

Jack in the Box®: The *E. Coli* Outbreak and Its Effects on the Industry
By: Brittany Mountjoy

Introduction

The United States claims one of the safest food supplies in the world, yet one in six people (roughly 48 million people) ¹are affected by foodborne illness every year. Many known and unknown pathogens can contaminate meat, poultry, and other produce in any of the steps from ‘farm to the fork.’ The food industry today has rigorous standards in place to guarantee the best quality food possible, but that has not always been true of the industry. In 1993, one of the largest pathogen outbreaks in Washington, California, Nevada, and Idaho sickened over 500 people and killed four children.² This outbreak was caused by the pathogen *E. coli*: 0157:H7 in ground patties produced by the restaurant chain, Jack in the Box.³

Jack in the Box, Inc., headquartered in San Diego California, was first opened in 1951 by Robert O. Peterson. Jack in the Box, Inc., operated by a parent company, Foodmaker Inc., now owns Jack in the Box, Inc. and Qdoba Restaurant Corporation. The organization owns over 2,200 restaurants and operates in over 45 states in the US, as well as employs over 22,000 people.

Before 1993, much of the general public and the food industry were unaware of *E. coli* and its potential danger.⁴ So, when children were being admitted to the emergency room for bloody diarrhea and diagnosed with hemolytic uremic syndrome (HUS), doctors and scientists

¹ CDC. “CDC 2011 Estimates: Findings.” October 10, 2012. <http://www.cdc.gov/foodborneburden/2011-foodborne-estimates.html>

² CDC. April 16, 1993. “Update: Multistate Outbreak of Escherichia coli O157:H7 Infections from Hamburgers -- Western United States, 1992-1993.” <http://www.cdc.gov/mmwr/preview/mmwrhtml/00020219.htm>

³ “COMPANY NEWS; Jack in the Box’s Worst Nightmare - New York Times.” 1993. *New York Times*. Accessed March 25, 2013. <http://www.nytimes.com/1993/02/06/business/company-news-jack-in-the-box-s-worst-nightmare.html>.

⁴ Benedict, Jeff. 2011. *Poisoned: The True Story of the Deadly E. Coli Outbreak That Changed the Way Americans Eat*. Inspire Books.

were more than concerned. But no one was more surprised than Jack in the Box, Inc. President and CEO, Robert Nugent, when the restaurant was linked to the sick children in the hospital.⁵ The outbreak was a mess of confusion and blame, and eventually, Jack in the Box paid heavily in personal injury litigation to the children and people affected by the pathogen.

But were Jack in the Box and their parent company, Foodmaker, Inc., the only ones to blame for the hundreds of people who were sickened by the pathogen? Jack in the Box was not in compliance with Washington State regulation that had been issued shortly before the outbreak that raised the internal cooking temperatures from 140°F to 155°F, but the state inspectors were barely aware of the changes in the regulations themselves. In 1993, the United States Department of Agriculture (USDA) still listed cooking temperatures in the Federal Food Code⁶ at 140°F, though a previous *E. coli*: 0157:H7 outbreak in 1982 was associated with undercooked meat . While Jack in the Box was not in compliance with the regulations of Washington State at the time, there were many other factors at the state and federal level that could have prevented the 1993 outbreak.

The 1993 outbreak was both disastrous and eventually beneficial to the industry. After millions of dollars were paid out in litigation, Jack in the Box was able to move past the catastrophic events and losses caused by the outbreak. The industry, spurred by public and government attention, worked together to create a meat inspection system that would provide much more reliability in the future. However, resistance by certain sectors of the industry and government has slowed progress on food safety, and much more can be done to provide a safe

⁵ IBID

⁶ “The U. S. Food and Drug Administration (FDA) publishes the *Food Code*, a model that assists food control jurisdictions at all levels of government by providing them with a scientifically sound technical and legal basis for regulating the retail and food service segment of the industry. Local, state, tribal, and federal regulators use the *FDA Food Code* as a model to develop or update their own food safety rules and to be consistent with national food regulatory policy.” (FDA 2013)
<http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/default.htm>

food supply for immediate needs and for future generations. In this paper, I will demonstrate how politics can interfere with food safety regulations and how the lack of public understanding of science contributed to the scale of the outbreak.

2

The Outbreak

Four deaths and over 500 confirmed *E. coli*: O157:H7 infections occurred in the states of Washington, Nevada, California, and Idaho from November 15, 1992 to February 28, 1993. The multistate infection was linked to Jack in the Box.. An investigation linked the restaurant chain to the outbreak after a physician alerted Washington State Health Department of an unusual amount of children visiting the emergency room with HUS and bloody diarrhea.⁷

E. coli O157:H7 is a pathogenic gram-negative bacterium first identified as a cause of illness in 1982⁸ during an outbreak of severe bloody diarrhea traced to contaminated hamburgers. *E. coli* (*Escherichia coli*) is a common bacterial inhabitant of the intestines of all animals, including cattle and other livestock species, and can contaminate the meat during different stages of production. This pathogen has since emerged as an important cause of both bloody diarrhea and HUS, which is the most common cause of acute renal failure in children.⁹ HUS occurs in two to seven percent of *E. coli* O157:H7 infections and primarily affects children.¹⁰ The severity of *E. coli* O157:H7 was largely unknown in 1993, though there had been an outbreak in 1982, and many children suffered from the pathogen.

