Conference for Food Protection
2012 Issue Form

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Council Recommendation:	Accepted as Submitted	_____	Accepted as Amended	_____	No Action	_____
Delegate Action:	Accepted	_____	Rejected	_____		

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Title:
Improving Ground Beef Food Safety in Restaurants and Food Service

Issue you would like the Conference to consider:
The Food and Drug Administration's (FDA) Food Code Consumer Advisory provision was implemented to assure that all consumers are informed about the increased risk to especially vulnerable populations of eating raw or undercooked animal foods. The Consumer Advisory is intended to apply to all food establishments where raw or undercooked animal foods or ingredients are sold or served for human consumption in a raw or undercooked form. This includes all types of food establishments whenever there is a reasonable likelihood that the food will be consumed without subsequent, thorough cooking - such as restaurants, raw bars, quick-service operations, carry-outs, and sites where groceries are obtained that have operations such as deli's or seafood departments.
Although a variety of statements regarding this issue are currently standard on restaurant menus, the American Association of Meat Processors (AAMP) believes these statements do not provide a sufficient level of protection against foodborne pathogens at food service and restaurants. The meat industry, regardless of facility size (*e.g.,* very small, small, and large), has worked aggressively to do what they can to prevent this harmful *E. coli* O157:H7 pathogen from contaminating meat products. Meat processors rely on numerous interventions intended to specifically address *E. coli* O157:H7 and other harmful meat-related pathogens. Unfortunately, science and historical data indicates that the meat industry cannot guarantee that all ground beef produced is completely free of the *E. coli* O157:H7 pathogen and/or other non-*E. coli* O157 Shiga Toxin-producing *Escherichia coli* (commonly referred to as non-O157 STECs). See the attachment, *Background Information*, for more details.
Therefore, a risk still exists that consumer may get extremely ill by consuming under-cooked ground beef products. The consumer advisory statement may protect the food service or restaurant establishment from financial liability and/or lawsuits, but does very little to actually protect the consumer. The allowance of such dangerous food preparation practices is in complete opposition to U.S. Department of Agriculture (USDA) and FDA cooking recommendations.
AAMP is currently recommending that changes be made to the FDA Food Code for the Consumer Advisory statement on menus and that proper preparation of ground beef be mandated at the food service and restaurants. Specifically, AAMP recommends:

- Amend the FDA Food Code to add a statement that disallows food service/restaurants from serving undercooked ground beef products to consumers. This change would need to include a minimal cooking temperature for ground beef items (*e.g.*, ground beef, hamburgers, etc.) of 160°F to ensure that it has been properly cooked to eliminate the chances for the potential presence of *E. coli* O157:H7.
- Amend the FDA Food Code to allow ground beef or blade tenderized steaks to be cooked at a temperature lower than 160°F, if, and only if that ground beef or blade tenderized steaks has been irradiated.
- Amend the FDA Food Code to add a statement that disallows food service/restaurants from serving undercooked blade tenderized or moisture enhanced steaks. This change would need to include a minimal cooking temperature for blade tenderized or moisture enhanced steaks of 160°F to ensure that it has been properly cooked to eliminate the chances for the potential presence of *E. coli* O157:H7.

The importance of the change is to help alter the mindset of consumers to avoid consuming undercooked ground beef products, since these products carry increased risk of *E. coli* O157:H7 and other non-O157 STECs. When consumers begin to understand the reasons why they are not able to eat/order an undercooked ground beef patty at the food service and restaurant level, then ideally this understanding of food safety will likely transfer to at-home use of the product. The Consumer Advisory statement in its current form also is somewhat of a release of liability for restaurants, who have not in the past taken the responsibility for properly cooking products served to consumers. Instead, the blame is placed back onto the ground beef processor/supplier. With the current structure of the meat industry and the technology available, many of these ground beef processors/suppliers are simply receiving raw materials to produce ground beef and have very little control on potential *E. coli* O157:H7 contamination. Furthermore, the effectiveness of antimicrobial interventions against *E. coli* O157:H7 at the processors level have limitations.

