



USDA Inspected, E. coli Approved: Mass Media's Role in Shifting Responsibility and Perpetuating E. coli in our Food System

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Abstract

This paper examines the role of the media in shifting responsibility during E. coli outbreaks in ground beef. The way in which mass media informs the public about E. coli outbreaks, and the actions being taken against E. coli outbreaks can play a huge role in how the general public responds. Using three case studies of large E. coli outbreaks, the 1992-1993 Jack in the Box outbreak, the 1997 Hudson Foods outbreak, and the 2007 Topps Meat Brand outbreak, news pieces were coded for the mention, critique and recommendation of actions by different actors in the industrial meat system. Source of data came from newspaper articles from *The New York Times* and *USA Today*, as well as news transcripts from *CBS News*. This study found that the media shifts most responsibility onto government agencies. This shift towards government agencies takes away both agency for the consumer, and the possibility for systematic change in the industrial meat system.

Introduction

In the winter of 1992, individuals in the Pacific Northwest were getting sick – experiencing stomach cramps, fever, and bloody diarrhea. These individuals, mainly children and elderly folk, proceeded to check into hospitals. While doctors could not figure out what exactly was wrong, many assumed their patients were experiencing an especially bad flu. As time on, however, patients experienced more pain, and felt even weaker. Eventually, a common thread was found – all of these sick people had recently eaten at Jack in the Box and gotten an infection from E. coli in the burgers. This occurrence is still considered one of the worst bacterial outbreaks from food in the United States, and 1992 is considered a watershed year when both scientists and Americans found out about the devastating effects of E. coli contamination.

Within the past 50 years, the meat industry has become so industrialized and modernized that the United States now produces over 25 billion pounds of beef per year.¹ Starting in the 1930's, America began mechanizing its swine slaughterhouses, leading to the system we have today. An effect of this industrialized meat system is the separation between the meat producers and consumers. Consumers forced to engage with an industry that has little transparency of the practices take place in facilities. Therefore, not only are consumers not able to easily influence the meat industry, but consumers are restricted from learning about problems in the meat industry. This lack of transparency and lack ability for consumers to create change, has led some individuals to shift towards alternative meat systems, or reject eating meat altogether. For the consumers who continue to interact with the industrial meat system, the lack of consciousness regarding problems in the meat system is completely possible, until the occurrence of a health-related scandal. Large, widely

¹ Katherine A. Straw, *Ground Beef Inspections and E. Coli O157: H7: Placing the Needs of the American Beef Industry Above Concerns for the Public Safety*, Washington University School of Law and Policy, 37 no. 355 (2011): 356

reported scandals, such as the 1992-1993 E. coli outbreak, redirect consumers' attention as to what is happening in our meat system. Once consumers are focused on trying to access information about the industrial meat system, it can lead to challenges against the industrial meat system and create momentum for change. These concerned individuals can utilize both their consumer power and political power to change the meat system. The mass media plays a large role in this process – since it serves to inform the consumers about any scandals. The way in which the media informs consumers can then lead to the types of action taken to improve food safety in the meat system. For this paper I looked at both newspaper articles and television news transcripts about three large E. coli outbreaks in ground beef, and analyzed how the media talks the role of actors in the meat system during an outbreak. I identified six major actors in the industrial meat system: government legislative bodies, government agencies, meat producers (the feedlots & slaughterhouses), meat processing plants, food handlers (the retailers), and consumers. Among the articles about the three outbreaks, government agencies were the most discussed. I argue that the media thereby shifts the responsibility of E. coli contamination in ground beef to government agencies and away from the producers, processors, retailers and consumers. This shift in responsibility takes away both agency for the consumer, and the possibility for systematic change in the meat system.

Background

Food scares - the power of media & its ability to shift responsibility:

The mass media plays a significant role in informing the public about hazards, and therefore the way in which the media informs the public affects how the public responds. Studies show that newspapers and television are the two primary sources of information about food safety for the general public.² This means that the way in which mass media presents hazards in newspapers news shows directly inform individuals how to perceive hazards and how they should act upon them.

When media creates a heightened awareness of a risk in the food system, it is called a food scare. During a food scare, the public focuses on a risk, usually because of a widely publicized news story related to that risk. My study focuses on the of E. coli O157:H7 outbreak as food scares, and the effect these outbreaks have on informing the public about risks in the meat system. While there is a constant threat of eating meat infected with bacteria, this risk is usually disregarded by the general public, until a large E. coli outbreak occurs. This is because an outbreak can bring focus to problems in the production of meat. Freidberg, a professor of Geography at Dartmouth, situated this phenomenon of food scares in the context of modern-day England. Freidberg describes food scares as “episodes of acute collective anxiety,” which rely on the public’s lack of general knowledge about the industrial food system, and leads the public to distrust the food system once the scandal is known.³ Friedberg also brings up the critical role of the media in “manipulating an ignorant and emotional public,” by taking any incidence that portrays a lack of food safety and turning the

² Kenneth Fleming, Esther Thorson, and Yuyan Zhang, "Going beyond exposure to local news media: an information-processing examination of public perceptions of food safety," *Journal of Health Communication*. 11, no. 8 (2006) : 791.

³ Susanne Freidberg, *French beans and food scares culture and commerce in an anxious age*. (New York, N.Y.: Oxford University Press, 2004), 5.

incidence into a food scare.⁴ While cases of infection from *E. coli* are being reported constantly, *E. coli* outbreaks result when a multiple number of cases are found to be connected.⁵ While there is no clear system for determining if an *E. coli* outbreaks should be considered a food scare, possible indications include: the outbreak consists of cases from multiple states; the outbreak leads to a surprisingly high number of infections; the outbreak requires a large meat recall; and/or the outbreak leads to a new finding about the risk. Ultimately, the outbreak would have to capture the public's attention and focus the public on the dangers of *E. coli* contamination through food. The effect of the food scare will be that it has shaped how consumers think about a particular risk, such as *E. coli* contamination, and how consumers then respond to that risk.

E.coli - A Real Threat?

Most simply, *E. coli* is a bacteria which lives in the intestinal tract both of humans and certain large animals.⁶ O157:H7 is the specific serotype of *E. coli* which causes harm to humans by releasing two types of toxins which infect the body and lead to foodborne illness.⁷ Scientists are researching *E. coli* O157:H7 in order to learn more about it, such as where and when *E. coli* evolved into *E. coli* O157:H7. Part of this uncertainty about *E. coli* O157:H7 is because it is a relatively recent discovery. *E. coli* O157:H7 was first discovered in 1982, when a case of severe diarrhea was traced back to the consumption of burgers.⁸ It was not until the Jack in the Box outbreak in 1992-1993, when four children died, that both scientists and the general public learned that *E. coli* O157:H7 is lethal. Since then, O157:H7 has become known as one of the most notorious types of

⁴ Ibid., 178.

⁵ Josefa Rangel, Phyllis H. Sparling, Collen Crowe, Patricia M. Griffin, and David L. Swerdlow, "Epidemiology of *Escherichia coli* O157: H7 outbreaks, United States, 1982–2002," *Emerging infectious diseases* 11, no. 4 (2005): 604.

⁶ Donna Tartasky, "Escherichia coli O157:H7." in *Emerging infectious diseases trends and issues*, ed. Felissa Lashley and Jerry Durham (New York: Springer Publishing Company, 2008), 160.

⁷ Ch. Bindu Kiranmayi, N. Krishnaiah, and E. Naga Mallika, "Escherichia coli O157:H7 - An Emerging Pathogen in foods of Animal Origin" *Veterinary World* 3, no. 8, (2010) : 382.

⁸ Ibid., 382

E. coli to cause infection.⁹ Unlike the harmless strains of *E. coli* that live in our intestines, this specific type of *E. coli* is partially so notorious since it has an ability to “survive in conditions long considered to be inhospitable to enteric pathogens, such as low PH and high salinity.”¹⁰ These characteristics have enabled this serotype of *E. coli* to be so prevalent in our modern meat industry. While *E. coli* can lead to disease or death for humans, it is usually innocuous to cattle, the most common carrier of the bacteria.¹¹ The public health risk of *E. coli* may only exist among humans eating ground beef, but the growth and transfer of *E. coli* can happen in many large mammals’ intestinal tract. While many different types of *E. coli* exist, both innocuous and lethal, for the purposes of concision and clarity in this paper, when I say *E. coli*, I mean *Escherichia coli* O157:H7, unless otherwise specified.

While *E. coli* contamination in humans can be lethal, humans with *E. coli* contamination can also feel completely healthy. Individuals who are particularly susceptible to the more harmful effects have lower immunities, such as children and the elderly. The range of illnesses from *E. coli* goes from “mild diarrhea to hemorrhagic colitis (HC), haemolytic uraemic syndrome (HUS) and Thrombocytic Thrombocytopenic Purpura (TTP).” Mild symptoms consist of, “bloody or non-bloody diarrhea, abdominal cramps and little to no fever.” Hemorrhagic colitis is a syndrome with slightly worse symptoms of, “severe abdominal cramps, bloody stools, little or no fever and [infection of the colon].” Haemolytic uraemic syndrome is even worse than HC, and it appears mostly in children. Individuals with this syndrome can experience the same symptoms, as well as renal failure, neurological problems, death and more. One study found that two to ten percent of individuals who contract HUS from a toxic types of *E. coli*, including *E. coli* O157:H7, die. This

⁹ Ibid.,382.; Tartasky, “*Escherichia coli*,” 160.