⁷Center for Disease Prevention and Control (CDC).1993 "Update: Multistate Outbreak of Escherichia coli O157:H7 Infections from Hamburgers -- Western United States, 1992-1993"
<http://www.cdc.gov/mmwr/preview/mmwrhtml/00020219.htm>

⁸ The outbreak of *E. coli* O157:H7 was traced to contaminated hamburgers later linked to McDonald's Corporation.

⁹ Center for Disease Prevention and Control (CDC).1993 "Update: Multistate Outbreak of Escherichia coli O157:H7 Infections from Hamburgers -- Western United States, 1992-1993"
<http://www.cdc.gov/mmwr/preview/mmwrhtml/00020219.htm>

¹⁰ Straw, Katherine A. 2011 "Ground Beef Inspections and E. Coli O157:H7: Placing the Needs of the American Beef Industry Above Concerns for Public Safety. " *Journal of Law & Policy*: Vol. 37:355.

When children first started arriving at the emergency room with symptoms of HUS, the resident doctors and physicians were unaware that contaminated meat might have caused the sickness. But as more and more children across the state of Washington and the other states affected, the physicians started to link the common denominator: that all of the children had eaten a hamburger at a Jack in the Box restaurant. There was not only much confusion at the hospitals and amongst scientists; there was also much confusion and blame during the initial stages of the investigation on the industry side. According to a 1993 *Seattle Times* newspaper article, both Jack in the Box and federal officials were unsure of the source of infection:

*Foodmaker Inc., which operates the fast-food chain, yesterday filed suit in San Diego against Vons Cos. Inc. and its other suppliers, seeking to recover all the costs involved in the outbreak of E. coli 0157:H7...The tainted beef has been traced to a shipment Jack in the Box received from the Southern California processor. Investigators don't know how the meat became contaminated, but federal agriculture officials say it occurred before the meat arrived at Vons and are investigating up to 14 slaughterhouses that might have provided the meat to the distributor.*¹¹

However, as the investigations and litigations were filed by Bill Marler¹² and others, it was revealed that Foodmaker, Inc. had been notified of the change in cooking in temperatures by Washington State officials. Cooking temperatures is just one way to minimize the threat of pathogenic bacteria and foodborne illness. Preventable measures can also be taken at the harvesting facilities to control the bacteria. None of the cases against Jack in the Box went to trial, but after the last settlement, Jack in the Box had lost over \$160 million.¹³

¹¹ Gilmore, Susan. 1993. "Jack In The Box Sues Supplier Of Hamburger Linked To E. Coli." *The Seattle Times*. <http://community.seattletimes.nwsources.com/archive/?date=19930205&slug=1683884>

¹² Bill Marler is a personal injury and products liability attorney. He began litigating food borne illness cases in 1993, when he represented Brianne Kiner, the most seriously injured survivor of the Jack in the Box outbreak. Bill settled Brianne's case for \$15.6 million, a record for Washington State. He settled several other Jack in the Box E. coli outbreak cases for more than \$1.5 million each. <http://www.marlerblog.com/about-bill-marler/#.UVeCAhyG2iw>

¹³ Marler Clark, Attorneys at Law L.L.P. , P.S. "Jack in the Box E. coli Outbreak Lawsuits- Western States." http://www.marlerclark.com/case_news/view/jack-in-the-box-e-coli-outbreak-western-states

Through all of the confusion, blame, and distress, Robert Nugent had the insight to bring in David “Dave” M. Theno, PhD, to ‘fix’ Jack in the Box’s serious problems. Theno was one of the few scientific experts to have experience and knowledge of the *E. coli* bacteria and important preventative measures. Dave Theno was recruited by Jack in the Box as the vice president of quality assurance and product safety in March 1993 and was later promoted to senior vice president and chief food safety officer. Theno, however, not only fixed Jack in the Box but created a model for food safety that would later be adopted by the rest of the industry. Theno responded to the outbreak and developed a comprehensive Hazard Analysis Critical of Control Points (HACCP) plan for the restaurant, as well as a finished product testing protocol that was not initially well received by other members of the industry.¹⁴

Food Safety and the Industry before the Outbreak

E. coli O157:H7 was first discovered as a human pathogen in 1975 but was not associated with food borne illness until an outbreak in 1982¹⁵. After *E. coli* was first discovered in 1885 by the German pediatrician Dr. Theodor Escherich in the feces of babies as a part of a normal healthy intestine, most scientists believed that *E. coli* was benign and part of a healthy gut. A report, “Hemorrhagic colitis associated with a rare *Escherichia coli* serotype,” was published in the *New England Journal of Medicine* in March 1983 examining public health records and physician reports from 1981 to 1982. The study, directed by Dr. Lee W. Riley, a Center for Disease Control and Prevention (CDC) epidemiologist, reported on the two outbreaks

¹⁴ <http://www.meatindustryhalloffame.org/inductees/>

¹⁵ M. Ellin Doyle, John Archer, Charles W. Kaspar, and Ronald Weiss. “FRI BRIEFINGS: *E. coli* O157:H7 Human Illness from Food and Non-food Sources” Food Research Institute, University of Wisconsin–Madison http://fri.wisc.edu/docs/pdf/FRIBrief_EcoliO157H7humanillness.pdf

of an unusual gastrointestinal illness that affected at least 47 people in Oregon and Michigan in the first half of 1982.¹⁶

