

- *Think about what you knew about scientific research at the beginning of this unit, have your ideas changed at all based on what we have learned the last few days?*
- *Do ethical issues make a scientist's job harder, yes or no? Why?*
- *What is it about ethics that made it so hard to prove your case ethical or unethical?*

Appendix 1: Teaching Standards

CCSS.ELA-LITERACY.RI.5.1: Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

Students will use case studies to explore different ethical issues. They will need to use evidence from the text in order to support their own claims.

CCSS.ELA-LITERACY.RI.5.8: Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).

Students will be using the case studies, as well as conducting further research for the cases at hand. They will need to use the evidence from all resource materials in order to build their case for the side that they support.

CCSS.ELA-LITERACY.RI.5.9: Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

After the research is complete, students will partake in a debate with their classmates. Throughout this debate, students will need to refer back to the information their teams had researched in order to prove their case to the opposing team. In order to be successful in the debate, students will need to utilize various text resources to acquire factual information and evidence to support their claim.

CCSS.ELA-LITERACY.SL.5.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

Students will be participating in collaborative activities throughout this entire unit. They will need to collaborate on paper during the Gallery Walk in order to begin discussion, offer opinions for other groups, and build on ideas from their peers. As we continue through the unit, students will work with their groups to collect evidence to support their claims in the debate.

Appendix 2: Teacher Materials

Name: _____

Date: _____

Moral or Unjust? Curriculum Unit

Ethical Principles Note-Taking Worksheet

Ethical Principle	Definition. What does it look like?
Honesty	
Objectivity	
Integrity	
Carefulness	
Openness	
Respect for Intellectual Property	
Confidentiality	

Responsible Publication	
Responsible Mentoring	
Respect for Colleagues	
Social Responsibility	
Non-Discrimination	
Competence	
Legality	
Animal Care	
Human Subjects Protection	

Group: _____

Topic: _____

Debate Rubric

Throughout the debate, use this rubric to assess your peers and their ability to argue their case based on their findings. Please pay close attention to the requirements for each piece of criteria and make sure you are able to justify your reasoning to your team.

	3	2	1
Topic/Claim: Did the team clearly identify their topic as well as their position on the topic?	Team identified topic and position clearly.	Team attempted to identify the topic, but was not clear of their position.	Team did not identify topic or state their position.
Evidence: Did the team give at least 3 pieces of evidence to support their claim?	The team gave <u>at least 3</u> pieces of evidence to support their claim.	The team gave <u>2</u> pieces of evidence to support their claim.	The team gave <u>1 or less</u> pieces of evidence to support their claim.
Countering Evidence: Was the team able to use evidence to counter a claim made by the opposing team?	The team was able to counter the opposing team's evidence <u>at least twice</u> with evidence from their findings.	The team was able to counter the opposing team's evidence <u>once</u> with evidence from their findings.	The team was <u>not able to</u> counter the opposing team's evidence with evidence from their findings.
Presentation: Did the team follow the rules of the debate? <input type="checkbox"/> Waiting their turn <input type="checkbox"/> Respectfully disagreeing <input type="checkbox"/> Etc.	The team followed <u>all</u> debate rules.	The team followed <u>some</u> of the debate rules.	The team <u>did not follow</u> the debate rules.
Total Score:			
Additional Comments:			

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Case 10: A Pain in the Neck

Dr. David Vandercar was retired from a career in psychology and anesthesiology when his daughter suffered a neck injury and needed help that turned out to be hard to find.¹ Her doctors advocated for expensive surgeries and insisted on giving her injections which didn't seem to help her neck pain; Dr. Vandercar was confident that the more traditional pain management regimen of narcotic pain medications would be more effective. But his daughter was having difficulty finding doctors who would provide medications without the other more invasive treatments. So Dr. Vandercar opened Tampa Pain Clinic . . . and business could not have been better.

Dr. Vandercar treated many different kinds of patients. Some were injured in car accidents, had suffered repetitive work injuries, or had developed debilitating illnesses. Dr. Vandercar required proof of injury, preferably an MRI, and would often prescribe a large quantity of opiate pain killers to his patients.⁸¹ The paperwork provided at the initial consultation described the risks and benefits of pain management with emphasis on the risk of addiction, sedation, and possible death. Patients were also required to execute an agreement only to seek treatment for pain management from Dr. Vandercar and submit to regular drug screening. But these measures were imperfect, and Dr. Vandercar's patients sometimes succumbed to addiction or died from abuse of their medications.

Anecdotal accounts from pain patients² retell how medications that were supposed to help them function better instead ruined their lives, including stories of arrest,³ family strife,⁴ and even the death of innocent children of pain sufferers.⁵ In interviews, Dr. Vandercar freely admitted that some of his patients overdosed on medications he prescribed, but he argued that the help the medications provided to the vast majority of his patients outweighed the risk that a few would overdose.⁶ There are patients like Keyanna Otholt, who suffers from “two failed back surgeries, arachnoiditis, reflex sympathetic dystrophy, Hepatitis B, chronic obstructive pulmonary disease, arthritis, stage 4 endometriosis, myofascial pain, fibromyalgia and chronic fatigue.” In recent

¹ Chris Tisch and Abbie Vansickle, “The Politics of Pain,” St. Petersburg Times (now Tampa Bay Times), February 28, 2008. http://www.sptimes.com/2008/02/24/Worldandnation/The_politics_of_pain.shtml ⁸¹
See patient review titled, “Mubang; pros and cons,” by CPP on Sept. 22, 2014; [vitals.com; http://www.vitals.com/doctors/Dr_John_Mubang/reviews](http://www.vitals.com/doctors/Dr_John_Mubang/reviews).