¹⁰ Kiranmayi, “Emerging Pathogen,” 383.

¹¹ P. Money, AF Kelly, SW Gould, J Denholm-Price, EJ Threlfall, and MD Fielder, "Cattle, weather and water: mapping *Escherichia coli* O157:H7 infections in humans in England and Scotland," *Environmental Microbiology* 12, no. 10 (2010): 2633.

wide range in virulence of symptoms makes it hard to quantify the number of cases of *E. coli* infection. If an individual does not exhibit any symptoms, then is no indication that they should report themselves to the Center for Disease Control, which collects this information. Another complication with the reporting of cases of *E. coli* O157:H7, is that the onset of symptoms can start one to ten days after exposure. Therefore, unless the individual is aware of the dangers of *E. coli*, or consults a doctor who is aware of *E. coli*, the symptoms can be misdiagnosed. Figure one gives a general timeline of *E. coli* contamination.¹²

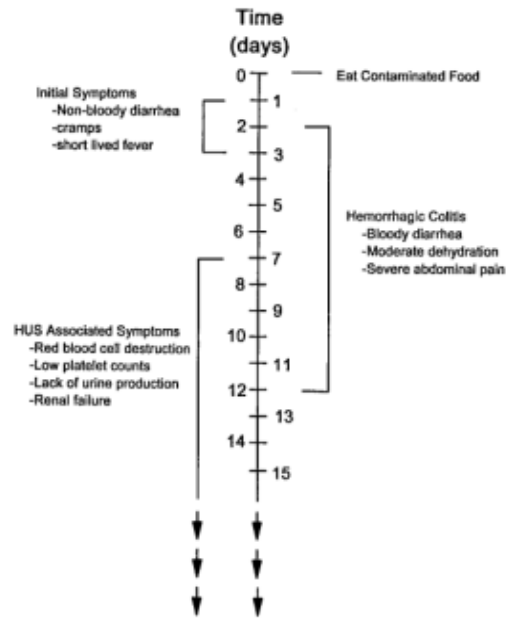


Figure 1: The timeline of *E. coli* O157:H7 infection and symptoms associated with common

E. coli contamination along the meat system

Gaining a comprehensive understanding of *E. coli*'s interaction with ground beef requires first an understanding of the chain of production in the industrial meat system. The main actors relevant to the spread of *E. coli* are the feedlots and slaughterhouses, which in combination are the meat producers, as well as the meat processing plants and the food handlers or retailers. The government is the party responsible for overseeing the meat industry, with the government legislative body creating laws or regulations that give power to governmental agencies, authorizing the governmental agencies to regulate and inspect facilities. Lastly, consumers are the benefactors

¹² Kiranmayi et al., "Emerging Pathogen," 384.

of the meat industry, and can effect both the government and the meat industry. The chain of production of ground beef is depicted in Figure 2. The chain of production starts with the meat producers, who sell huge cuts of meat to the meat processors. The meat processors then grind up the meat and sell it in bulk to either the food handlers, who produce value added goods such as meatballs, or burgers, or sell it to the retailers, such as grocery stores, restaurants or other food companies. Lastly, the consumer will either buy the packaged, raw ground beef, ground beef products, or ready-to-eat meals with ground beef. Along this chain of production are possible ways in which each actor can enable the spread of E. coli.

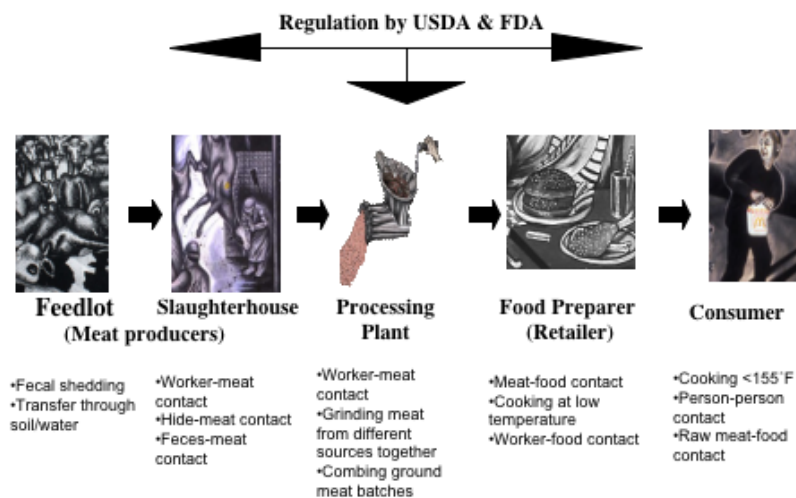


Figure 2: This figure depicts a simplified version of the commodity chain of ground beef, only to show the place of the categories of actors I discuss in this paper.

In the feedlots, cattle are packed into an enclosed area and fed a mix of food and antibiotics; the lack of cleanliness and lack of space allows for E. coli to spread. Since E. coli lives in the intestines, the feces of contaminated cattle contain E. coli. Since the cattle are forced into the tight enclosures, not only do contaminated cattle get their contaminated feces all over themselves, but the contaminated feces also get onto other cattle. Studies have found that once the cattle are taken to

the slaughterhouse, “over 70% of cattle hides [in the United States] may be contaminated with *Escherichia coli*.”¹³ If the infected cattle’s feces get into the water or food, any cattle that ingest those contaminated substances will have the bacteria will spread to their intestines. This contamination can also spread outside of the feedlot, since waste water runoff from these feedlots containing the *E. coli* riddled feces, can then lead to the contamination of large water bodies or tracts of land. Increased space between cattle, sanitation of the enclosures, and proper disposal of waste water are possible actions the producer in the feedlot could take to reduce the spread of *E. coli*. Although *E. coli* may be present in the intestines or hides of the cattle, the muscle of the cattle, which is the meat for humans, cannot be contaminated unless there is direct contact between the exposed muscle and a contaminated surface.

In the slaughterhouse, the cattle are then put on conveyer belts to be slaughtered. Once slaughtered, the workers will cut up the carcass to separate different parts of the cow. Since at least 70% of the hides are contaminated, if any hide touches the meat, there is a 70% chance it will contaminate the muscle. Alternatively, when the intestine is being separated from the carcass, if the worker accidentally cuts the intestine and it spill outs on the meat, then that meat becomes contaminated with *E. coli*. Lastly, the workers who are handling more than one part of the carcass, such as the hide and meat, can be the vehicle of transmission from hide to muscle. Whatever meat has not been contaminated until this point, can still be contaminated with *E. coli* before getting to the consumer. For most shipments of beef, slaughterhouses will pack the meat from multiple cows together. This mixing of beef is especially done with ground beef, where the meat of multiple cows is ground and stored together. If just one cow in that group is contaminated with *E. coli*, all of the mixed meat can become contaminated. Ensuring that all parts of a carcass are kept separate is critical to keeping the *E. coli* away from the meat product consumers will eat.

¹³ Kiranmayi et al., “Emerging Pathogen,” 385.

The next step in the commodity chain is either the consumer buying the raw meat, or a producer creating a value-added good with the meat. In both cases, the contaminated meat can be sterilized by being cooked at a temperature sufficient enough to kill off all E. coli bacteria. The FDA has determined that if all meat is cooked to 155°F, all E. coli will be killed, protecting the consumer from illness.¹⁴ The E. coli can also be spread by placing raw meat and other foods on the same surfaces. Although regulations can exist which require certain food preparation techniques, mistakes – especially by the consumer – of cooking the meat less than just two degrees of the required minimum temperature, or touching other foods and surfaces with raw meat almost ensures illness.

Along this chain of production for ground beef, the United State Department of Agriculture (USDA) is responsible for overseeing all of the feedlots, slaughterhouses, and meat processing plants. Once the ground beef is sold to a retailer, either the Food and Drug Administration (FDA) or USDA will be in charge of regulating that retailer, depending on the type of good the retailer produces. The USDA is also responsible for creating information campaigns which inform the consumer about proper food handling practices to ensure food safety. The government is expected to guide both producers and consumers to follow practices that maximize food safety.

Policy Regulating E. coli in Ground Beef

In 1890, congress first gave the United States Department of Health (USDA) power to inspect ante-mortem and post-mortem livestock for evidence of disease.¹⁵ This legislative action was passed as a response to European concerns about the safety of American meat, and it was not until 1906, that a policy was passed reflecting American concerns about the food safety of meat. In 1906, Upton Sinclair published The Jungle, a fictional account of a family working in the Chicago

¹⁴ Marion Nestle, *Safe Food: Bacteria, Biotechnology, and Bioterrorism* (Berkeley, CA: University of California Press, 2003), 73.