*We investigated two outbreaks of an unusual gastrointestinal illness that affected at least 47 people in Oregon and Michigan in February through March and May through June 1982. The illness was characterized by severe crampy abdominal pain, initially watery diarrhea followed by grossly bloody diarrhea, and little or no fever. It was associated with eating at restaurants belonging to the same fast-food restaurant chain in Oregon (P less than 0.005) and Michigan (P = 0.0005). This report describes a clinically distinctive gastrointestinal illness associated with E. coli O157:H7, apparently transmitted by undercooked meat.*¹⁷

The CDC began researching the pathogen *E coli* O157: H7, as there was very little known about the pathogen at the time. “Dr. Riley also said he believed that ‘this strain of E. coli had always been around but it was not recognized until the U.S. entered the era of mass production and distribution of hamburger meat to be served at fast-food restaurants — a lot of hamburger patties needed to be consumed to generate a recognizable outbreak.”¹⁸

The 1982 outbreak is still not commonly associated with McDonald’s Corporation® and most scientific literature refers to a nameless ‘restaurant chain’ as the source of the outbreak. “The first outbreaks caused by *E coli* O157 occurred in Oregon and Michigan, USA, in 1982, when it was isolated from individuals who developed bloody diarrhea and severe abdominal cramps after eating hamburgers in a restaurant chain. An outbreak of this type is unlikely to have gone unrecorded previously.”¹⁹ During the initial study of the outbreak, the industry and scientists were hesitant to lay blame on McDonald’s or beef, in general, as there was not yet

¹⁶ Andrews, James. March 31, 2013. “Publisher’s Platform: McDonald’s and E. coli, 30 Years Later” Food Safety News. <http://www.foodsafetynews.com/2013/03/publishers-platform-mcdonalds-and-e-coli-30-years-later/#.UVhjXxyG2iw>

¹⁷ Hemorrhagic colitis associated with a rare *Escherichia coli* serotype. N Engl J Med. 1983 Mar 24; 308 (12): 681-5. Riley LW, Remis RS, Helgerson SD, McGee HB, Wells JG, Davis BR, Hebert RJ, Olcott ES, Johnson LM, Hargrett NT, Blake PA, Cohen ML.

¹⁸ Andrews, James. March 31, 2013. “Publisher’s Platform: McDonald’s and E. coli, 30 Years Later” Food Safety News. <http://www.foodsafetynews.com/2013/03/publishers-platform-mcdonalds-and-e-coli-30-years-later/#.UVhjXxyG2iw>

¹⁹ Pennington, Hugh. “*Escherichia coli* O157” *Lancet* 2010; 376: 1428–35

enough evidence or science to implicate the two.²⁰ “Nobody in the two smallish outbreaks had died or developed life threatening condition complications.”²¹ The McDonald’s outbreak was small in size compared to the Jack in the Box outbreak and did not raise alarm.

The United States claims one of the best disease surveillance systems in the world, working together with local and state health departments, physicians and hospitals, and the CDC to collect extensive data reports. These networks of surveillance systems can be used to prevent outbreaks in foodborne illnesses and other diseases as long as the information is properly shared, analyzed, and direct action is taken.²² However, in both the 1982 and 1993 *E. coli* outbreaks, the CDC and certain health departments did not disclose the details and names of the restaurants responsible for the outbreaks.

*“When public health officials make mistakes in foodborne outbreaks, the industry suffers and the political fallout is extreme... We should not forget that local officials are closely tied to their communities in many ways. Local health departments rely on revenue generated from the local food service industry. After many years, bonds form between local public health agencies and industry, naturally, and out of necessity.”*²³

The CDC and local health department’s unwillingness to list the names of certain restaurants or industries with an outbreak or disease demonstrates the authority and influence of the food industry. If investigators or health officials were to incorrectly (or correctly) associate an industry with an outbreak, it could have devastating impacts on the industry and the communities that are dependent upon it.

²⁰ Pennington, T. Hugh. 2003. *When Food Kills : BSE, E.coli and Disaster Science: BSE, E.coli and Disaster Science*. Oxford University Press.

²¹ Ibid

²² Costa, Roy. January 24, 2012. “Is Honesty the Best Policy in Foodborne Illness Investigations?” *Food Safety News* http://www.foodsafetynews.com/2012/01/is-honesty-the-best-policy-in-foodborne-illness-investigations/?utm_source=newsletter&utm_medium=email&utm_campaign=120124#.UX1my7WG2iw

²³ Costa, Roy. January 24, 2012. “Is Honesty the Best Policy in Foodborne Illness Investigations?” *Food Safety News* http://www.foodsafetynews.com/2012/01/is-honesty-the-best-policy-in-foodborne-illness-investigations/?utm_source=newsletter&utm_medium=email&utm_campaign=120124#.UX1my7WG2iw

The industry [including the CDC] had knowledge of the pathogen as early as 1982 but did nothing to prevent further outbreaks. McDonald's should have taken a lead and worked with the beef industry to research the pathogen and prepare for potential future contamination. Except for a few scientists, like Mike Doyle, there was little acknowledgement within the industry as to how dangerous the pathogen could be to human populations. McDonald's worked closely with Doyle to create a 'bullet-proof' system that would appropriately guard against future outbreaks. However, there were communication disconnects between McDonald's, Doyle, and the rest of the industry. If the knowledge of the pathogen had been shared at an earlier date and had the industry taken preemptive measures against the pathogen, the Jack in the Box outbreak may not have been as harmful or may not even have occurred.