² There is no indication that the following categories/stories necessarily applies to any of Dr. Vandercar's patients unless expressly alleged.

³ Chris Tisch, “Pain caused his hellish descent,” St. Petersburg Times (now Tampa Bay Times), February 24, 2008, http://www.sptimes.com/2008/02/24/Worldandnation/Pain_caused_his_helli.shtml.

⁴ “Florida's Pill Problem: A Prescription for Controversy,” (student documentary, faculty advisor: Ray L. Mendez), <http://mysaltwood.co.uk/ARTICLES/AUGUST2011/Florida's%20Pill%20Problem/Florida's%20Pill%20Problem.html>, Dec. 9, 2010.

⁵ Matt Reinig, “Spring Hill mom gets 30 months in toddler's overdose death,” The Tampa Tribune, November 18, 2013, <http://tbo.com/news/crime/hernando-mother-sentenced-today-in-overdose-death-of-daughter-20131118/>; Tony Marrero, “Hernando mother faces prison over drug death of 2-year-old daughter,” Tampa Bay Times, November 15, 2013, <http://www.tampabay.com/news/courts/criminal/mother-faces-prison-over-drug-death-of-2-year-old-daughter/2152680>.

⁶ See “Politics of Pain,” *supra*.

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years, Ms. Otholt and many other “legitimate” pain patients have had difficulty filling their prescriptions due to increased pressure and regulation from Florida legislators, law enforcement, and the Drug Enforcement Administration (DEA), leading to what many refer to as the “pharmacy crawl,” visiting dozens of pharmacies to find one both willing and able to fill the prescriptions they need to be able to function.⁸⁷

Over the years, the pendulum has swung in both directions in terms of legislative and enforcement approaches. In 1994, several states including Florida adopted guidelines that protected doctors who prescribed pain medication in order to enable them to treat terminal or severely injured patients with less fear of prosecution. But this led to an influx of self-described pain management physicians who had little or no background in anesthesiology and a “pill mill” epidemic.⁸⁸ In response, Florida implemented the prescription drug database in 2011 to aid physicians and pharmacies in spotting “doctor shoppers,” or patients who would visit multiple doctors to obtain prescriptions for narcotics.⁸⁹ Dr. Vandercar and his staff, like many pain management clinics, supported implementation of the database.⁹⁰ State and federal authorities also prosecuted drug manufacturers⁹¹ and pharmacies⁹² for distributing excessive amounts of narcotics. Prescription drug overdoses began to decline, and the state continued its efforts to rein in the sources of prescription drug abuse.

Unfortunately, the restrictions that reduced prescription drug deaths also came with unintended consequences. Some pain patients who were unable to fill their prescriptions turned to heroin to deal with their pain, and heroin overdoses have been on the rise since the crackdown on pill mills

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⁸⁷ Mark Maginn, “Living with Pain: The Pharmacy Crawl in Florida,” American News Report, May 30, 2012, <http://americannewsreport.com/living-with-pain-the-pharmacy-crawl-in-florida-8814404>; Timothy W. Martin, “Making the ‘Pharmacy Crawl,’” Sept. 26, 2012, <http://www.wsj.com/articles/SB10000872396390443720204578004873138298306>; Leticia Stein, “Getting pills a pain even for legitimate patients,” St. Petersburg Times (now Tampa Bay Times), Feb. 11, 2011, <http://www.tampabay.com/news/health/medicine/getting-pills-a-pain-even-for-legitimate-patients/1151024>; Liz Freeman, “Pill mill fallout: Legitimate patients have trouble getting pain meds,” Oct. 18, 2014, http://www.naplesnews.com/news/local-news/pill-mill-fallout-legitimate-patients-have-trouble-getting-painmeds_31951071.

⁸⁸ See Politics of Pain; see also Tatyana Lyapustina and G. Caleb Alexander, “The prescription opioid addiction and abuse epidemic: how it happened and what we can do about it,” The Pharmaceutical Journal, June 11, 2015, <http://www.pharmaceutical-journal.com/opinion/comment/the-prescription-opioid-addiction-and-abuse-epidemichow-it-happened-and-what-we-can-do-about-it/20068579.article>.

⁸⁹ Elaine Silvestrini, “Florida heals from pill mill epidemic,” The Tampa Tribune, Aug. 30, 2014, <http://tbo.com/news/crime/florida-heals-from-pill-mill-epidemic-20140830/>

⁹⁰ Ashley VanDercar, “Drug database is vital tool in fighting abuse,” St. Petersburg Times (now Tampa Bay Times), Feb. 13, 2011, <http://www.tampabay.com/opinion/columns/drug-database-is-vital-tool-in-fighting-abuse/1151095> (Ms. VanDercar was attorney and risk manager for Dr. VanDercar’s Tampa Pain Clinic).

⁹¹ Barry Meier, “A New Painkiller Crackdown Targets Drug Distributors,” The New York Times, Oct. 17, 2012, http://www.nytimes.com/2012/10/18/business/to-fight-prescription-painkiller-abuse-dea-targetsdistributors.html?_r=0.