Public Health Significance:

Escherichia coli O157:H7 (commonly referred to as *E. coli* O157:H7) has been a major concern in the meat industry for decades and has increasing concerns with the development of new processing techniques. *E. coli* O157:H7 has been associated with food since 1982, but *E. coli* O157 is naturally found in the intestinal tract of cattle and in cattle feces. A potential cascade effect of *E. coli* O157:H7 contamination can be seen during the slaughter and production process. *E. coli* O157:H7 in the feces of cattle can be transferred to the hide. The feces on the hide are transferred to the carcasses during the de-hiding process and from the carcass the knives and saws become a vector to transfer *E. coli* O157:H7 onto other cuts of meat. The contaminated cuts of meat are then ground and added to other animal's cuts of meat. This is a possible cascade of events that can lead to massive amounts of ground products contaminated with *E. coli* O157:H7.

E. coli is a common kind of bacteria that lives in the intestines of animals and people, and there are many strains of the pathogen. Most are relatively harmless, but *E. coli* O157:H7 is a strain that produces a powerful toxin that makes those affected very ill. *E. coli* can be found in meat, unpasteurized milk, raw fruits and vegetables, and contaminated water sources. Bloody diarrhea and stomach pain are the most common signs of *E. coli* O157:H7 sickness. Some of the population, especially children under 5 and the elderly, can become

very sick from *E. coli* O157:H7. The infection damages the body's red blood cells and kidneys, and can cause hemolytic uremic syndrome. The Centers for Disease Control and Prevention (CDC) estimates that every year at least 2000 Americans are hospitalized, and about 60 die as a direct result of *E. coli* O157:H7 infections and its complications. A study published in the Journal of Food Protection in 2005 by the Emerging Infections Program FoodNet Working Group, estimated the annual cost of *E. coli* O157:H7 illnesses to be $405 million (in 2003 dollars), which included $370 million for premature deaths, $30 million for medical care, and $5 million for lost productivity. Visit http://www.ncbi.nlm.nih.gov/pubmed/16355834# to view the abstract of the study, Economic Cost of Illness Due to *Escherichia* coli O157 Infections in the United States.

According to the U.S. Department of Agriculture's Food Safety and Inspection Service (USDA/FSIS) data, in 2011 there were 11 *E. coli* recalls of beef products. In 2010, there were 9 *E. coli* O157:H7 recalls of beef products. According to CDC FoodNet data, the illness rate associated with *E. coli* O157:H7 was 0.9 in 2010. Although the incidence of STEC O157 infection has declined to reach the 2010 national health objective target of less than one case per 100,000, this still does not justify the undercooking of potentially harmful products.

USDA/FSIS and the meat industry instituted a testing program for the pathogen that focused on components used in the production of ground beef products as well as end-product sampling programs for ground beef. The goal is to keep contaminated product from reaching consumers and to spur industry focus towards pathogen reduction and HACCP-associated verification programs to reduce the risk of this pathogen in beef products. The USDA/FSIS policy is currently reflected in FSIS Directive 10,010.1. Visit http://www.fsis.usda.gov/OPPDE/rdad/FSISDirectives/10010.1Rev3.pdf to download a copy of the document. This testing is random and sporadic and still allows the potential for contaminated product to reach the consumer.

On September 13, 2011, USDA's Under Secretary for Food Safety, Dr. Elisabeth Hagen, announced that six additional serogroups of pathogenic *E. coli* were declared as adulterants in non-intact raw beef. As a result of this action, if the *E. coli* serogroups O26, O103, O45, O111, O121, and O145 (commonly referred to as non-O157 STECs) are found in raw ground beef or its precursors, those products will be prohibited from entering commerce. FSIS will begin testing for these six serogroups of STEC and enforcing the new policy on March 5, 2012.

Over the past two years, FSIS has announced several new measures to safeguard the food supply, prevent foodborne illness, and improve consumers' knowledge about the food they eat. These initiatives support the three core principles developed by the President's Food Safety Working Group (FSWG). When President Obama came into office, he said that "protecting the safety of our food and drugs is one of the most fundamental responsibilities government has." He pledged to strengthen our food safety laws and to enhance the government's food safety performance. As part of its multi-faceted approach to prevent foodborne illness, USDA also launched Food Safe Families, a consumer education campaign with the Ad Council, the FDA, and the CDC. Changing the Food Code to disallow food service/restaurants to serve undercooked ground beef products to consumers is consistent with the goals of the FSWG and would be another tool to protect public health from *E. coli*.