¹⁵ Straw, "Ground Beef Inspections," 357.

slaughterhouses, and within the same year, Congress passed the Federal Meat Inspection Act (FMIA). FMIA “established sanitary standards for slaughter and processing facilities, mandated ante- and postmortem inspection of all animals, and required slaughtering and processing plant owners to allow government inspectors access to their facilities.”¹⁶ Not only could USDA inspectors enter these facilities to grant inspection privileges, but they were expected to conduct animal-by-animal inspections using organoleptic methods (sight, touch and smell).¹⁷ If an inspector determined an animal or carcass to be unsanitary, they could order the removal, and if the facility refused, the USDA inspector would threaten to shut the facility down by revoking inspection privileges.

It was not until the 1992 outbreak, when the public health safety of meat was considered a large enough concern to create more regulations. In 1994, the USDA declared *E. coli* O157:H7 to be an adulterant in ground beef, which made it something that USDA investigators needed to regulate under FMIA.¹⁸ This declaration of *E. coli* O157:H7 to be an adulterant in ground beef is considered to be a huge gain for regulations against *E. coli* contamination, because it was the first and only bacteria to be labeled an adulterant. This was the beginning of a wave of regulations that passed specifically targeting *E. coli* O157:H7 contamination. In the same year, a regulation was passed which required new safe-handling labels on all raw meat and poultry being sold to consumers.¹⁹ While the USDA originally proposed inclusion of minimum cooking temperatures on the labels to eliminate foodborne illness, the food industry fought against the new safe-handling labels, and managed to get rid of the minimum cooking temperatures.²⁰ Then, in 1996, a new set of regulations called the Hazard Analysis and Critical Control Point (HACCP) program completely changed the

¹⁶ Ibid., 358.

¹⁷ Sharlene W. Lassiter, "From Hoof to Hamburger: The fiction of a safe meat supply," *Willamette L. Rev.* 33 (1997): 448.

¹⁸ Straw, "Ground Beef Inspections," 361.

¹⁹ Lassiter, "From hoof to Hamburger," 419.

²⁰ Lassiter, "From Hoof to Hamburger," 419.

system of regulation by the USDA: “the goal was to make Meat Industry responsible for product safety and have FSIS [a section of the USDA] move away from “command and control” to an oversight role.”²¹

The HACCP required four components: first, for slaughterhouses to develop new sanitation procedures; second, for all meat facilities to conduct microbiological testing in order to ensure the sanitation procedures are effective, and that the procedures do not allow any fecal material (including *E. coli* O157:H7 bacteria) to be on the meat; third, for meat facilities to establish “pathogen reduction performance standards for salmonella”; and fourth, required all meat establishments to create and implement a system of preventative controls to improve safety of food products.²² The two most important components of HACCP is first, that the USDA requires meat producers to create their own system of safety procedures and test that these safety procedures are effective, and second, that it requires meat producers to conduct microbial testing on meat products. As mentioned above, prior to HACCP, the inspection of meat was based on organoleptic methods. Since *E. coli* O157:H7 does not affect the taste, sight (to the naked eye), or smell of the meat, these methods were ineffective in determining if *E. coli* was present. What is important to understand about the microbial testing, however, is that while both slaughterhouses were required to test whole cuts of meat, and meat processing facilities were required to test their ground beef, under the 1994 declaration, only *E. coli* O157:H7 in ground beef is considered an adulterant. Therefore, if slaughterhouses found *E. coli* in their cuts of meat, and sold those cuts to retailers or consumers whole, the slaughterhouses would have no federal obligation to recall that meat. The only repercussion of testing positive for *E. coli* would be having to re-evaluate their current food safety plan. These regulations have not changed since 1996, except in 2002, when the USDA required

²¹ Stearns, “Ground Beef Inspections,” 394.

²² Lassiter, “From Hoof to Hamburger,” 454.

producers of ground beef to reassess HACCP plans because of new research and data on E. coli O157:H7.²³ Ultimately, with the passage of HACCP, the role of government inspectors was to review documentation of HACCP compliance by meat establishments, or visit establishments to ensure compliance of their procedures, rather than actively inspecting individual carcasses and creating safety procedures for establishments to follow.

Academic scholars have criticized the HACCP regulations, because they believe that it puts more of the responsibility for food safety onto the consumer.²⁴ The only regulation which heavily decreased the responsibility of the consumer to always cook their meat correctly was the 1999 USDA regulation which allowed the use of irradiation.²⁵ Basically, this regulation approved the process of treating red meat and meat products with radiation to kill microorganisms, such as E. coli. This regulation is an example of how technological innovation can serve to increase the food safety of meat.

²³ Fed. Register 67(194):62325

²⁴ Lassiter, "From Hoof to Hamburger," 1997.; Stearns, Denis. "Preempting Food Safety: An Examination of USDA Rulemaking and Its E. Coli 0157: H7 Policy in Light of Estate of Kriefall Ex Rel Kriefall v. Excel Corporation." *J. Food L. & Pol'y* 1 (2005): 375.; Straw, 2011

²⁵ 64 Federal Regulation 72150

Methods

For my research project I looked at how the media shifts the responsibility for decreasing the spread of *E. coli* contamination. To look at how the media shifts responsibility, I plan to analyze how the media talks about actions being taken by the government, the food-related companies, and consumers. To make this study more researchable, I choose three case studies, and focused only on news pieces which mentioned one of the three case studies. A study by the Center for Disease Control which recorded all *E. coli* outbreaks from 1982 - 2002 found that the United States has experienced 75 outbreaks which can be traced back to ground beef.²⁶ Rather than look at the outbreaks collectively, I chose the largest outbreaks to analyze how the media responded to *E. coli* at times when the public is actively being informed about the risks of *E. coli*. My three cases studies were: the 1992 outbreak traced back to Jack in the Box, the 1997 outbreak traced back to Hudson Foods, and the 2007 outbreak traced back to Topps Meat Brand.

As I mentioned earlier, the 1992-1993 outbreak is considered the watershed year of when the American public realized that *E. coli* could be deadly. The outbreak killed four people and made hundreds of others sick. In 1993, it was found that Jack-in-the-Box was the main source of the contamination; although the meat was mostly likely contaminated with *E. coli* before it reached Jack-in-the-Box, the company had failed to cook burgers at a high enough temperature to kill the bacteria. State regulation in the state of Washington required that all food handlers cook their burgers at 155°, a temperature sufficient kill *E. coli*, however Jack in the Box was only following federal law. My second case study, the 1997 outbreak, had no deaths, but it led to the largest food recall at the time. A lot of media focused on the fact that Hudson Foods mixed multiple batches of

²⁶ Rangel, Sparling, Crowe, Griffin, and Swerdlow, "Epidemiology of *Esch.*" 604.

ground beef with the contaminated batch, which led the increasingly huge recall of ground beef. However, the meat processing plant, Hudson Foods, was never found guilty for breaking any laws or regulations. My last case study, the outbreak of 2007, led to the second largest recall of ground beef contaminated with E. coli. The meat processing plant to which it was traced back, Topps Brand, also was never found guilty of contaminating the meat, but the cost of the recall forced the company to go out of business.

For each of these case studies, I used the database LexisNexis Academic to find newspaper articles and TV transcripts. With the LexisNexis Academic database, I searched through articles from The New York Times and USA Today and television news transcripts from CBS Broadcasting. I chose The New York Times and USA Today as sources for my news articles, because they are both in the top five most circulated newspapers in the United States. I choose CBS Broadcasting as my source for televised news since it is one of the most popular news stations. I also chose CBS Broadcasting to analyze both newspaper articles and TV news because both types focus on different content, and are structured differently.

In order to filter the articles related to my three case studies, I used keywords to get related articles. For my first case study, I searched “E. coli” and “Jack in the Box.” For my second case study, I searched “E. coli” and “Hudson Foods.” For my last case study, I searched the terms “E. coli” and “Topps.”

After I collected all of my news pieces, I created a method of coding each one. Using a spreadsheet, I recorded information on the source, date, and relevance of the article; I recorded information on specific facts of the outbreak—number of people taken sick, number of people who died, the number of pounds of recalled ground beef; and I recorded information on the discussion

of actions taken by different actors in the meat system. The latter section of my spreadsheet correctly corresponds to answer my research question of how responsibility is shifted by the media.