⁹² Mark Lowery, “DEA official blames pharmacists, doctors, pain-med denials,” Modern Medicine Network, Feb. 3,

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Case 14 Caged rats

In a time of global terrorism and economic recession, the humane treatment of lab rats may not be high on many people's list of just causes, but that doesn't mean they don't have advocates.

Animal welfare advocates have long taken umbrage at the NIH (National Institute of Health)'s ambiguous position on animal welfare. Their argument is that the welfare of millions of laboratory animals is important and ought to be taken seriously, even if protecting that welfare constitutes an inconvenience or a financial burden.⁷ One of the typical ways of affording laboratory animals some relief is giving them more space. Animal welfare advocates maintain that larger housing pens would improve rodents' wellbeing. According to ethologist J. P. Balcombe, studies have shown aggressive behavior among male mice when they were exclusively kept captive "in small, commercial cages."⁸ In fact, the latest scientific research, which provides evidence of empathetic behavior among lab rats, suggests that the emotional capacities and needs of these rodents might be much more complex than previously thought.⁹

Perhaps in response to such concerns, for the first time since 1996, the NIH has updated its guidelines for the housing of laboratory animals. Research institutions wishing to secure funding from the NIH will supposedly have to comply with the new housing guide, which is designed to reduce the overcrowding of millions of rodents used for research every year in the U.S. The recommendations don't exactly specify deluxe accommodations, though. A mouse and her litter will be entitled to a minimum of 51 square inches, while a rat and her litter should get at least 124 square inches.¹⁰

Nevertheless, research institutions have objected to the new guidelines: giving each animal more room will require them to purchase more cages (and hire more staff to clean those cages), which means diverting money away from research on product safety, pharmaceuticals, and other causes that could improve the well-being of humanity. Furthermore, scientists argue, there is little research to substantiate the claim that rodents' quality of life would improve with larger cages. As Joseph Thulin of the Medical College of Wisconsin puts it, it is unclear whether more spacious enclosures "will have any measurable positive impact on the animals." If laboratory animals aren't going to experience any relief and fewer funds end up going to research, the new guidelines seem to be the equivalent of running in a wheel that ultimately doesn't go anywhere.

⁷ Nell Greenfieldboyce, "Labs size up New Guidelines for Rodent Cages." *NPR.org*, Jan. 16, 2012, <http://www.npr.org/2012/01/16/145172737/labs-size-up-new-guidelines-for-rodent-cages>.

⁸ J.P. Bolcombe, "Laboratory Environments and rodents' behavioural needs: a review" *Laboratory Animals*, Pg. 40 (2006), http://www.pcrm.org/pdfs/research/testing/exp/Lab_Env_2006.pdf.

⁹ Ben-Ami Bartal Inbal et al., "Empathy and Pro-Social Behavior in Rats," *Science*, 334, 1427 (2011), <http://www.sciencemag.org/content/334/6061/1427.abstract>.

¹⁰ National Research Council of the National Academies. "Guide for the Care and Use of Laboratory Animals" (8th ed.) Washington, D.C.: The National Academies Press, 2012. <http://grants.nih.gov/grants/olaw/Guide-for-the-Careand-Use-of-Laboratory-Animals.pdf#page=83>.

The importance of the new guidelines seems further weakened by the NIH's assurance to researchers that the housing guidelines are just a recommendation for minimum standards. In fact, overcrowding will be allowed as long as it is justified by the research and "the animals' health or behavior won't suffer." The ambiguity in the NIH's response has left scientists wondering to what extent these guidelines will be enforced and whether non-compliance will affect funding.

Bibliography

"10 Emerging Ethical Dilemmas in Science and Technology." Bioscience Technology. 2014. Accessed June 11, 2016. <http://www.biosciencetechnology.com/news/2014/12/10emerging-ethical-dilemmas-science-and-technology>.

This resource is a great tool for teachers to explore ongoing ethical dilemmas on the field of science and technology.

"Center for the Study of Ethics in the Professions." High School Ethics Bowls. Accessed October 29, 2016. <http://ethics.iit.edu/teaching/high-school-ethics-bowl>

This is an excellent resource for teachers looking to explore various ethical case studies. All of the case studies from this unit plan have come from this website and there are many more to choose from.

"English Language Arts Standards » Reading: Informational Text » Grade 5." | Common Core State Standards Initiative. Accessed June 11, 2016. <http://www.corestandards.org/ELA-Literacy/RI/5/>

The Core Standards website allows ELA teachers to explore the Literacy standards that need to be taught at each grade level and even provides documents to help unpack them for planning purposes.

"Research Ethics Timeline (1932-Present)." Research Ethics Timeline (1932-Present). Accessed June 11, 2016.

<http://www.niehs.nih.gov/research/resources/bioethics/timeline/index.cfm>.

The Research Ethics Timeline is helpful in understanding key events in the history of ethical research.

"The Immortal Life of Henrietta Lacks Summary - Shmoop." Accessed October 23, 2016. <http://www.shmoop.com/the-immortal-life-of-henrietta-lacks/summary.html> This summary from this website is a helpful resource in understanding the key ideas posed in "The Immortal Life of Henrietta Lacks". For many elementary classrooms, the entire book may be a bit too mature for the students, but this excerpt is a pretty good example of what they will need to know and what they can developmentally handle.