Before the Jack in the Box outbreak, the USDA preferred a "command and control" style of meat inspection.²⁴ The old inspection method gave the USDA meat inspector more control and power within the plant and was responsible for overseeing food safety. The "command and control" system relied upon the 'senses' of the inspector, relying upon what the inspector saw, smelled, heard, etc. This system relied too much upon the inspector and the plant was not responsible for regulating its own safety measures. The USDA later criticized its own method after the Jack in the Box outbreak, and the USDA Food and Inspection Service (FSIS) adopted HACCP as a standard for meat inspection in the industry.

State versus Federal Regulations

In March of 1992, the Washington State Board of Health mandated that the internal cook temperature for ground beef should be 155°F, not the 140°F temperature that all other of the 49

²⁴ Straw, Katherine A. 2011 "Ground Beef Inspections and E. Coli 0157:H7: Placing the Needs of the American Beef Industry Above Concerns for Public Safety." *Journal of Law & Policy*: Vol. 37:355

states used based on the Federal Food Code. Several months before the 1993 outbreak, Foodmaker, Inc and Jack in the Box had been notified by county health departments about the new cooking standard. According to company records that were discovered and disclosed during the litigation process, several restaurant managers and company scientists received a statement from the Bremerton-Kitsap County Health District in May 1, 1992 outlining the new regulations. However, during a hearing in front of US Congress and in later press conferences, Robert Nugent, stated that “the appropriate management was not alerted and the necessary action therefore was not taken to effect the change necessary to get to the 155 degrees.”²⁵

Whether or not proper management at Jack in the Box was notified of the new regulations, matters little; Jack in the Box was still in compliance with federal regulations. If not for the state’s consumer protection statute, Jack in the Box’s violation of the regulation would not have been as troublesome. It is unclear as to whether or not the state standard should have taken precedent, but Jack in the Box chose to follow federal standards of 140°F, which was still acceptable in the 12 other states in which the restaurant chain operated. According to the FDA, who produces the Federal Food Code, the science at the time (followed by the FDA, USDA, and the majority of the industry) supported the 140°F internal cooking temperature of beef. The 140°F internal cooking temperature was believed to be adequate enough to kill known human pathogens.

There was either miscommunication amongst federal and state agencies or a failure to carefully evaluate the risks of the pathogen, but a question remains: why was the state of Washington so far ahead of the other 49 states? Washington State health officials had some awareness of *E. coli* and its potential effects before the 1993 outbreak. The state health officials

²⁵ Benedict, Jeff. 2011. *Poisoned: The True Story of the Deadly E. Coli Outbreak That Changed the Way Americans Eat*. Inspire Books.

were researching thermal death times²⁶, a procedure that was and still is used to eliminate harmful bacteria that can be found in food, and became aware of the possible threat that bacteria pathogens could pose. Bert Bartleson, a technical expert for the state Health Department was working on this project at the time and tried to change the cooking temperature to 165°F but was met with resistance from the industry. The industry believed that the increased temperatures would affect the taste of the hamburgers and drive down consumer demand.

After some push back from the industry, Washington State and its health officials reached out to Michael Doyle, who at the time was considered the country's leading expert on *E. coli*. Bartleson, after working with Doyle, found that cooking hamburger to 155°F would eliminate almost 100 percent of the pathogen.²⁷ So not only were state officials aware of the potential threat that *E. coli* posed, but researchers and scientists were conducting trials to make sure that cooking temperatures were accurate.

At the Federal level, the responsibility for food safety is split between the FDA, the USDA, and other organizations, like the CDC. It is particularly surprising that neither agency were aware of either the 1982 outbreak or the research that was being conducted on proper cooking temperatures for beef products. In 1981, when Ronald Reagan was inaugurated, the Republican Party drastically cut spending expenditures, severely hurting the CDC. During the same period, the CDC was focused on discovering the unknown cause [AIDS was later discovered as the causation] of the deaths of men belonging to the gay community. So, in 1982

²⁶ Thermal death times are the cooking time and temperatures required to kill dangerous bacteria.

²⁷ Blake, Judith. 1993. "Jack In The Box Poisonings -- Food Safety Standards Higher Here -- Cooking Temperature For Hamburgers Increased To 155 Degrees" *The New York Times*.
<http://community.seattletimes.nwsources.com/archive/?date=19930124&slug=1681583>

when *E. coli* first appeared as a human pathogen, the CDC was slow and poorly equipped to act.²⁸

The FDA publishes the Food Code, a model set of guidelines and procedures that assists food control jurisdictions by providing what is supposed to be a scientifically sound technical and legal basis for regulating the retail and food service industries²⁹. Regulatory agencies within the US government use the FDA Food Code to develop or update food safety rules in their jurisdictions in order to be consistent with national food regulatory policy. According to the FDA, 48 of 56 states and territories have adopted food codes modeled after one of the several versions of the Food Code, beginning with the 1993 edition [written after the Jack in the Box outbreak].³⁰ However, the Code is written in conjunction with the USDA FSIS and the CDC.