For the last section of my spreadsheet, I wrote down the six actors: government legislators, government agencies, meat processing plants, cattle feedlots & slaughterhouses, food handlers, and consumers. Under each general actor I created columns for whether an action was mentioned, critiqued, or recommended. If an action was mentioned, that means that the article simply stated the action in a neutral, or positive, manner. For example, one article says that “Hudson Foods of Rogers, Ark., has closed its Columbus, Neb., meat plant until it can adopt ‘far more stringent safety standards.’”²⁷ Since the article is stating an action in a neutral manner, and possibly a positive manner, I would mark the mention column under meat processing plants. However, later on in the article, it says:

“Several thousand pounds of their [Hudson’s] product was put into the cooler, and put back into production on the 6th, which opens the possibility that organisms that were in the product on the 5th were in it on the 6th, then added into the meat processed on the 7th.”²⁸

Since the article is criticizing Hudson Foods for mixing old batches of ground beef with new batches, I marked the critique column under meat processing plants as well. In this example, the quote comes from a USDA inspector, and although the author of the article is not directly criticizing the meat processing plant, there is still a critiqued action in the article. An example of a recommendation is when article explains, “Glickman said the incident points to his department's inability under current law to close a meat processing plant...he will seek those powers in legislation

²⁷ Anita Manning, "25 million pounds of beef recalled," *USA TODAY*, August, 22 1997, accessed April 20, 2013.

²⁸ Ibid.

he'll submit to Congress next month.”²⁹ Since the USDA inspector Glickman wants the USDA to hold more power, he is going to recommend that the governmental legislature gives USDA more power. Therefore, this action will go under the recommendation column for government legislature. Another example of a recommendation is when the article says, “USDA is warning consumers to look for Hudson's frozen beef patties marked with ‘Establishment Number 13569,’ and return them to stores.”³⁰ In this example, the USDA is recommending for consumers to recall meat, and therefore I would mark the recommendation column under consumers. Since the list of actions, and wording of actions is so diverse among the articles, I would look at the phrase that listed an action and make a judgement call of where that action belongs in my spreadsheet. Table 1 shows a copy of this spreadsheet, with fake data to clarify how I marked the spread sheet.

Article #	Source of news	Date	Focus/outbr	# sick	# deaths	lbs recalled
1	New York Times	1/1/11	Yes		1	1

Government policy			Government Agency (USDA/FSIS)			Meat Processing Plant		
Refer to	Critique	Suggest	Refer to	Critique	Suggest	Refer to	Critique	Suggest
Yes	No	Yes	Yes	No	Yes	Yes	No	No

Slaughterhouse & Feedlot			Food Handler (grocery, restaurant)			Consumers (individuals & consumer groups)		
Refer to	Critique	Suggest	Refer to	Critique	Suggest	Refer to	Critique	Suggest
No	No	No	Yes	Yes	No	No	No	No

Table 1: This table shows the spreadsheet format that was used for coding articles.

²⁹ Ibid.

³⁰ Ibid.

Results

Overall, I analyzed 281 articles related to my three cases studies. Out of the 281 articles, I found only 100 to be specifically about the outbreaks I was analyzing. The articles not focused on a case study tended to be a summary of the day's headline news, including a couple of sentences about my case study. Sometimes, an article not focused on my case study was focused on a related food safety issue, and used my case study only as an example. Although 181 of the articles I analyzed were not focused on a specific case study, many still explained the case study and listed a few relevant actions being taken, or listed suggestions of what actions should be taken.

General Themes and Structures of News Pieces

In the news articles I reviewed, I found that when I searched for the terms “E. coli” and the title of the outbreak, the topics of these news articles ranged widely. Not all of the articles were especially relevant for the topic – some articles would mention the outbreak solely as a way to connect with readers to information on another topic. Most of the articles about the outbreak covered general information regarding the number of people who have become sick, or the number of pounds of meat recalled, and these articles usually provided a perspective on what happened to cause the outbreak. Some of the articles focused on solely giving information to the consumer, so that they can protect themselves from E. coli outbreaks: i.e., how to cook burgers fully, who to call if symptoms show up, and the type of burgers being recalled to give information on what should be thrown away.

Beyond the articles that gave general information on the outbreak, or general information on what was being done since the outbreak, some of the articles would contain the perspective of one

to two actors in the meat system. Most of these articles would include quotes by both the USDA and the company which the outbreak had been tied to – either Jack in the Box, Hudson Foods, or Topps Brand. In these articles, a certain interviewee would be assuring consumers that are actions being currently taken, or that there are plans for actions to be taken. Since they gave a biased perspective regarding the meat industry, these articles usually defended a specific actor for not causing the outbreak. Beyond a specific actor – either in the meat industry or in the government – defending themselves, the article would also present the message the E. coli O157:H7 is a component on the meat system that cannot be removed, and it would give some information on steps actively being taken against future incidence of dangerous strains of E. coli in meat. The ending message of these types of articles were that the E. coli outbreak was no one person's fault, but there are certain actors who could do more to prevent outbreaks.

Occasionally articles give the perspective of the consumer, and these were usually formatted as a re-telling of the experience of a loved one getting sick, or dying, from the deadly E. coli. These articles follow the form of a narrative, and tend to be less informative about the outbreak and precautions against E. coli. Instead, these articles emotionally engage the general public about the horrors of an E. coli outbreak. These articles focused usually on the story of a child getting Hemolytic-uremic syndrome, a deadly disease caused by E. coli, and the experiences of the parents as they watched their child get sicker and sicker. These articles appeared in newspapers as late as nineteen years after the outbreak, probably to show that E. coli O157:H7 continues to exist in our food system, and is still a threat to all consumers.

Findings for All Three Case Studies

The number of articles and time periods of the articles among my three case studies ranged significantly. The most widely reported case study was the Jack in the Box outbreak in 1992-1993. Using my search parameters, I found 149 new pieces which were published from 1993 to 2011. The more recent news pieces which include the key phrases, “Jack in the Box” and “E. coli,” tended to mention the Jack in the Box outbreak as an example of a notorious food outbreak, or mentioned the Jack in the Box outbreak when giving a narrative during that outbreak about a child getting really sick from E. coli contamination, and the parents dealing with the death of their child.³¹ These articles were then using the Jack in the Box as a reference for later years about the significance of E. coli in meat.

For my second case study, the 1997 outbreak, there were 104 articles—almost as many as the 1992-1993 outbreak. These articles’ dates ranged from 1997 to 2007. Back in 1997, when Hudson Foods was recalling its beef, the outbreak was publicized for leading to the largest food recall. Although larger recalls have happened since 1997, this outbreak continued to be cited in more recent articles for showing the extent of which E. coli contamination can spread. Later articles also focused on the issues the company, Hudson Foods, experienced after it had to recall so much meat.

³¹ Jeff Benedict, “Poisoned: The True Story of the Deadly E. Coli Outbreak That Changed the Way Americans Eat,” *The New York Times*, June 27, 2011. http://www.nytimes.com/2011/06/28/health/28excerpt.html?_r=1&

³² Not only did Hudson Foods have to deal with economic repercussions of recalling so much meat, the company was also sued for the possibility of enabling the contamination to spread.

For my third case study, the 2007 outbreak, there were only 28 articles for me to code. This is about one-fourth of the number of articles I analyzed for both the first and second case study. The time period for these articles ranged from 2007-2008. While this outbreak was the most recent, and therefore had the least amount of time to have articles written about it, the most recent article was in 2008. The articles about the 2007 outbreak were first about the outbreak of E. coli and amount of pounds that were recalled, but then began to focus on the company itself. This is because about a week after Topps Meat Company had to recall over 21 million pounds of beef, it announced that it was going out of business.³³

The actors most commonly mentioned were the government agencies, the food handlers and the consumers. The actors mentioned the least were the meat producers, the slaughterhouse and feedlot, and government legislators. Actions by government agencies were mentioned the most; 95 out of 281 articles (33.8%). Slaughterhouses and feedlots were mentioned the least; 34 out of 281 articles (12.9%). When focusing solely on the critiques of actions, however, the actions of the meat producers were most often listed. Out of the 281 articles, 26 articles criticized meat producers (9.3%). The consumers were criticized by the least number of articles, only 6 out of 281 (2.1%). The actor which was mentioned the most when news pieces were giving recommendations or suggestions of actions to take was the consumer. Out of the 281 news pieces, 24 articles contained

³² Michael Janofsky, "25 Million Pounds of Beef is Recalled," *The New York Times*, August 22, 1997, accessed February 20, 2013. <http://www.nytimes.com/1997/08/22/us/25-million-pounds-of-beef-is-recalled.html>

³³ N. a, "Hudson Foods Acquitted in Meat Trial," *The New York Times*, accessed in February 20, 2013 <http://www.nytimes.com/1999/12/04/us/hudson-foods-acquitted-in-meat-trial.html>

information on what the consumer should do (8.5%). The actor with the least recommendations of actions by news pieces were the slaughterhouses & feedlots. Only seven articles gave recommendations of actions slaughterhouses and feedlots could take to reduce the spread of E. coli (2.5%).