"What Is Ethics in Research & Why Is It Important?" What Is Ethics in Research & Why Is It Important? Accessed June 11, 2016.

<http://www.niehs.nih.gov/research/resources/bioethics/whatis/>.

This website has a ton of information regarding all types of ethical research. A lot of information used in this unit has been pulled from this site as it gives an easy to understand overview of all of the significant ideas in scientific research.

Case 6: Destroying Wildlife To Save It

In the Pacific Northwest and Northern California, which is the habitat of the rare spotted owl, the Fish and Wildlife Service has authorized the shooting of 3600 barred owls. The barred owl is not a threatened species and is protected under the Migratory Bird Treaty Act.¹¹ These more aggressive owls are believed to be the cause of the spotted owl's near-extinction. Though the Fish and Wildlife Service came to its decision with the help of biologists and an ethicist, Friends of Animals (an advocacy group) is suing to stop the killings. According to Michael Harris, Legal Director for Friends of Animals, it is preferable to "allow these species to either figure out a way to coexist or for nature to run its course."

A similar quandary has arisen in New York. The mute swan - a majestic bird that glides on many of New York State's lakes and ponds - may be intentionally exterminated by 2025. Though visually striking, the mute swan is an invasive species and has altered the native ecosystem. The proponents of eliminating the swans claim the birds destroy the vegetation on which other species feed, and may be responsible for the dwindling population of black terns. Still, the State of New York has had to face several critics. David Karopkin, founder of GooseWatch, explains that in 1970 there were 1000 swans in New York, while today there are 2200 - hardly the explosive growth that one might expect of a species labeled "invasive."¹² Though Karopkin is not a swan-fan (he notes swans' aggressive nature), there are many who are. Defenders of the mute swan have collected signatures to keep the swans in place and have argued that, if the State of New York wants to prevent habitat-destruction, it should focus its energies on human development.

However, the most strident outcry over the destruction of wildlife as a means for conservation was elicited by the auctioning of a permit to kill a black rhino.¹³ The highest bidder was an American hunter, who paid \$350,000 to kill one of the last 5,000 remaining black rhinos in the world. The purpose of the auction was to raise a large sum of money for rhino conservation in Namibia, whose national commitment to wildlife conservation is inscribed in its constitution. Though it is clear that a large influx of cash could positively impact the preservation of black rhinos, the auction has encountered widespread criticism. Anthropology professor Barbara King has called for

¹¹ Eliabeth Shogren, "To Save Threatened Owl, Another Species Is Shot," NPR, January 16, 2014, <http://www.npr.org/2014/01/15/262735123/to-save-threatened-owl-another-species-is-shot>

¹² Margot Adler, "A Plan To Eliminate Wild Mute Swans Draws Vocal Opposition," NPR, March 11, 2014, <http://www.npr.org/2014/03/11/288751372/a-plan-to-eliminate-wild-mute-swans-draws-vocal-opposition>

¹³ Barbara King, "Why We Need Compassionate Conservation," NPR, January 13, 2014, <http://www.npr.org/blogs/13.7/2014/01/13/261230612/why-we-need-compassionate-conservation>

“compassionate conservation,” which stresses the intrinsic value of each individual member of a species. Likewise, Dr. Mark Bekoff, an expert in animal emotions, criticized

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the philosophy underlying these conservation efforts: “Killing animals to save others sets a bad example and a regrettable precedent and is not the way to foster peaceful coexistence.”¹⁴

¹⁴ Marc Bekoff, "Black Rhino Auctioned in the Name of Conservation," Psychology Today, January 12, 2014, <http://www.psychologytoday.com/blog/animal-emotions/201401/black-rhino-auctioned-350k-in-the-name-conservation>

Case #3: Doggie Livestock

In the months preceding Bo Obama's tenure as first dog, a fierce debate raged across the country about what sort of dog the President's family should adopt. Malia Obama's dog allergy made the selection of a family pet more difficult because they knew there were breeds available that produced less dander, but adopting a purebred pup went against some of their ethical

beliefs.¹⁵ And the first family is not the only group concerned about the ethics of adopting purebred dogs. Many groups, like The Humane Society of America, advocate the adoption of shelter pets rather than purebred puppies, as they need homes, are less expensive, and do not come from a system of forced breeding that occurs in —puppy mills.¹⁶

In response to perceived abuses in puppy mills, one state has sought to limit the practice of producing purebred pups in bulk. In Missouri last fall, the state voted for —Proposition B,¹⁷ which limits the number of dogs within each breeding facility, in addition to other regulations. Opponents of the bill distrust the regulation, and believe that it may indicate a movement toward increasing control of agriculture beyond dog breeding.³ The Humane Society of America and other proponents believe the regulations are long overdue, and represent minimum standards that good breeders will want to adopt for the welfare of their animals and business.