Ground beef makes up the largest market share of beef consumption in the U.S. Billions of hamburgers are consumed annually. Approximately 26.4 billion pounds of beef was

consumed in 2010, and approximately 50% of this amount was in the form of ground beef. Most Americans buy the product at least two times a week, and ground beef accounts for more than half of all beef sales, as well as a quarter of all the meat sold in North America. Consumers eat about 28 pounds of ground beef annually. Because of the amount of ground beef consumed, the concern over *E. coli* O157:H7 and other non-O157 STECs is taken very seriously by the beef industry, USDA/FSIS, and other stakeholders.

The language amendments recommended in this Issue would be more descriptive of products that are currently recognized by USDA/FSIS as foods that are regularly associated with potential *E. coli* O157:H7 contamination. The Food Code was previously amended to disallow the sale of under cooked ground beef (*i.e.*, comminuted meat) when it is selected from a children's menu. The *E. coli* O157:H7 pathogen is non-discriminatory and can potentially affect all people, regardless of age and immune system.

As the meat industry endeavors to prevent the occurrence of *E. coli* O157:H7 and other pathogen contamination, it is our hope that the food preparers and consumers will continue to practice proper food handling and cooking techniques in their kitchens in an effort to prevent food borne illnesses

AAMP doesn't believe that the recommended 160°F internal product temperature will create an unpalatable product for consumers. The National Cattlemen's Beef Association (NCBA), through funding from Beef Check-off dollars, has also developed an approach to teach the public that through proper cooking methods, beef is safe when cooked to 160°F and is also savory to eat when cooked to that temperature. The promotion attempts to educate the public to not ruin the hamburger by cutting into the hamburgers to check the color, but instead they are encouraged to use a meat thermometer to cook the hamburger to 160°F. NCBA has pointed out that the keys to a *Safe and Savory* hamburger are:

- Cook ground beef to an internal temperature of 160°F.
- Don't use visual appearance to determine doneness of the hamburger. An instant-read meat thermometer is the only way to ensure that the ground beef is cooked to the proper temperature of 160°F. Consumers cannot rely on color and juiciness.
- Check the internal temperature of the hamburger by inserting the meat thermometer into the center of the hamburger.

Because proper cooking is the most uniform method that can guarantee ground beef products are safe from *E. coli* O157:H7, AAMP believes that this change is very important to help improve food safety. It is our hope that this change would also improve consumer education on cooking ground beef, as well as the public's understanding of this pathogen. The change in the Food Code would ensure that all restaurants are required to cook their ground beef products to the proper temperature, and remove one more area of risk from the beef industry's concerns.

The American Association of Meat Processors is recommending that the members of the 2012 Conference for Food Protection support the identified changes of the FDA Food Code that will further help protect consumers from potential *E. coli* O157:H7 and/or non-O157 STEC illness.

Recommended Solution: The Conference recommends...:

that a letter be sent to the FDA requesting the 2009 Food Code (as modified by the Supplement issued in 2011) be amended as follows (new language shown with underline and deleted language shown with strike-through):

1. §3-401.11 (Raw Animal Foods) (D)

A raw animal food such as raw egg, raw fish, raw-marinated fish, raw molluscan shellfish, or steak tartare; or a partially cooked food such as lightly cooked fish, soft cooked eggs, or rare meat other than whole-muscle, intact beef steaks as specified in ¶ (C) of this section, may be served or offered for sale upon consumer request or selection in a ready-to-eat form if:

(1) *As specified under ¶¶ 3-801.11(C)(1) and (2), the food establishment serves a population that is not a highly susceptible population;*

(2) *The food, if served or offered for service by consumer selection from a children's menu, does not contain comminuted meat;* [Pf] *and*

(3) *The consumer is informed as specified under § 3-603.11 that to ensure its safety, the food should be cooked as specified under ¶ (A) or (B) of this section; or*