It is unclear as to why federal agencies had not changed the internal cooking temperature after the 1982 McDonald's outbreak. At the time of the 1982 outbreak, federal spending had been cut by the Reagan administration, possibly affecting communication between federal agencies. It is documented that the CDC had knowledge of the outbreak and were conducting research to learn more about the bacterium, but that knowledge was either not conveyed to the FDA and USDA or that knowledge was ignored by the other agencies. The agencies' perception of risk is also unclear; there was limited knowledge of *E. coli* and how it was transmitted to ground beef products during the period from 1982 until 1994. The agencies must have perceived the risk of *E. coli* contamination as low, since previous to 1982 there had been no documented cases of it as a human pathogen nor did it cause any deaths until 1993.

²⁸ Pendergrast, Mark. 2010. *Inside the Outbreaks: The Elite Medical Detectives of the Epidemic Intelligence Service*. Houghton Mifflin Harcourt.

²⁹ FDA. 2009. "Food Code: U.S. Public Health Service"
<http://www.fda.gov/downloads/Food/GuidanceRegulation/UCM189448.pdf>

³⁰ Ibid

Jack in the Box should have been aware of the change in state regulation and should have complied with the 155°F cooking temperature. However, Jack in the Box cannot be solely blamed for the 1993 outbreak. The beef industry, McDonald's, and federal agencies should have been more proactive about the pathogen, either with research or raising inner-industry awareness about *E. coli* and its dangerous potential affects. During the investigation and litigation process, it was also discovered that Washington State Health Inspectors were often equally unaware of the change in regulation and frequently did not notice that the Jack in the Box restaurants were not cooking their hamburgers to proper temperatures.³¹ So, while Jack in the Box was directly responsible for selling undercooked products, other parties that were and are equally involved in the food supply system were just as responsible for making sure the US food supply was safe.

Food Safety since the Outbreak

It took USDA until 1994 to label *E. coli* 0157:H7 as an adulterant even with the outbreak in 1982 (however, it is the only bacteria labeled as such to this date.)³² Bacteria are not normally listed as an adulterant in the traditional sense; however, by labeling *E. coli* as an adulterant it allowed the USDA to have more jurisdictions over regulating the bacteria. The 1993 outbreak pushed the agency into action and forcing the first modernization of the inspection system since 1906 when the FMIA was first created,³³ starting with the implementation of the HACCP (Hazard Analysis Critical Control Points) inspection systems.

While David Theno was ahead of the agency in implementing HACCP, his first steps allowed Jack in the Box to become an industry leader in HACCP implementation. The HACCP

³¹ Benedict, Jeff. 2011. *Poisoned: The True Story of the Deadly E. Coli Outbreak That Changed the Way Americans Eat*. Inspire Books.

³² Straw, Katherine A. 2011 "Ground Beef Inspections and *E. Coli* 0157:H7: Placing the Needs of the American Beef Industry Above Concerns for Public Safety." *Journal of Law & Policy*: Vol. 37:355.

³³ Ibid

system was originally developed by NASA (National Aeronautics and Space Administration) and others in the 1960s to deliver safe food for astronauts and since then, it has worked best in large enterprises,³⁴ like Jack in the Box. According to the United Nations Food and Agriculture Organization (FAO), the HACCP system, unlike previous industry standards is ‘science-based’[which was an indirect admission that previous practices were not scientific] and can better address microbiological challenges presented by pathogens, like *E. coli* 0157:H7:

The HACCP system, which is science based and systematic, identifies specific hazards and measures for their control to ensure the safety of food. HACCP is a tool to assess hazards and establish control systems that focus on prevention rather than relying mainly on end-product testing. Any HACCP system is capable of accommodating change, such as advances in equipment design, processing procedures or technological developments.

HACCP can be applied throughout the food chain from primary production to final consumption and its implementation should be guided by scientific evidence of risks to human health. As well as enhancing food safety, implementation of HACCP can provide other significant benefits. In addition, the application of HACCP systems can aid inspection by regulatory authorities and promote international trade by increasing confidence in food safety.

The current HACCP system is based upon several principles of prevention and corrective actions and has a zero tolerance for *E. coli* (though the USDA allows for 3.3% of samples tested to test positive for *E. coli*).³⁵ The seven principles include hazard analysis, the identification of critical control points, the establishment of critical limits, monitoring of the critical control points, the establishment of corrective actions, record keeping, and finally, verification. These seven steps and principles are put in place at each plant or harvesting facility and can vary from plant to plant. The HACCP system has increased the amount of microbial testing, of both *Salmonella* and *E. coli*, and is considered by the industry as highly effective. But it should be noted that HACCP is not meant to be the only tool to prevent food safety hazards. “Other parts

³⁴ Pennington, Hugh. “*Escherichia coli* O157” *Lancet* 2010; 376: 1428–35

³⁵ USDA FSIS. 2010. “HACCP and Pathogen Reduction.”

http://www.fsis.usda.gov/science/hazard_analysis_&_pathogen_reduction/index.asp

must include: good manufacturing practices, sanitation standard operating procedures, and a personal hygiene program.”³⁶

Reluctance of the Industry

The food industry has made considerable strides in food safety since the 1993 outbreak. Much of the industry immediately started testing for the pathogen after the outbreak, and the number of cases of food borne illness from *E. coli* 0157:H7 has been considerably reduced. However, the food and beef industry has at times been resistant to food safety precautions. “Following the Jack in the Box outbreak, the USDA sought to place safe-handling labels on all packages of raw meat and poultry, which were to include information regarding the cooking temperatures necessary to kill pathogens. The beef industry, however, obtained an injunction against the use of these safe-handling labels, and the USDA ultimately implemented labels that did not refer to cooking temperatures.”³⁷ While the industry had been willing to follow Jack in the Box and Dave Theno’s lead with certain food safety implementations, the industry was not as willing to accept regulations would have required labeling on meat packaging.