The vote was primarily split along urban-rural lines—with the urbanites voting to regulate raising puppies and dogs, and rural voters opposing state government intervention in —agricultural matters.¹⁸ Raising dogs for many Missourians is an income, no different than raising other livestock, and they have an incentive to keep the dogs healthy if they're going to sell them to pet stores.¹⁷ Missouri supplied, by some estimates, 40% of puppies and dogs to be sold in pet stores nationally.¹⁸ Further, many farmers and ranchers see Prop B as advocating an extreme version of animal rights that would require anyone raising livestock to take extreme measures for the welfare of their herds, essentially imposing hard-line vegan standards on unwilling breeders.⁶ Lastly, some argue that Prop B might actually lead to greater cruelty to many animals. Because the law prevents animals in overcrowded facilities from staying with their current owners, it would force many breeders to dispose of otherwise healthy animals by euthanasia or other means.¹⁹

Supporters of Prop B argue that Missouri's status as the dog-breeding capital of the country comes from its lax regulations, and that these lax regulations lead to horribly inhumane treatment of animals known first and foremost as —man's best friends.²⁰ Though the measure passed, the debate goes on as Missouri's state government passes bills to limit the impact of the Proposition.²⁰

¹⁵ —Don't forget about Malia Obama's dog allergies,¹ Dogtime.com presents Obama's Dog Blog: Tails from the White House lawn, <http://www.obama-dog.com/blog/allergies/>, last accessed June 20, 2011.

¹⁶ The Humane Society, —Adopt a Shelter Pet,¹ <http://www.humanesociety.org/issues/adopt/>, last accessed June 20, 2011. ³ Brent Engel, —Opponents of Proposition B vow to continue fight,¹ Hannibal.net (online version of Hannibal Courier Post), <http://www.hannibal.net/features/x742794303/Opponents-of-Proposition-B-vow-to-continue-fight>, November 4, 2010.

¹⁷ See Comments, C.B. Chastain, —Proposition B, a reasonable measure to protect dogs, won't harm reputable breeders,¹ Missourian.com, <http://www.columbiamissourian.com/stories/2010/09/14/letter-proposition-breasonable-measure-protect-dogs-wont-harm-reputable-breeders/>, September 14, 2010.

¹⁸ Missourians for the Protection of Dogs, —Facts,¹ <http://missourifordogs.com/facts>, last accessed June 20, 2011. ⁶ Barb Shelly, —Prop B blew open Missouri's huge urban-rural divide,¹ Voices.KansasCity.com (online version of the Kansas City Star newspaper), <http://voices.kansascity.com/entries/prob-b-blew-open-missouris-huge-urbanrural-divide/>, April 21, 2011.

¹⁹ —_NO!_ On Missouri Proposition B,¹ The Rockin' Conservative (blog), <http://rockinconservative.com/2010/09/15/no-on-missouri-propotion-b/>, September 15, 2010.

²⁰ See, for instance, Chris Blank, —Missouri anti-puppy mill law, Prop B, overhauled by lawmakers for being too costly,¹ The Huffington Post, http://www.huffingtonpost.com/2011/04/15/missouri-anti-puppy-milllaw_n_849648.html, April 14, 2011.

Case 15 ♦♦ India vs. Big Pharma

In April of 2013, India's Supreme Court rejected Novartis' bid to patent a new version of Glivec, a popular leukemia drug.²¹ Glivec's original formulation, which has held a U.S. patent since 1993, has never had patent protection in India. The country did not begin issuing pharmaceutical patents until 2005.²² However, as a member of the World Trade Organization (WTO), India has had to adopt the patenting of pharmaceutical products and processes, in accordance with the WTO's Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs).²³

Being a long-time supplier of low-cost medicines, India drafted patent legislation that would protect its ability to produce affordable pharmaceuticals, while also complying with TRIPs. According to India's Patent Act, section 3(d), variants of pharmaceutical compounds cannot be patented unless they "show enhanced efficacy." Thus, the newer, crystalline form of Glivec was deemed unworthy of a patent, according to Indian law. This decision means that generic drug manufacturers in India can continue to sell the drug for only a fraction of Glivec's sticker price (\$2500).

Representatives of *Médicins Sans Frontières* hailed the ruling, stating that lower drug costs will "save a lot of lives in the developing world."²⁴ Novartis, however, maintained that the company had been providing Glivec free of charge "to 95 percent of patients prescribed the drug in India."²⁵ In their eyes, the court's ruling was a sanctioning of intellectual property theft, which, in the end, would discourage pharmaceutical companies from investing in new drug research.

The effects of India's Supreme Court ruling are likely to reverberate across national borders, by setting a precedent against a practice known as "ever-greening" or incremental pharmaceutical innovation - the attempt to obtain a secondary patent on a product by making small changes to its chemical structure. India's stance against ever-greening has been criticized by the U.S.-India Business Council and defenders of patent rights.²⁶ Strong protection of intellectual property rights, so the argument goes, "attract[s] foreign research and development investment in developing countries and promote[s] technology transfer."²⁷ In fact, according to Dr. Alan O'Neil Sykes, a scholar on economics and international law, the absence of protection for the intellectual property of pharmaceuticals in developing nations has been concomitant with, if not causally responsible for, the "dearth of research into the diseases"²⁸ that disproportionately affect these countries.

²¹ Mark Memmott, "Patent Ruling In India Could Boost Exports Of Cheap Medicine To Third World," NPR, April 1, 2013, <http://www.npr.org/blogs/thetwo-way/2013/04/01/175916808/patent-ruling-in-india-could-boost-exports-of-cheap-medicine-to-third-world>

²² Bhaven Sampat, Kenneth C. Shadlen, and Tahir M. Amin "Challenges to India's Pharmaceutical Patent Laws," *Health*, 2012, 4:6.

²³ Thomas Pogge, "Human Rights and Global Health: A Research Program," *Metaphilosophy*, 2005, 36: 182–209.