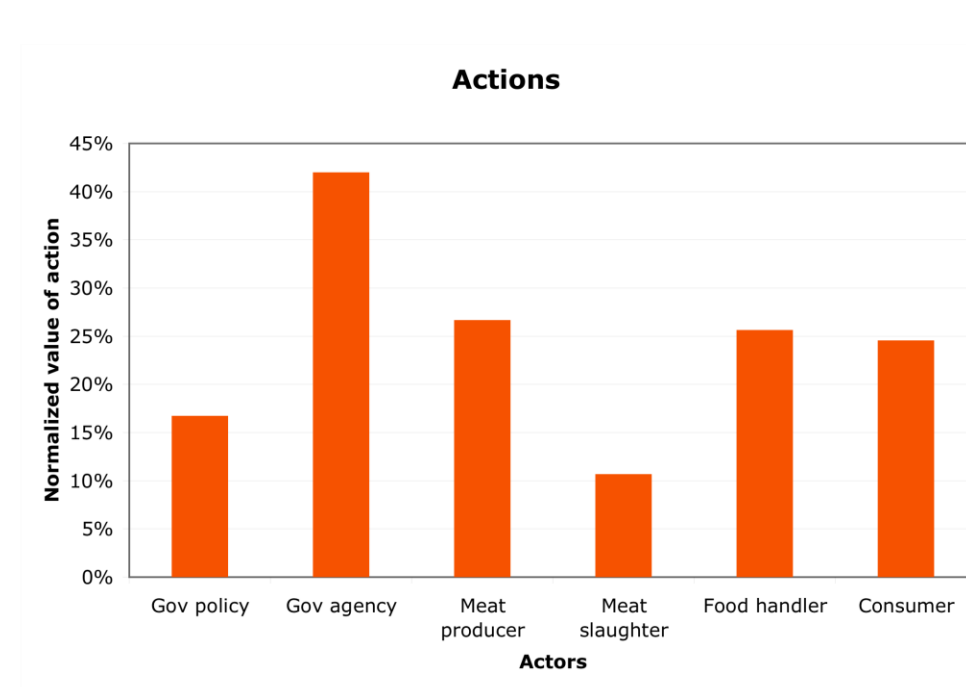


Figure 3: Graph of the percentage of articles which discussed the actions of specific actors in the meat system

Case Study 1: Jack in the Box

For my first case study, I analyzed 149 articles about the Jack in the Box 1992 outbreak. In this case study, 44 articles mentioned the the actions of government agencies, which made government agencies the actor discussed the most (29.5%). In this case study, the food handlers, which most often was Jack in the Box, were critiqued by news pieces. Out of the 149 articles, 10 criticized actions by Jack in the Box (6.7%). This is most likely because Jack in the Box was found responsible for failing to follow state regulations of cooking the burger at high enough heat to kill bacteria, including E. coli.

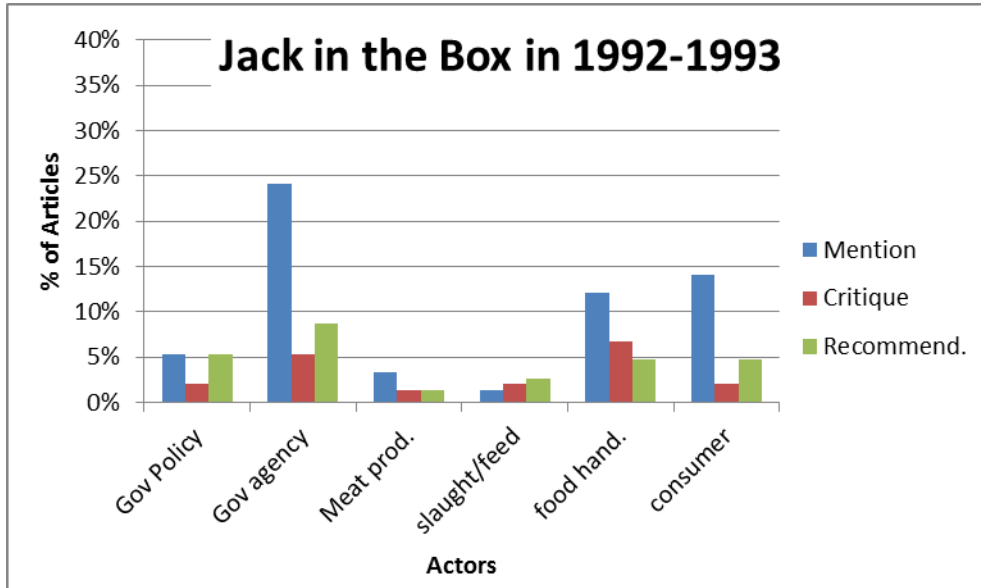


Figure 4: Graph showing the number of articles mentioning actors in the Jack in the Box 1992 Outbreak

Case Study 2: Hudson Foods

For my second case study, I reviewed 104 articles. In the Hudson Foods 1997 outbreak, the action of government agencies were listed by the highest number of articles, with 38 articles mentioning actions (36.5%). The meat processing plants were the highest critiqued actor, with critiques by 20 news pieces (19.2%). In these articles, many accused Hudson Foods of mixing day-old meat. This led to an increase in the size of the recall, since although only 1.2 million pounds of ground beef were originally recalled, 25 million pounds were ultimately recalled because of the ground beef mixing.

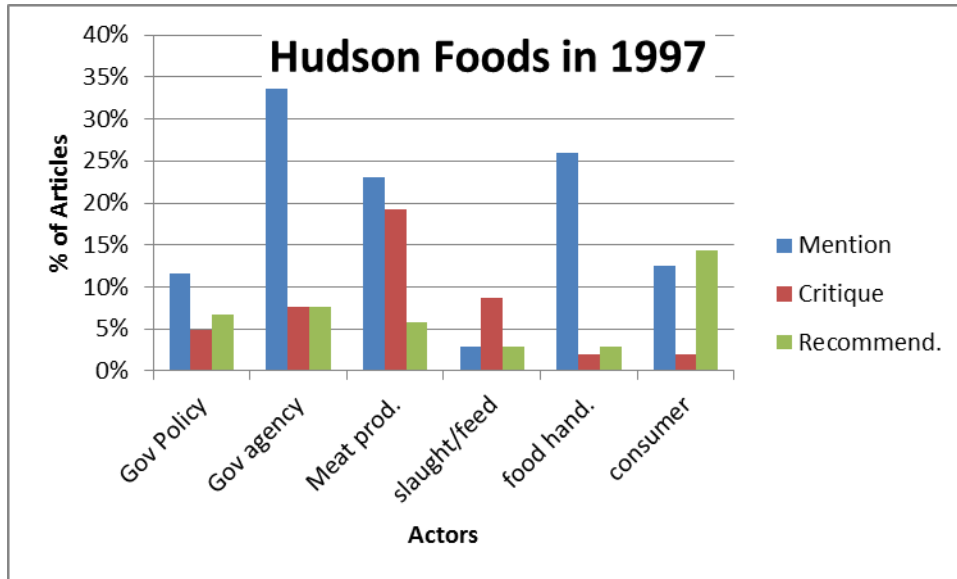


Figure 5: Graph showing the number of articles mentioning actors in the Hudson Foods 1997 Outbreak

Case Study 3: Topps Brand

In the third case, 28 articles were analyzed about the 2007 outbreak. From these articles, it was found that the actions by government agencies were mentioned by the highest number of articles. Out of the 28 articles, 11 articles talked about actions by government agencies (39.3%). The most critiqued actor was also the government agencies, with 6 articles out of 28 critiquing the government agencies (21.4%).

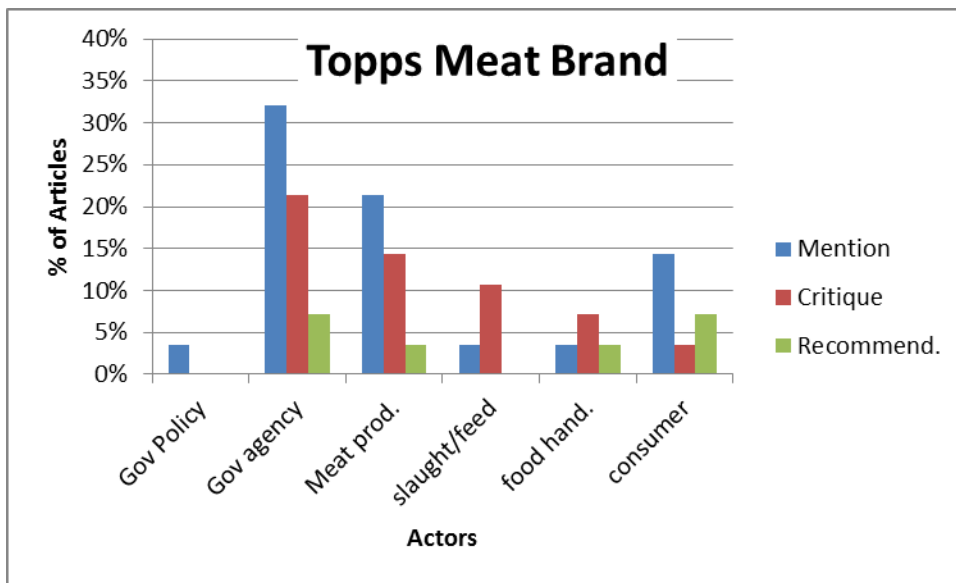


Figure 6: Graph showing the number of articles mentioning actors in the Topps Brand 2007 Outbreak

Discussion and Implications

First finding: Media Shifting Responsibility to Government Agencies

The media depicts responsibility of E. coli contamination by focusing on the actions of certain actors, especially when the action is positive or a recommendation for the future. This depiction of responsibility does not reflect the reality of how each actor attempts to reduce E. coli contamination. However, media's portrayal of different actors responding to E. coli outbreaks informs consumers about what actions are being taken, and by whom. Since the media focuses on the USDA—the governmental agency in charge of regulating ground beef—it puts the most responsibility onto government regulation, thereby taking responsibility from all other actors. This prescription of responsibility is significant because it takes away agency from consumers who are being informed through the media, it requires that the government agencies in charge have enough power to sufficiently regulate the meat industry, and it assumes that all individuals works best with this centralized system.