In 2008, President Obama signed the Food Safety Modernization Act (FSMA) which reaffirmed the government’s commitment to food safety. However, several years later, FSMA is still poorly funded, and the FDA has yet to give the industry proper guidance on the new regulations. Also, in 2011, the USDA proposed a new regulation, that reportedly would test for six other dangerous strains of *E. coli* [which it does for *E. coli* 0157:H7]. Additional testing has not been well-received by the meat industry, and Betsy Booren, the Scientific Director at the

³⁶ Rushing, J.E., D.R. Ward. 2013. “HACCP Principles” North Carolina State University.

<http://www.ces.ncsu.edu/depts/foodsci/ext/pubs/haccpprinciples.html>

³⁷ Straw, Katherine A. 2011 “Ground Beef Inspections and E. Coli 0157:H7: Placing the Needs of the American Beef Industry Above Concerns for Public Safety.” *Journal of Law & Policy*: Vol. 37:355.

American Meat Institute Foundation (AMI), was quoted believing that testing for seven different strains of bacteria would be time ineffective and costly.³⁸

The industry, scientists, and regulatory industries work together to provide a safe and abundant food supply. However, as I have demonstrated throughout this paper, politics among local, state, federal agencies and the industry can affect the implementation of food safety measures and limit the amount of knowledge shared among the individual entities that could potentially prevent outbreaks.

More Work to Be Done

HACCP is currently the universally [in the US and internationally] accepted meat inspection system. The Jack in the Box outbreak spurred its implementation in plants and harvesting facilities in the US and was later adopted by other European nations. The critical control points allow for check points along the production line and were designed for greater accountability. However, there have been failures in the HACCP system and outbreaks in the US and elsewhere despite the critical control points.³⁹

The USDA's criticism of its previous meat inspection methods as not 'sound-science' raises questions about what counts as 'sound-science' versus not non-sound science. Why were the methods used by the inspector, less scientific than those used by the new HACCP inspection system? The new HACCP system requires the use of more systematic testing and adoption of scientific observation and methods, but what makes the additional tests any more scientific than previous methods? HACCP is an internationally accepted test, accepted by food industries across the world. The system has been vetted as scientific because of the community of scientists, government agencies, and food industries supporting it.

³⁸ Horsley, Scott. 2011. "More Burger Tests: Good for Health But Too Costly."
<http://www.npr.org/2011/06/14/137103265/more-burger-tests-good-for-health-but-too-costly?ps=cprs>

³⁹ Pennington, Hugh. "Escherichia coli O157" *Lancet* 2010; 376: 1428–35

There are many criticisms of the HACCP system. The HACCP system redistributes the responsibility for food safety implementation and guarantee to the plant, and HACCP plans vary by plant and by company. While adapting HACCP to the individual needs of the plant has its benefits, the lack of standardization has its downfalls. Large plants have the advantage of scientific expertise and can afford to properly train employees, but smaller plants are often disadvantaged and do not have the expertise to maintain proper HACCP plans. This knowledge gap between larger and smaller plants is harmful to the industry; it is important that the USDA and FDA inspectors work with the plants to prevent contamination.

The HACCP system has been a good implementation for the food industry and allows for check points throughout the entire process at the plant. It relies on science based information and the identification of hazards at each plant. But without good manufacturing practices, sanitation standard operating procedures, and a personal hygiene program, HACCP is an incomplete tool that cannot guarantee optimal food safety at the plant level.

Another issue facing the industry is the lack of uniform adoption of the Federal Food Code across all food safety agencies at the federal, state, local and tribal levels.⁴⁰ All 50 states operate independently and do not follow standard regulations. There is pressure from the FDA and food safety advocates for the adoption of nationwide standards, and many states have complied. Uniform, nationwide standards could have prevented the outbreak from occurring in 1993. While most states were following the FDA's recommendations in 1993, and Washington State was more proactive with preventative measures, it is apparent that the lack of mandatory compliance with standards caused confusion within the industry.

⁴⁰ FDA. 2011. "Real Progress in Food Code Adoptions." <http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FederalStateCooperativePrograms/ucm108156.htm>

The Role of Consumer Advocacy Groups

Foodborne illness and death caused by pathogens, like *E. coli*, have potentially disastrous effects on the food and beverage industry, harming public perception and trust in the credibility of the industry and regulatory agencies. According to Brian Wynne, a Science and Technology Studies (STS) scholar, in “Misunderstood Misunderstanding: Social Identities and Public Uptake of Science,” the public’s understanding of science and their perception of risk is not so much about their lack of understanding of technical information. Instead, it is more about the trust (or lack of) and credibility that the public attributes to the food industry and its scientists and institutions.⁴¹

Many lives were changed by the Jack in the Box outbreak; for the survivors, some will live with damaged internal organs and for those that did not survive, the families will be reminded every day the dangers of pathogens, like *E. coli* 0157:H7. The outbreak shattered the public’s trust in the institutions responsible for keeping the public safe and the food industry. After the outbreak, survivors and family members of the children who passed joined together alongside of scientists, doctors, politicians, and ordinary community members to fight against food borne illness to create STOP Food borne Illness (STOP) formed under the name Safe Tables Our Priority.⁴² This nonprofit, grassroots consumer group took on the challenge of battling food borne illness and set out to see that an outbreak, like the 1993 outbreak, did not happen again.