²⁴ Soutik Biswas, "Novartis India Case: Campaigners Hail Patent Rejection," BBC News, April 1, 2013, <http://www.bbc.co.uk/news/business-21992724>

²⁵ Richard Knox, "Novartis Ruling Reverberates Past India's Borders," NPR, April 2, 2013, <http://www.npr.org/2013/04/02/175997129/novartis-ruling-reverberates-past-indias-borders>

²⁶ "The Value of Incremental Pharmaceutical Innovation: Benefits for Indian Patients and Indian Businesses," U.S.-India Business Council, 2010, <http://www.ahealthyindia.org/wp-content/uploads/2010/03/USIBCIncrementalInnovationReportFinal.pdf>

²⁷ Penelopi Goldberg, "Alfred Marshall Lecture Intellectual Property Rights Protection in Developing Countries: The Case of Pharmaceuticals," *Journal of the European Economic Association*, 2010, 8: 326–353.

²⁸ Alan Sykes, "TRIPs, Pharmaceuticals, Developing Countries, and the Doha 'Solution'." University of Chicago Law & Economics, Olin Working Paper 140, 2002, http://www.law.uchicago.edu/files/files/140.Sykes_TRIPs_.pdf

Case #12: Mixing Politics and Medical Practice

It's no surprise to many who follow the political process that healthcare policy and politics are closely linked. But until lately, most people believed that politics stopped outside the waiting room door. After the recent debate over the Patient Protection and Affordable Care Act (in some circles referred to as Obamacare), however, at least one physician is using his medical practice to make a political point.

In the wake of the passage of new healthcare legislation, Dr. Jack Cassell, a Florida urologist, put a sign on his door advising supporters of President Obama and his healthcare plan to —go elsewhere²⁹ for their healthcare needs.³⁰ In Dr. Cassell's view, the Affordable Care Act harms his ability to provide the best healthcare services to his patients, potentially putting him in violation of the Hippocratic Oath that physicians take to —do no harm.³¹

Critics charge that Dr. Cassell is violating the Hippocratic Oath himself and acting unethically by making political affiliation a factor in caring for patients. If a person needs urological care and saw the sign on Dr. Cassell's practice, they might end up turning away and not receiving the care that they need. Also, they may worry that if their support

²⁹ Dr. Cassell's actual sign read: —If you voted for Obama, seek urologic care elsewhere. Changes to your health care begin right now, not in four years.¶

³⁰ Stephen Hudak, —Doctor tells Obama supporters: Go elsewhere for health care,¶ Orlando Sentinel, http://articles.orlandosentinel.com/2010-04-02/news/os-mount-dora-doctor-tells-patients-goaw20100401_1_health-care-doctor-patients, April 2, 2010.

³¹ —Florida Doctor Stands By Anti-Obamacare' Sign Despite Threat of Complaint,¶ Fox News (The Associated Press contributed to this report), <http://www.foxnews.com/politics/2010/04/05/florida-doctorstands-anti-obamacare-sign-despite-threat-complaint/>, April 5, 2010.

for President Obama's healthcare legislation became clear, they might receive a different standard of care from Dr. Cassell.

Dr. Cassell is quick to point out that he is not turning away patients; he is merely exercising his right to express his opinion about President Obama's policies. While his sign advises people to —go elsewhere, it does not say that he will not treat supporters. Such a thing would be unethical according to him. Furthermore, his supporters say that physicians have the right to turn down patients for a number of reasons. Physicians who only take some types of insurance, for example, don't accept patients whose bills are not likely to be paid in a timely fashion. Some physicians' practices also refuse to see Medicare or Medicaid patients, as they deem these insurance plans' reimbursement rates too low to be profitable for the practice. Cassell also reports that he has seen a marked increase in patients since putting up his sign.³²

Some bioethicists fear the wider impact of physicians who choose to make politics a deciding factor in whether to treat patients. While patients might know that they would not be refused care, overall public health might suffer if people start trying to choose physicians based on their political beliefs as opposed to other factors. Physicians cannot discriminate against patients on the basis of race, gender, or religion. Many believe discriminating on the basis of political affiliation to be equally unjust.

But others argue that while physicians provide an important public service, they are independent businesspeople who ultimately have the freedom to run their businesses as they see fit. Furthermore, some physicians see the new healthcare bill as a significant assault on public health, and if they blindly go along with it they risk being part of a gradual decline in healthcare standards in the United States. Physicians, according to

³² —Front & Center: Dr. Jack Cassell on 'Obamacare' and Rick Scott's reforms, Orlando Sentinel, http://articles.orlandosentinel.com/2011-02-14/news/os-ed-front-center-021411-20110211_1_jack-cassellrick-scott-victor-schaffner, February 14, 2011.

these arguments, have a duty to the health of the public at large in addition to their individual patients.

Case 2 ♦♦ Paying for Bone Marrow

The National Organ Transplant Act of 1984 makes it illegal to buy and sell organs in the United States of America (and similar laws also ban the practice in Western Europe). The law has many purposes: it aims to prevent the formation of a black market in organs and to curb the possibility of obtaining organs without consent or against healthcare advice. Furthermore, allowing the sale of one's kidney or lung could also have bad effects on those in poverty, who may overestimate present gain and discount future well-being. Finally, the law prevents the development of a system where wealthier sick people (or their agents) could "buy" their way to the top of an organ transplant list, bypassing those of lesser means (even if they are more compatible with the organs or more deserving of them).