When the media shifts most responsibility onto the USDA and FDA, the question arises as to whether consumers could be effective agents for change. This question can be analyzed through a relevant psychological theory, one called the diffusion of responsibility. In 1970, social psychologists Latan and Darley published a book on this phenomenon, which they termed the “bystander effect.” Latan and Darley came up with a series of steps in which an individual must go through to offer assistance in an emergency: first, the individual must acknowledge there is an event; second, the individual must acknowledge the emergency at the event; third, the individual must decide what action to take; and fourth, the individual must take that action. Latan and Darley also found that the biggest factor in determining if an individual would not act was the presence of a

group also acknowledging the emergency; they called this the diffusion of responsibility. This is because when a whole group shares equal responsibility, every individual expects someone else within the group to respond. One way to break the issue of diffusion of responsibility is to hold one individual accountable for taking action.³⁴ While this theory came out of social psychology, it can be pertinent to analyze a range of problems which apply to a large group or population without a clear organizational structure.

This theory relates to my research because instead of individuals being expected to respond to any emergency, my research focuses on the risk E. coli contamination in ground beef. Assuming that every consumer is an individual, every meat producing or processing facility is an individual, every food handling facility is an individual, and the USDA with its bureaucratic structure is an individual, there are many different individuals who can respond to the problem of E. coli contamination. Therefore the diffusion of responsibility can crop up, because no facility or consumer may attempt to take action. The USDA's role of regulating the entire industrial meat system and telling individual facilities and consumers what to do solves this issue of diffusion of responsibility.

An example of how the diffusion of responsibility can relate to other environmental problems is the need for emission reduction to decrease the effects of climate change. Every country in the world has the ability to reduce their individual emissions, and therefore contribute to slowing down climate change. However, emissions tend to be a side effect of industrialization and therefore are associated with technological modernization and economic development. For a country to individually choose to reduce their emissions would then put that country at a

³⁴ Nancy Piotrowski and Tracy Irons-Georges, *Magill's encyclopedia of social science: psychology*. (Pasadena, Calif: Salem Press, 2003), 284-287.

disadvantage for increasing the rate of economic development, so no country is willing to be the first to take action and reduce their emissions. On the other hand, if a higher body had the power to force all countries to create and implement a program to decrease emission rates, then all countries would be individually accountable and would reduce their emissions, thereby lessening the issue of climate change. While a higher body might be the most effective strategy, that higher authority would be useless unless it is granted the power to enforce the country's programs.

While the biggest implication of the media shifting responsibility for E. coli contamination in ground beef is that it takes agency away from the consumer, the lack of agency is not a factor in all types of food safety problems. For example, pink slime was treated quite differently. Once consumers became informed about the presence of pink slime in beef products, the level of disgust led to a large change in the system of production.³⁵ In the case of pink slime, there is no health risk; it is simply unsightly. If agency had been kept with regulator, as in the case of E. coli, there would probably not have been much change in the system that allowed pink slime to proliferate, since it would not have caused big health impacts. This comparison with pink slime raises an important issue for consumer agency. On one hand, consumer agency gives consumers the ability to actually control the meat supplied by the mainstream meat system. On the other hand, the choices consumers make may be based more on emotion than scientific data. In the case of pink slime, once individuals found out about the existence of pink slime they completely rejected it.

What the example of pink slime shows, is that consumer agency will lead to large-scale changes in the meat system. However, these changes can only reduce serious health risks to the extent that consumers are adequately educated and can differentiate between what is disliked and

³⁵ Philip M. Boffey, "What if It Weren't Called Pink Slime?," *The New York Times*, May 12, 2012, accessed February 20, 2013. <http://www.nytimes.com/2012/05/13/opinion/sunday/what-if-it-werent-called-pink-slime.html>

what is a real risk. Therefore, consumer agency also requires that the meat system has a level of transparency of information which enables consumers to evaluate the risks and the options, to advocate for positive change. Currently, there is no means for consumers to completely evaluate the meat system because it is highly opaque. Thus government agency becomes the default in the media. Ultimately, even if consumers are given agency by the media to deal with E. coli contamination, they cannot successfully change the meaty system unless the level of transparency and education for the consumer changes.

Government regulation may curtail the issue of diffusion of responsibility; however, the legislative actions then must give the USDA sufficient power to enforce the laws and regulations concerned. HACCP regulations require all meat producing and processing facilities to create safety programs, thereby breaking up the diffusion of responsibility, but the regulations contain very limited enforcement mechanisms. Although the USDA is expected to either look at the paper work of the safety program each facility creates, or visit the facility to view the safety program, neither method can actually confirm whether or not a facility is following their safety plan. Lassiter, in her law review on regulations surrounding E. coli in ground beef, describes the HACCP program as failing to have “any mechanism to detect and confront record keeping by the meat producer as a means to compel compliance with the program.”³⁶ Because there is no mechanism to ensure compliance, Lassiter later continues, “The HACCP provisions discussed earlier rely on the inspectors and the meat producer’s good-faith recordkeeping to evaluate compliance.”³⁷ Basically, the success of the HACCP regulations increasing food safety is completely based on the ability of facilities to follow their proposed safety programs. Therefore, while the media is shifting

³⁶ Lassiter, "From hoof to hamburger," 411.

³⁷ Ibid., 453.

responsibility onto governmental agencies, regulations have made it so that the responsibility has fallen to facilities which make up the industrial meat system. Without an enforcement system in place, the agency's role is "limited primarily to reviewing paperwork...inspectors are largely ineffective."³⁸ This lack of enforcement is perpetuated by the limited testing required to ensure meat is not contaminated. While the USDA requires that both meat producers (slaughterhouses) and meat processors (meat grinders) conduct microbiological testing on their meat, only a minimal amount of testing is required.³⁹ For example, grinding facilities do not have to test the whole cuts of meat they grind up, but only their end product of ground beef. Furthermore, if there is ground meat which tests positive, the USDA is unable to mandate a recall.⁴⁰ Instead the USDA only holds the power to recommend that the facility conduct a voluntary recall where the facility chooses to recall its meat.⁴¹ Regulations, such as the HACCP which gives the USDA specific responsibilities over all facilities therefore must have the power to enforce that the facilities follow the programs they create. Otherwise, the government agency is only able to ask for increased food safety rather than require it.

This lack of enforcing power makes it necessary to pass more legislative policies; however, policy change in the meat system has historically been slow. The only times in which large policy change has happened, is after a huge food scare. The first major change took place in 1906 when The Jungle was released. Public uproar about meat sanitation led to FMIA and the Pure Food and Drug Act. The second large change took place in 1992-1993, when the Jack in the Box outbreak led to the first major change in regulations for meat safety since 1906. This historically slow change in policy severely limits the power of the USDA.

³⁸Straw, "Ground Beef Inspections," 373.

³⁹ Ibid., 373.

⁴⁰ Ibid., 367

⁴¹ Ibid., 367-368.

Another limitation of being forced to rely upon governmental policy, which determines the role of the USDA and FDA, is that American policy is rooted in the weighing of scientific findings regarding the actual incidence of a negative impact. This is fundamentally different from the situation in the European Union. The European Union creates policies using the precautionary principle. Vogel explores the differences in these two policy-making bodies in this book, *The Politics of Precaution*. In a section discussing the European's Union choice to ban beef hormones, an official from the USDA responded, "In effect, this decision placed the burden of proof on those who supported hormone use to demonstrate their safety, rather than on those who wanted to ban them to prove that they were harmful."⁴² This quote shows a core difference between American policy, which airs on the side of assuming products are safe unless found otherwise, and European Union policy, which airs on the side of assuming products are dangerous unless found otherwise. Another example is about the controversy with adding the product rBST in milk. Vogel explains that unlike the European Union who banned rBST, "In approving the product the FDA adhered to its narrow statutory remit...The public controversy and legislative scrutiny that surrounded rBST did not affect American...regulator's decision...[It] was based only on the evaluation of scientific evidence regarding rBST's safety."⁴³ In this example, the decision of whether or not to ban rBST was not at all affected by popular opinion and concern, but solely based on scientific evidence. Vogel argues that it not only the concern by the general public plays no role in food safety, but also the concern by other agencies. In terms of the decision to use antibiotics on poultry against *E. coli*

⁴² David Vogel, *The politics of precaution: regulating health, safety, and environmental risks in Europe and the United States* (Princeton, N.J.: Princeton University Press., 2012), 58.