We learned that a myriad of government agencies oversee food safety. We saw, firsthand, the lack of effective communication between federal, state and local agencies... We learned how food becomes contaminated. We understood the weaknesses of the system and the complexity of the challenge of preventing foodborne illness. We learned that the United States government -- our government -- already knew about emerging foodborne

⁴¹ Wynne, Brian. 1992. “Misunderstood Misunderstanding: Social Identities and Public Uptake of Science.” UK: IOP Publishing Ltd and the Science Museum.

⁴² STOP. “History of STOP” Accessed March 30, 2013. <http://www.stopfoodborneillness.org/content/history-stop>

pathogens, but lacked a comprehensive plan to combat them. We learned that scientists and consumer advocates had been quietly warning the United States Department of Agriculture (USDA), Congress, and the media that a failure to inspect meat and poultry for bacteria would lead to a food safety disaster. Time was of the essence. Although there was significant resistance at every turn, our outrage was the fuel that drove us.⁴³

Community engagement, like STOP, has served an important role in motivating food safety initiatives. STOP and other groups devoted to the safety of the food supply have made positive impacts on public health and have worked to decrease the number of food borne illnesses in the US. These consumer groups will continue to have an important role in citizen engagement to and will continue to impact policy decisions pertaining to food safety regulations.

The industry often criticizes and is wary of advocacy groups like STOP. The argument against advocacy groups representing the public interest is that the groups and the public are ‘uneducated’ or lack the proper knowledge about food production and food safety. The public’s concept of food safety risks and foodborne illnesses is not however lack in technical knowledge, but like Wynne argues, it is more based in the social construct of the public’s belief system and lack of trust in the institutions in charge of supplying a safe food supply. It is important that the industry and local, state, and federal institutions to recognize the public as often informed consumers who have an interest in the safety of their food supply.

Conclusion

The 1993 *E. coli* 0157:H7 outbreak killed four children and sickened over 600 children and adults. The outbreak was not just a wake-up call for Jack in the Box; it was also a wake-up call for the food industry and alerted millions of consumers to the importance of food safety. Jack in the Box was massively affected by the outbreak; their public image was damaged, they were hit with millions of dollars in litigation, and sustained costly profit losses. But unfortunately

⁴³ STOP. “History of STOP” Accessed March 30, 2013. <http://www.stopfoodborneillness.org/content/history-stop>

for Jack in the Box, the outbreak could have affected any one member in the food industry; no one was prepared for the repercussions of *E. coli* 0157:H7.

There is no doubt that Jack in the Box should have been aware of the change in Washington State regulations and been in compliance with the higher cooking temperature. However, Jack in the Box cannot be solely blamed for the 1993 outbreak, as other members of the industry and federal agencies [who had prior knowledge of the pathogen] should have been more proactive about the *E. coli* outreach. But the industry has not always taken a proactive role in food safety and is often reluctant to accept any regulation that might limit their control on their facilities and modes of production.

However, the food industry has taken considerable steps towards better food safety standards since the 1993 outbreak. In order to reestablish credibility and regain consumer trust, the industry and federal, state, and local institutions had to work together to ensure a safer food supply. After the outbreak, the industry could no longer ignore the dangers that pathogens, like *E. coli*, pose to the safety of the food supply. Dave Theno led the industry in the right direction with the implementation of the HACCP system and taking control of strict food safety standards at the plant. Along with HACCP implementation, local, state, and federal agencies work together track and report instances of foodborne illness, pathogenic bacteria, and potential disease.

While HACCP moved the industry in the right direction, foodborne illness is still a problem in the food supply and much more can be done. The politics and dynamics of the food industry and regulatory agencies are harmful to the safety of the food supply, and knowledge needs to be equally distributed and shared across all organizations and with the general public. With the cooperation of all agencies, the food industry, and the general public, each can take

responsibility of preventing foodborne illness and outbreaks, like the 1993 Jack in the Box outbreak, creating a safer food supply.