However, none of these factors sound significant when one's child is at stake. Doreen Flynn's daughters have a life-threatening blood disorder called Fanconi Anemia. This condition could only be treated by a bone marrow transplant; life expectancy is only 14-16 years without a transplant. With no match in the donor database, Flynn feared that no compatible match would be found in the near future. Thus, Flynn decided to challenge the National Organ Transplant Act in court so that people could be reimbursed for donating their bone marrow.

Her reasoning was that paying people to donate bone marrow would get much more bone marrow into the system and create a better chance for a match. Unlike lungs or kidneys or other solid organs, bone marrow replenishes itself after donation. The procedure for extracting it has also been greatly simplified over the years. Her daughters would be getting donations through methods that people of lesser means may not be able to employ. However, as many of her defenders point out, this is how the United States' healthcare system works in many cases without laws mandating equality. According to her lawyer, Jeff Rowes, “[b]one marrow is just like anything else in the world... it’s valuable. And if you compensate people for it, you’re going to get more of it, it’s just that simple.”³³³⁴

However, some bioethicists reject the market reasoning at work here: "Just because you can sell something, just because you can do anything, doesn't mean you ought to," said bioethicist Kenneth Goodman³⁵. Furthermore, there are major health risks³⁶ associated with marrow extraction, such as infection — although the likelihood of complications is not as high as with whole organ donations. And opening up paid donations may have bad effects on the system as a whole. Donors may tailor their family and behavioral history forms (which are necessary to making matches with those in need) in order to get paid. Also, if the United States shifts to paid donations, it may not be able to tap into donors overseas or provide bone marrow to patients overseas, according to the way the international system works.

Case 11 ♦♦ Pet Owners Who Eat Meat

Early in 2013 a genetic analysis of hamburger meat in the UK revealed that what consumers thought was beef was actually horsemeat. The public response to the horsemeat scandal was quite strong

³³ Ami Schmitz and Stacey Naggiar, "Woman Challenges Bone Marrow Donation Law in Effort to Save Daughters' Lives," NBC News, June 13, 2012, <http://rockcenter.nbcnews.com/news/2012/06/13/12190616-woman-challenges-bone-marrow-donation-law-in-effort-to-save-daughters-lives?lite>

³⁵ Denise Dador, "Should Bone Marrow Be for Sale? Mom Says Yes," ABC News, November 20, 2012, http://abclocal.go.com/kabc/story?section=news/health/your_health&id=8893143

³⁶ D.L. Confer, et al., "Serious Complications Following Unrelated Donor Marrow Collection: Experiences of the National Marrow Donor Program," *Biology of Blood and Marrow Transplantation*, February 2004, 10(1): 13-14.

and included a 44% reduction in the purchase of frozen hamburgers.³⁷ The scandal eventually spread to Sweden and, by extension, propelled worries about the ingredients in Ikea meatballs in the United States.

Food fraud (substituting less expensive for more expensive ingredients) is common. However, the use of horsemeat evoked an especially visceral reaction — people seemed revolted, disgusted even, at the thought of consuming horsemeat. Some the concerns may be religiously inspired: horsemeat is not kosher and is questionable under halal standards. But most affected consumers neither keep kosher nor halal. Michael Dorf, a legal scholar, argues “[t]hey're not grossed out about eating horses; they feel bad for the horses. Or if they are at all grossed out, they're grossed out *because* of their moral revulsion, in the same way that moral revulsion at cannibalism or (in our culture) eating dogs, would trigger a disgust response.”³⁸

Many of us have pets whom we love and treat like family members. It is obvious to us that our pets experience physical pain as well as pleasure, much like humans. Indeed, many of us would cringe at the thought of eating a pet. And yet, most pet owners eat meat. Some critics argue that if we accept that our pets are sentient beings, it would be wrong to eat them. But there is no difference in terms of sentience between companion animals and “food” animals. This suggests that there is an inconsistency underlying our common distinctions between animals we care about and animals we use.

Others maintain that, just as we are morally justified in treating our friends or family members with preference, pets are ethically distinguishable precisely because we care about them. Of course, there is a difference between caring for an individual and caring about an entire species. Likewise, there is a difference between caring about an individual and refraining from harming one.

³⁷ George Hook, “Horse and Pig DNA Found in Some Supermarket Burgers,” *The Irish Independent*, January 15, 2013, <http://www.independent.ie/irish-news/horse-and-pig-dna-found-in-some-supermarket-burgers-28958916.html>

³⁸ Mike Dorf, “A Vegan Perspective on the Horsemeat Scandal,” *Dorf on Law*, February 25, 2013, <http://www.dorfonlaw.org/2013/02/a-vegan-perspective-on-horsemeat-scandal.html>

Case 10: Real-Life *Avatar*

In the blockbuster movie *Avatar*, corporate mercenaries from Earth battle against a coalition of indigenous aliens in an effort to generate profits by destroying their planet. *Avatar* director James Cameron has called his latest philanthropic project "kind of *Avatar* for real."³⁹ Of course, Cameron is not referring to interplanetary war. Instead, Cameron is talking about local resistance to the Belo Monte dam project in the Amazon rainforest. Cameron's involvement in local resistance to the Dam project has drawn international attention and helped to publicize the dislocation of several indigenous groups.