⁴³ *Ibid.*, 72.

contamination, the Centers for Disease Control held “vigorous opposition,” yet the FDA still approved antibiotic use in 1995.⁴⁴

This tendency for the United States to be willing to support substances which could be more harmful than helpful, only serves to put the industrial meat industry’s interest above the consumers. If policy and regulations are inclined to side with the industrial meat industry than it begs the question of who will protect consumers over the meat industry.

Another explanation of the media’s shift towards governmental regulation, is that the system of looking towards the government to regulate industry when there is a problem may just be reflective of the way the United States handles risk. This shift in responsibility assumes that all individuals work best with a centralized system. Mary Douglas and Michael Thompson, both renowned anthropologists, are credited for creating and developing a cultural theory, also known as grid-group analysis.⁴⁵ The core idea behind grid-group theory is “everything humans beings do or want is culturally biased.”⁴⁶ This theory then defines different cultural types by two dimensions of sociality–group and grid. By having cultural types, it helps to organize data on how individuals may react to or handle certain social relations. The first dimension, group, deals with the strength of unified groups of people, such as family or community. The second dimension, grid, deals with the strength of being constrained by cultural or political restrictions, such as tradition, religion, or laws. Figure 7 shows a diagram of these two dimensions, and the four general cultural types that can be distinguished from them.

⁴⁴ Ibid., 95

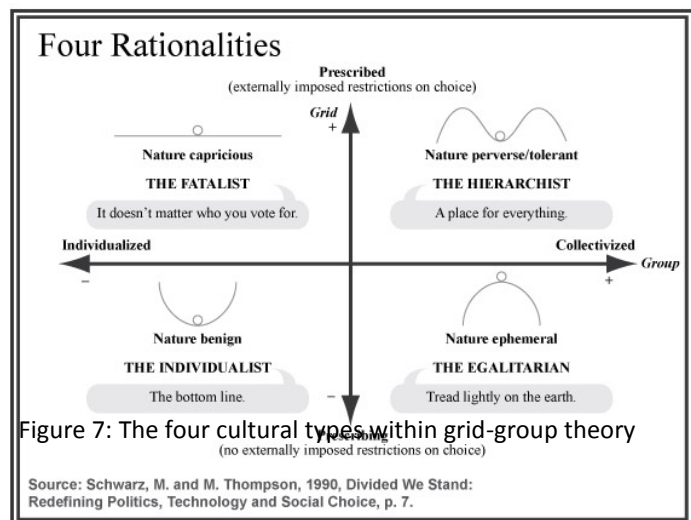
⁴⁵ Virginie Mamadouh, "Grid-group cultural theory: an introduction," *GeoJournal* 47, no. 3 (1999): 395.

⁴⁶ Ibid., 396.

The first type, the hierarchist, follows a strong group and grid. This means that the individuals within this cultural type are restricted by choices which follow strong social prescriptions and follow what works for the collective. The fatalist, is a strong grid and weak group. This means that the fatalist type's choices are restricted by strong social prescriptions; however the fatalist makes choices which is based on the individual. The egalitarian type is the complete opposite of the fatalist type, since this cultural type follows a weak grid and strong group. This means that the Egalitarian type makes choices based on the collective, and makes choices with the belief having a place among a group. However, the egalitarian type is not restricted by social prescriptions, such as strong cultural tradition or strong religious

ideology. The fourth type, the individualist follows a weak grid and a weak group. This means that the individualist cultural type will make decisions with little recognition of social prescriptions, as well as little recognitions of how the individual's choice affects a

larger group. Some scholars argue that the United States population generally falls under the individualist type. Choices by Americans are not usually tied to the collective choice, nor are they completely based on external restrictions, such as religion and tradition. Americans and American meat facilities, are expected minimal external restrictions, the federal and state law, however beyond those parameters they are free to make independent choices. If the media is shifting responsibility onto governmental agencies, then this aligns with the individualist cultural type. Therefore, the



government agencies are important in order to regulate choices of individual facilities in the meat industry.⁴⁷

The implication of these four cultural types is that the media is speaking to only one cultural type. Under grid-group theory, the individualist cultural type will respond well to strong government regulation by the USDA and FDA. However, while the individualist cultural type may encompass the general population in the United States, it in no way encompasses everyone. Following the model of grid-group theory, there are also egalitarian types represented by those who follow alternative meat systems and there are fatalist types who represent the individuals who follow specific eating patterns, such as vegans, vegetarians, pescetarians, and so forth. The egalitarian types follow strong group values and weak social prescriptions. Therefore, these individuals have created their own systems outside of the norm, the industrialized meat system, such as an organic meat system or local meat system. The fatalist types follow weak group values and strong social prescriptions. This fatalist type therefore follows a strong set of values and social prescriptions, but makes choices based only on him or her. Unlike egalitarian types, who depend on others to work within an alternative meat system, the fatalist completely rejects the industrial meat system and alternative meat systems.

The significance of these alternative cultural types is that they interact with the meat system in a different way, and may even be completely isolated from the industrial meat system. If the goal is to control the E. coli contamination which is getting individuals in the United States sick, focusing simply with strategies that align with one cultural type restricts possible positive effects from these strategies

⁴⁷ Ibid., 395-400.

Second Finding: The Article Amount Decreasing for More Recent Outbreaks

Beyond the content of the articles, a significant result from my data was the number of articles that came up with my search terms, and the discrepancy among articles for my three case studies. Although my number of cases are only three, and therefore any finding about the number of articles is not statistically significant, the three cases could reveal a widespread pattern about E. coli O157:H7 in ground beef—the media is looking focus on the topic. There are a couple of reasons of why the media could be writing and talking about this topic less: media fatigue, new information on other sources of contamination and other dangerous types of E. coli, and a sense of that outbreaks E. coli in ground beef is are longer an important problem.

The number of articles covering the Jack in the Box was not only more than both the second and third case study combined, but these articles were most recently written in 2011. While this shows the how the outbreak connected the American public to the issue of E. coli, it also shows that articles stopped being written about this outbreak in 2011. Similarly, the the Hudson Foods outbreak had articles which began in 1997 and were created until 2007, however, after 2007 there were not any more articles. Lastly, the Topps Brand outbreak was only in the media for a year, until 2008. While the articles on the Topps Brand may have stopped because this outbreak did not show the American public any significantly new information about E. coli, both Jack in the Box outbreak and Hudson Foods outbreak revealed the scope of the effects of E. coli O157:H7 in ground beef. Therefore, the fact that articles on these outbreaks are no longer being published gives further proof that the media is decreasing its level of reporting on E. coli O157:H7 outbreaks in ground beef.

The first possible reason is simply media fatigue—media sources no longer consider outbreaks about E. coli O157:H7 in ground beef relevant news because there have been too many

outbreaks. News companies which comprise mass media are businesses, therefore they will report on what the public would find most interesting, rather than report on what continues to be a large risk. Therefore, although thousands of individuals are still getting sick from E. coli contamination in ground beef every year, the news of individuals getting sick is no longer an eye-catching topic.

Another possible explanation for this trend of decreasing attention on E. coli in ground beef is new findings about different sources of E. coli contamination and new hazardous types of E. coli besides O157:H7. For example, a year before the Hudson Foods outbreak, there was an outbreak of the same type of E. coli-O157:H7 in spinach. The outbreak was caused by farm animal waste runoff, since the contaminated water seeped into the fields of spinach and contaminated the spinach, and it led to about 200 illnesses and three deaths. Since the focus had primarily been on the threat of E. coli O157:H7 in meat, this outbreak took the public by surprise. Therefore, once the Hudson Foods outbreak happened in 2007, although it led to the largest food recall at the time, this outbreak was less exciting to the public because it simply was further testament to the dangers of E. coli in ground beef. Beyond new sources of E. coli O157:H7 contamination, scientists are finding new serotypes of E. coli in food which pose new risks to public health. This risk of new serotypes can take away focus from E. coli O157:H7 outbreaks. Furthermore, since the genome of E. coli O157:H7 is continually evolving, these new serotypes are not just being discovered but evolving into creation. The media's focus on these new serotypes can then explain the decreasing amount of articles on E. coli O157:H7.