Resources

- Andrews, James. March 31, 2013. "Publisher's Platform: McDonald's and E. coli, 30 Years Later" Food Safety News. <http://www.foodsafetynews.com/2013/03/publishers-platform-mcdonalds-and-e-coli-30-years-later/#.UVhjXxyG2iw>
- Benedict, Jeff. 2011. *Poisoned: The True Story of the Deadly E. Coli Outbreak That Changed the Way Americans Eat*. Inspire Books.
- Blake, Judith. 1993. "Jack In The Box Poisonings -- Food Safety Standards Higher Here -- Cooking Temperature For Hamburgers Increased To 155 Degrees" *The New York Times*. <http://community.seattletimes.nwsourc.com/archive/?date=19930124&slug=1681583>
- "Broader E. Coli Testing On Hamburger Hits White House Snag : NPR." 2013. *NPR.org*. Accessed March 25. <http://www.npr.org/2011/06/14/137103265/more-burger-tests-good-for-health-but-too-costly>.
- "CDC - 2011 Estimates of Foodborne Illness." 2013. Accessed March 25. <http://www.cdc.gov/foodborneburden/2011-foodborne-estimates.html>.
- "CDC - Home - E. Coli." 2013. Accessed March 30. <http://www.cdc.gov/ecoli/>.
- Center for Disease Prevention and Control (CDC).1993 "Update: Multistate Outbreak of Escherichia coli O157:H7 Infections from Hamburgers -- Western United States, 1992-1993" <http://www.cdc.gov/mmwr/preview/mmwrhtml/00020219.htm>
- "COMPANY NEWS; Jack in the Box's Worst Nightmare - New York Times." 1993 *New York Times*. Accessed March 25, 2013. <http://www.nytimes.com/1993/02/06/business/company-news-jack-in-the-box-s-worst-nightmare.html>.
- Costa, Roy. January 24, 2012. "Is Honesty the Best Policy in Foodborne Illness Investigations?" *Food Safety News* http://www.foodsafetynews.com/2012/01/is-honesty-the-best-policy-in-foodborne-illness-investigations/?utm_source=newsletter&utm_medium=email&utm_campaign=120124#.UX1my7WG2iw
- Dworkin, Dr Mark S. 2010. *Outbreak Investigations Around the World*. Jones & Bartlett Publishers.
- Egan, Timothy. 1993. "Tainted Hamburger Raises Doubt on Meat Safety." *The New York Times*. <http://www.nytimes.com/1993/01/27/us/tainted-hamburger-raises-doubts-on-meat-safety.html>
- FDA. 2009. "Food Code: U.S. Public Health Service" <http://www.fda.gov/downloads/Food/GuidanceRegulation/UCM189448.pdf>

- Food and Agriculture Organization (FAO) 1997. Hazard Analysis And Critical Control Point (HACCP) System And Guidelines For Its Application.
<http://www.fao.org/docrep/005/Y1579E/y1579e03.htm>
- Garrett, Laurie. 2001. *Betrayal of Trust: The Collapse of Global Public Health*. Hyperion.
- Gilmore, Susan. 1993. "Jack In The Box Sues Supplier Of Hamburger Linked To E. Coli." *The Seattle Times*.
<http://community.seattletimes.nwsources.com/archive/?date=19930205&slug=1683884>
- Horsley, Scott. 2011. "More Burger Tests: Good for Health But Too Costly."
<http://www.npr.org/2011/06/14/137103265/more-burger-tests-good-for-health-but-too-costly?ps=cprs>
- Jack in the Box, Inc. 2013 "Food Safety." <http://www.jackintheboxinc.com/responsibility/food-safety>
- Jennings, Marianne M. 2011. *Business Ethics: Case Studies and Selected Readings*. Cengage Learning.
- Marler Clark, Attorneys at Law L.L.P. , P.S. "Jack in the Box E. coli Outbreak Lawsuits- Western States." http://www.marlerclark.com/case_news/view/jack-in-the-box-e-coli-outbreak-western-states
- M. Ellin Doyle, John Archer, Charles W. Kaspar, and Ronald Weiss. "FRI BRIEFINGS: E. coli O157:H7 Human Illness from Food and Non-food Sources" Food Research Institute, University of Wisconsin-Madison
http://fri.wisc.edu/docs/pdf/FRIBrief_EcoliO157H7humanillness.pdf
- Pendergrast, Mark. 2010. *Inside the Outbreaks: The Elite Medical Detectives of the Epidemic Intelligence Service*. Houghton Mifflin Harcourt.
- Pennington, T. Hugh. 2003. *When Food Kills : BSE, E.coli and Disaster Science: BSE, E.coli and Disaster Science*. Oxford University Press.
- Rangel, Josefa M., Phyllis H. Sparling, Collen Crowe, Patricia M. Griffin, and David L. Swerdlow. 2005. "Epidemiology of Escherichia Coli O157:H7 Outbreaks, United States, 1982-2002." *Emerging Infectious Diseases* 11 (4) (April): 603-609.
doi:10.3201/eid1104.040739.
- Riley LW, Remis RS, Helgeson SD, McGee HB, Wells JG, Davis BR, Hebert RJ, Olcott ES, Johnson LM, Hargrett NT, Blake PA, Cohen ML. [Hemorrhagic colitis associated with a rare Escherichia coli serotype.](#)
- Rushing, J.E., D.R. Ward. 2013. "HACCP Principles" North Carolina State University.
<http://www.ces.ncsu.edu/depts/foodsci/ext/pubs/haccpprinciples.html>

Straw, Katherine A. 2011 “Ground Beef Inspections and E. Coli 0157:H7: Placing the Needs of the American Beef Industry Above Concerns for Public Safety.” *Journal of Law & Policy*: Vol. 37:355.

STOP. “History of STOP” Accessed March 30, 2013.
<http://www.stopfoodborneillness.org/content/history-stop>

USDA FSIS. 2010. “HACCP and Pathogen Reduction.”
http://www.fsis.usda.gov/science/hazard_analysis_&_pathogen_reduction/index.asp

Wynne, Brian. 1992. “Misunderstood Misunderstanding: Social Identities and Public Uptake of Science.” UK: IOP Publishing Ltd and the Science Museum.