The Belo Monte dam is part of a proposed hydroelectric project on the Xingu River in the Brazilian state of Pará. Pará is Brazil's leading source of mineral resources such as bauxite, the raw material from which aluminum is produced. It is estimated that the Belo Monte dam will produce 11,223 megawatts of energy, making it the third largest hydroelectric facility in the world. The lion's share of the energy produced at Belo Monte is expected to be used in smelting facilities at Carajás, Jurutí, and Alumar. Excess energy will supply local communities and be transmitted to Sao Paulo and southeast Brazil.⁴⁰

The dam's advocates point out that infrastructure improvements are vital to the development of Brazil's national economy. Further, they argue that hydroelectric energy generation is far more environmentally friendly than energy based on fossil fuels. Others are concerned that the Belo Monte dam will flood some 400 square kilometers of the Amazon and that the construction of reservoirs controlling the flow of water to the dam may lead to substantially reduced water levels on large portions of the Xingu River.

The indigenous people of several tribes practice traditional lifestyles, consisting of subsistence farming, fishing, and hunting along the Xingu River. The flooding and rerouting of the Xingu is expected to displace between 20,000 and 40,000 such people. The Brazilian government has plans to relocate the people of the Xingu, but this relocation has been rejected by many indigenous people. Some 18 tribes representing 9 ethnic groups collectively oppose the development of the Belo Monte dam and the relocation that this development entails.

James Cameron sums up the dilemma posed by the Belo Monte dam as a —quintessential example of the type of thing we are showing in *Avatar*—the collision of a technological civilization's vision for progress at the expense of the natural world and the cultures of the indigenous people that live there.⁴¹ Modern Brazilians value the generation of electricity and the technological resources that this electricity makes possible. However, Brazilians participating in traditional cultures have little interest in the technological advances that electricity makes possible and appear to be

³⁹ Alan Duke, —James Cameron joins real-life *Avatar* battle,| *CNN*, Apr. 20, 2010, <http://www.cnn.com/2010/SHOWBIZ/04/20/james.cameron.rain.forest/index.html>.

⁴⁰ —Brazil: Belo Monte Dam,| *Amazon Watch*, http://www.amazonwatch.org/amazon/BR/bmd/index.php?page_number=99 (last accessed Aug. 1, 2010).

⁴¹ Alexei Barrionuevo, —Tribes of Amazon Find an Ally Out of *Avatar*,| *The New York Times*, Apr. 10, 2010, <http://www.nytimes.com/2010/04/11/world/americas/11brazil.html>.

harmful by the damming of rivers in an effort to produce power. One wonders whether the tensions between modern and traditional cultures are reconcilable.

Case 3 ♦♦ Should Google Be Your Designated Driver?

One of the advantages of mass public transportation is that it takes one's mind off the road and allows it to do other things: listen to music, read the newspaper, talk on the phone, catch up with websites online, read a book, or just space out and get some much needed rest. Unfortunately, these activities are almost uniformly very dangerous things to do while driving a car. So, in places without mass transportation, commuters lose millions of hours everyday to minding the road in their automobiles.

Enter the idea of an "autonomous car". Companies like Google, Toyota, Nissan, Mercedes and others have been pioneering technology that would take the chore of driving away from people who want to free up some time for the sports section in the morning or to readjust their makeup on the way to the club at night. While the technology looked daunting at first, recent autonomous cars run complicated algorithms that can detect cars around them, adjust to changing road and weather patterns, and signal before braking for a turn. The technology is more feasible now, and with big tech startups behind it, it only promises to get better and safer in the future.

There is a problem with these cars, however. They may be *too* good at driving. In fact, tests currently being run by autonomous car makers suggest that they may be considerably better at keeping up with traffic and avoiding accidents than actual human drivers. Google's self-driving car recently logged its 300,000th mile without an accident⁸. Americans like to drive. But let's face it: we're pretty bad at it. According to the United States Census Bureau, there were 10.8 million auto wrecks in the United States in 2009, with 35,900 deaths⁹. Autonomous cars can do things people just can't, like keeping an eye on all four sides of the car and road conditions underneath the car at all times without getting tired. They correctly anticipate passing times and turning radiuses and never take foolish risks. Plus, unlike human drivers, they never age, tire, drink to excess, get distracted by music, incoming texts, or billboards, or get carried away by that car which totally cut you off in traffic two miles ago.

This leads to an interesting question: if autonomous cars get to the point where they are objectively safer than human drivers in almost all instances, should regular people be allowed to drive at all anymore? A commuting public that never wrecks, gets distracted, or experiences road rage would be a tremendous boon to society. A right to drive isn't explicitly spelled out in the United States Constitution. But even given the quantifiable safety benefits, time benefits, and sanity benefits, some auto-enthusiasts may declare that you'd have to pry the gas and brake pedals from their cold, lead feet.

⁸ Rebecca Rosen, "Google's Self-Driving Cars: 300,000 Miles Logged, Not a Single Accident Under Computer Control," The Atlantic, August 9, 2012, <http://www.theatlantic.com/technology/archive/2012/08/googles-self-driving-cars-300-000-miles-logged-not-a-single-accident-undercomputer-control/260926/>

⁹ "Motor Vehicle Accidents—Number and Deaths: 1990 to 2009," U.S. Census Bureau, August 5, 2013, <http://www.census.gov/compendia/statab/2012/tables/12s1103.pdf>