While this pattern of decreasing articles for more recent outbreaks can be seen through my three cases studies, this pattern could also have appeared because of the way I structured this study. My search for news articles was based on using the name of the company associated with the outbreak, as well as the term E. coli. Therefore, there could be a large number of articles about one

of my three case studies, that simply never mentioned the name of the company associated with the outbreak. This is especially a possibility for the Topps Meat Brand, because within this outbreak the media did not shift blame onto Topps Meat. In the Jack in the Box outbreak, part of the explanation in articles gave for how the outbreak happened was Jack in the Box restaurants failed to follow Washington's state standard of a minimal cooking temperature of 155 degrees, and instead followed the Federal standard of cooking at 140 degrees. For the Hudson Foods outbreak, employees from Hudson Foods were actually accused for lying to federal officials about the extent of the E. coli contamination. Although these employees were later acquitted, the trial was publicized in the media. The Topps Meat Brand, however, was not accused of failing to follow federal and state regulations, and therefore there is a potential of numerous articles which did not mention Topps Brand. The contaminated was traced back to Topps Brand, but this may not have been considered important enough information to include.

So far, I have identified multiple reasons for why the number of articles decrease for my more recent case studies, in order to explain the rationality behind this pattern. If my data does indicate a pattern, and this pattern were to continue for future outbreaks, then it would indicate that future outbreaks of E. coli O157:H7 in ground beef will no longer be considered food scares. The implication of this is that if the media no longer reports on E. coli O157:H7, no matter what policies are passed or the level of systematic improvements in the meat system, the public forget or accept E. coli in ground beef as a risk.

While the media shifts most of the responsibility onto government agencies, the media also criticizes the meat industry and the government, and recommends that consumers also take precautions against E. coli. The fact that news articles question the different actors, helps inform consumers about the positives and negatives about actions taken to deal with E. coli contamination.

Especially since the meat industry has very limited transparency, through the mass media consumers are able to form their own opinions about the steps being taken against E. coli contamination, and whether or not these steps are effective. While these consumers may not act on their opinions, especially if media is shifting responsibility mostly onto the governmental agencies, consumers still have some agency for change. If the interpretation of my results is true, that the more recent outbreaks of E. coli O157:H7 in ground beef are reported on less, than the possible implication of having little to no reporting on future outbreaks is that the consumers will be completely uninformed and lack the knowledge to push for change.

On the other hand, both the past and current articles were informing consumers about safe food-handling practices-by giving the recommended cooking the meat temperature of at least 154 degrees, giving recommendations of how to handle raw meat to reduce cross contamination, and listing identification numbers of meat which is currently being recalled. Therefore, while the breadth of articles may be decreasing with more recent outbreaks, there remains to be information about precautions consumers can take to protect themselves. Although this information is limited in its ability to reduce E. coli contamination and protect consumers from illness, it does help consumers to not be completely reliant on government agencies to effectively regulate the meat industry.

Tying it all Together

The common thread throughout this research was the distinction between viewing E. coli O157:H7 outbreaks in ground beef as individual problems, versus looking at E. coli as a whole. The problem of E. coli O157:H7 in ground beef is very intertwined with sources of E. coli O157:H7 and other dangerous serotypes of E. coli. One reason for this is because cross-contamination is such a large problem with E. coli O157:H7, that even if the outbreak is from ground beef, individuals

getting sick could have gotten the infection from another sick person, or from a substance that touched the contaminated meat. *E. coli* O157:H7 is also constantly evolving, which means that it is possible current dangerous serotypes came from the prevalence of *E. coli* in meat. Also, future dangerous serotypes could evolve if entire problem of *E. coli* is not dealt with now. Ultimately, the food safety problem is not with *E. coli* O157:H7 in ground beef, but the food safety problem is the approach in which *E. coli* is being dealt with. While the government agencies are attempting to minimize the spread of *E. coli* from cattle to consumer, *E. coli* will always pose a deadly threat, unless the government agencies try to start minimizing the amount of *E. coli* at all levels of the meat system. There are bigger issues of connectivity between source of contamination and other areas of contamination, so thinking of the problem of *E. coli* O157:H7 as a small thread of a large problem will begin to start effectively taking care of the public health issue.

This approach of looking at individual cases, rather than trying to look towards systematic change is common with problems of all different areas. The meat system is very large, and very complicated so going from a problem in a very specific area to creating large structural changes is probably not a realistic approach. *E. coli* O157:H7 may be responsible for causing many illnesses and deaths per year, but that does not mean throwing out the entire food system. Instead, the solution lies in looking how specific case studies, or specific outbreaks, relate to one another, and can connect to a large issue. From there, we can begin to appreciate the bigger mechanics of the system, and take approaches that do not address case studies individually.

Conclusion

Mass media plays a critical role in informing the general public, and giving agency for individuals to make change. In terms of *E. coli* O157:H7 outbreaks in ground beef, the role of the mass media was to shift responsibility towards government agencies. By shifting responsibility to government agencies, the media effectively took away agency from consumers. Moreover, the policies governing government agencies give only limited power to control the spread of *E. coli* contamination in ground beef. Instead, the government policies had given responsibility primarily to the actors within the industrial meat system to reduce *E. coli* contamination. This further decreasing the possibility for systematic change, which addresses the issue of *E. coli* in the meat system, and effectively tries to regulate not only the *E. coli* which may eventually go to consumers, but also regulate *E. coli* which contaminates water sources, lands, and other living organisms beyond cattle and humans. This agency for change is further reduced because the media has shown decline in its reporting on outbreaks in ground beef. Through its shift in responsibility towards government agencies already taking agency from consumers, a decrease in information takes also decreases the education and transparency consumers are able to have with the meat industry. There is no easy solution to deal with the public health issue of *E. coli* contamination, yet the media could shift its focus on responsibility towards consumers and create a more empowered group of consumers.

Works Cited

- Benedict, Jeff. "Poisoned: The True Story of the Deadly E. Coli Outbreak That Changed the Way Americans Eat." *The New York Times*, June 27, 2011. Accessed February 24, 2013. http://www.nytimes.com/2011/06/28/health/28excerpt.html?_r=1&
- Boffey, Philip. "What if It Weren't Called Pink Slime?." *The New York Times*, May 12, 2012. Accessed February 20, 2013. <http://www.nytimes.com/2012/05/13/opinion/sunday/what-if-it-werent-called-pink-slime.html>
- Fleming K, E Thorson, and Y Zhang. "Going beyond exposure to local news media: an information-processing examination of public perceptions of food safety." *Journal of Health Communication*. 11, no. 8 (2006): 789-806.
- Freidberg, Susanne. *French beans and food scares culture and commerce in an anxious age*. New York, N.Y.: Oxford University Press, 2004.
- Janofsky, Michael. "25 Million Pounds of Beef is Recalled," *The New York Times*, August 22, 1997. Accessed February 20, 2013. <http://www.nytimes.com/1997/08/22/us/25-million-pounds-of-beef-is-recalled.html>
- Kiranmayi Bindu Ch., N. Krishnaiah, and E. Naga Mallika, "Escherichia coli O157:H7 - An Emerging Pathogen in foods of Animal Origin." *Veterinary World* 3, no. 8 (2010): 382-389.
- Lassiter, Sharlene W. "From hoof to hamburger: The fiction of a safe meat supply." *Willamette L. Rev.* 33 (1997): 411-465.
- Manning, Anita. "25 million pounds of beef recalled." *USA TODAY*, August, 22 1997. Accessed April 20, 2013. www.lexisnexis.com/hottopics/lnacademic.
- Mamadouh, Virginie, "Grid-group cultural theory: an introduction," *GeoJournal* 47, no. 3 (1999): 395-409.
- Money P, AF Kelly, SW Gould, J Denholm-Price, EJ Threlfall, and MD Fielder. "Cattle, weather and water: mapping Escherichia coli O157:H7 infections in humans in England and Scotland". *Environmental Microbiology*. 12, no.10 (2010): 2633-2644.
- Nestle, Marion. *Safe Food: Bacteria, Biotechnology, and Bioterrorism*. Berkeley, CA: University of California Press, 2003.
- Piotrowski, Nancy and Tracy Irons-Georges, *Magill's encyclopedia of social science: psychology*. Pasadena, Calif: Salem Press, 2003.
- Rangel Josefa, Phyllis H. Sparling, Collen Crowe, Patricia M. Griffin, and David L. Swerdlow, "Epidemiology of Escherichia coli O157: H7 outbreaks, United States, 1982–2002," *Emerging infectious diseases* 11, no. 4 (2005)

- Straw, Katherine. “*Ground Beef Inspections and E. Coli O157: H7: Placing the Needs of the American Beef Industry Above Concerns for the Public Safety.*” Washington University School of Law and Policy, 37 no. 355 (2011): 357
- Tartasky, Donna. “Esherichia coli O157:H7.” In *Emerging infectious diseases trends and issues*, edited by Felissa Lashley and Jerry Durham, 159-170. New York: Springer Publishing Company, 2008
<http://site.ebrary.com/id/10176167>.
- Vogel, David. *The politics of precaution: regulating health, safety, and environmental risks in Europe and the United States*. Princeton, N.J.: Princeton University Press., 2012, 58.
- “Hudson Foods Acquitted in Meat Trial,” *The New York Times*. Accessed in February 20, 2013
<http://www.nytimes.com/1999/12/04/us/hudson-foods-acquitted-in-meat-trial.html>
- 64 Federal Regulation 72150
- Federal Register 67(194):62325