Revise subparagraph (D)(3) to read as follows:

~~*The* consumer is informed as specified under § 3-603.11 that to ensure its safety, the *food* should be cooked as specified under ¶ (A) or (B) of this section~~ The food, if is beef or contains beef which is comminuted beef meat (*e.g.*, ground beef), blade tenderized beef meat, or moisture-enhanced beef meat; it must be cooked to a minimal internal temperature of 160°F unless the food has been irradiated or guaranteed not to contain *E. coli* O157:H7 or other non-O157 STECs; or

2. §3-603.11 (Consumption of Animal Foods that are Raw, Undercooked, or Not Otherwise Processed to Eliminate Pathogens)

(A) Except as specified in ¶ 3-401.11(C) and Subparagraph 3-401.11(D)(4) and under ¶ 3-801.11(C), if an animal food such as beef, eggs, fish, lamb, milk, pork, poultry, or shellfish is served or sold raw, undercooked, or without otherwise being processed to eliminate pathogens, either in ready-to-eat form or as an ingredient in another ready-to-eat food, the permit holder shall inform consumers of the significantly increased risk of consuming such foods by way of a disclosure and reminder, as specified in ¶¶ (B) and (C) of this section using brochures, deli case or menu advisories, label statements, table tents, placards, or other effective written means. [Pf]

(B) Disclosure shall include:

(1) A description of the animal-derived foods, such as "oysters on the half shell (raw oysters)," "raw-egg Caesar salad," and "hamburgers (can be cooked to order)"; [Pf] or

Revise subparagraph (B)(1) to read as follows:

A description of the animal-derived *foods*, such as "oysters on the half shell (raw oysters)," "raw-*egg* Caesar salad," ~~and "hamburgers (can be cooked to order);"~~or

These amendments would be more descriptive of products that are currently recognized by USDA/FSIS as foods that are regularly associated with potential *E. coli* O157:H7 contamination. The Food Code was previously amended to disallow the sale of under cooked ground beef (*i.e.*, comminuted meat) when it is selected from a children's menu. The *E. coli* O157:H7 pathogen is non-discriminatory and can potentially affect all people, regardless of age and immune system.

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Attachments:

- "Background Information"
- "Microbiological Results of Raw Ground Beef Products for E. coli O157:H7"

It is the policy of the Conference for Food Protection to not accept Issues that would endorse a brand name or a commercial proprietary process.

BACKGROUND

A 1988 outbreak involving precooked patties lead to a rapid FSIS policy change on December 27, 1988. This increased the cooking temperature from 140 to 160°F (60 to 71.1°C). Opposition to the ruling was expressed as the high temperature often resulted in a very dry unpalatable hamburger.

In mid-1992, the USDA published a study and policy that required cooking temperature for hamburgers to 155°F (68.3°C). Although this is a "requirement," undercooked hamburgers can be ordered at food service establishments and restaurants if specifically requested. The FDA changed its policy in the Food Code during the 1993 outbreak to match the USDA recommended cooking temperature.

In 1993, Jack-In-The-Box, an American fast-food restaurant was the focal point of an *E. coli* O157:H7 epidemic in the Northwest of the United States. Hundreds of people were sickened in this outbreak, which resulted from the consumption of undercooked, contaminated ground beef, and four children died. It was the largest and deadliest *E. coli* O157:H7 outbreak in American history up to that time.

This epidemic sparked significant structural changes to how USDA/FSIS conducts inspection activities. FSIS developed the regulatory proposal that became the Pathogen Reduction/Hazard Analysis and Critical Control Point Systems (HACCP) Rule (published as a final rule in 1996). In this rule, FSIS established that its food safety goal was to reduce the risk of foodborne illness associated with the consumption of meat and poultry products to the maximum extent possible by ensuring that appropriate and feasible measures are taken at each step in the food-production process where hazards can enter and where procedures and technologies exist or can be developed to prevent the hazard or reduce the likelihood it will occur. With respect to major enteric pathogens that contaminate meat and poultry products during the slaughter process, FSIS stated in this rulemaking that it believed that the risk of foodborne illness associated with these pathogens is largely avoidable and can be minimized by proper implementation of HACCP. The agency was clear that implementation of HACCP did not mean the absolute elimination of pathogens, but that it did mean preventing and reducing contamination with pathogenic microorganisms to a degree that very substantially reduces and minimizes the risk of foodborne illness.

HACCP is a system that enables the production of safe meat and poultry products through the thorough analysis of production processes, identification of all hazards that are likely to occur in the production establishment, the identification of critical points in the process at which these hazards may be introduced into product and therefore should be controlled, the establishment of critical limits for control at those points, the verification of these prescribed steps, and the methods by which the processing establishment and the regulatory authority can monitor how well process control through the HACCP plan is working.

Before the January 1993 Jack-In-The-Box outbreak in the Pacific Northwest, *E. coli* O157:H7 and related strains were considered by many to be relatively rare. During the outbreak the FDA increased its recommended cook temperature from 140°F to 155°F. Through the years, the federal government has recognized the danger of *E. coli* O157:H7, and has accordingly instituted specific policies regarding this pathogen. In 1993, USDA/FSIS implemented a "zero tolerance" policy for fecal contamination on beef carcass and it was strictly enforced. The USDA/FSIS declared *E. coli* O157:H7 an adulterant in ground beef under federal law in 1994. According to the International Commission on Microbiological Specification for Foods (Book 7 - 2002), no feasible sampling plan can ensure complete absence of a pathogen. It cannot be guaranteed that the lot is completely free of the organism, no matter how large the number of sample units.

The decision was then made in January, 1999 that the presence of *E. coli* O157:H7 would adulterate not just ground beef, but any non-intact product or intact product intended for use as a non-intact product. In February 1999, the USDA approved irradiation in red meats as a means of controlling *E. coli* O157:H7 and other pathogens. Currently, consumers are recommended to cook hamburgers to 160°F as measured by a thermometer.

Escherichia coli O157:H7 commonly referred to as *E. coli* O157:H7 has been a major concern in the meat industry for decades and has increasing concerns with the development of new processing techniques. *E. coli* O157:H7 has been associated with food since 1982, but *E. coli* O157 is naturally found in the intestinal tract of cattle and in cattle feces. A cascade effect of *E. coli* O157:H7 can be seen during the slaughter and production process. *E. coli* O157:H7 in the feces of cattle can be transferred to the hide. The feces on the hide are transferred to the carcasses during the de-hiding process and from the carcass the knives and saws become a vector to transfer *E. coli* O157:H7 onto other cuts of meat. The contaminated cuts of meat are then ground and added to other animal's cuts of meat. This is a possible cascade of events that can lead to massive amounts of ground products contaminated with *E. coli* O157:H7.

E. coli is a common kind of bacteria that lives in the intestines of animals and people, and there are many strains of the pathogen. Most are relatively harmless, but *E. coli* O157:H7 is a strain that produces a powerful toxin that makes those affected very ill. *E. coli* can be found in meat, unpasteurized milk, raw fruits and vegetables, and contaminated water sources. Bloody diarrhea and stomach pain are the most common signs of *E. coli* O157:H7 sickness. Some of the population, especially children under 5 and the elderly, can become very sick from *E. coli* O157:H7. The infection damages the body's red blood cells and kidneys, and can cause hemolytic uremic syndrome. The Centers for Disease Control and Prevention (CDC) estimates that every year at least 2000 Americans are hospitalized, and about 60 die as a direct result of *E. coli* O157:H7 infections and its complications. A study conducted in 2005 estimated the annual cost of *E. coli* O157:H7 illnesses to be $405 million (in 2003 dollars), which included $370 million for premature deaths, $30 million for medical care, and $5 million for lost productivity.

According to FSIS data, in 2007 there were 20 *E. coli* recalls, 10 of which were related to human illnesses. In 2008, however, there were 15 *E. coli* O157:H7 recalls, with five human illness related. Indeed, according to Centers for Disease Control's (CDC) FoodNet data, the illness rate associated with *E. coli* O157:H7 went from 1.2 in 2007 to 1.12 in 2008.

USDA/FSIS and the meat industry instituted a testing program for the pathogen that focused on components used in the production of ground beef products as well as end-product sampling programs for ground beef. The goal is to keep contaminated product from reaching consumers and to spur industry focus towards pathogen reduction and HACCP-associated verification programs to reduce the risk of this pathogen in beef products. The USDA/FSIS policy is currently reflected in FSIS Directive 10,010.1. This testing is random and sporadic and still allows the potential for contaminated product to reach the consumer.

On September 13, 2011, USDA's Under Secretary for Food Safety, Dr. Elisabeth Hagen, announced that six additional serogroups of pathogenic *E. coli* were declared as adulterants in non-intact raw beef. As a result of this action, if the *E. coli* serogroups O26, O103, O45, O111, O121, and O145 (commonly referred to as non-O157 STECs) are found in raw ground beef or its precursors, those products will be prohibited from entering commerce. FSIS will begin testing for these six serogroups of STEC and enforcing the new policy on March 5, 2012.

Ground beef makes up the largest market share of beef consumption in the U.S. Billions of hamburgers are consumed annually. Approximately 28.1 billion pounds of beef was consumed in 2007, and approximately 50% of this amount was in the form of ground beef. Most Americans buy the product at least two times a week, and ground beef accounts for more than half of all beef sales, as well as a quarter of all the meat sold in North America. Consumers eat about 28 pounds of ground beef annually. Because of the amount of ground beef consumed, the concern over *E. coli* O157:H7 is taken very seriously by the beef industry, USDA/FSIS, and other stakeholders.

Microbiological Results of Raw Ground Beef Products Analyzed for *Escherichia coli* O157:H7

The table below displays the microbiological results of raw ground beef products analyzed for *E. coli* O157:H7 since 1994. As the data represents, although the amount of positive samples compared to the amount of samples is relatively low, *E. coli* O157:H7 contamination of ground beef still occurs. Furthermore, not all contamination is discovered through USDA/FSIS and/or establishment product testing because it is not possible to test all ground beef products. Therefore, there still remains a level of risk that *E. coli* O157:H7 contamination may still reach the consumer, food service outlet, and/or restaurant.

Year		Federal Inspected Establishments	State Inspected Establishments	Retail Exempt Establishments
1994	Samples Analyzed	293	10	588
	Positive Samples	0	0	0
1995	Samples Analyzed	1,459	29	2,787
	Positive Samples	2	0	1
1996	Samples Analyzed	1,459	44	3,972
	Positive Samples	1	0	3
1997	Samples Analyzed	1,120	8	4,849
	Positive Samples	2	0	1
1998	Samples Analyzed	4,281	55	3,731
	Positive Samples	12	0	2
1999	Samples Analyzed	4,514	43	3,212
	Positive Samples	21	0	11
2000	Samples Analyzed	5,020	50	1,292
	Positive Samples	36	1	17
2001	Samples Analyzed	5,514	27	1,463
	Positive Samples	48	0	11
2002	Samples Analyzed	5,745	39	1,240
	Positive Samples	42	0	13
2003	Samples Analyzed	5,735	39	779
	Positive Samples	20	0	0

Year		Federal Inspected Establishments	State Inspected Establishments	Retail Exempt Establishments
2004	Samples Analyzed	7,683	0	311
	Positive Samples	14	0	0
2005	Samples Analyzed	10,866	0	95
	Positive Samples	18	0	0
2006	Samples Analyzed	11,626	0	133
	Positive Samples	20	0	0
2007	Samples Analyzed	12,046	0	184
	Positive Samples	29	0	0
2008	Samples Analyzed	11,230	0	362
	Positive Samples	53	0	0
2009	Samples Analyzed	12,070	0	631
	Positive Samples	36	0	2
2010*	Samples Analyzed	11,616	0	906
	Positive Samples	29	0	0

* In Quarter 3 (weeks of Aug 5 through Sep 2) approximately 1,100 fewer sample forms were sent out than were scheduled.

Note: No data is available on non-O157 STECs because it was only declared as an adulterant by USDA/FSIS on September 13, 2011, and microbiological testing at USDA/FSIS inspected establishments will not begin until March 5, 2012.