

Training of Food Handlers

An essential prerequisite of any food safety management system is adequate staff training. Processors are required by law to ensure that staff who handle food are supervised and instructed and/or trained in food hygiene matters commensurate with their work activities.

All staff working in a food business should be given a basic level of formal hygiene training. There should be a continual process of food safety education in the workplace. *Guide to Food Safety Training Level 1 – Induction Skills and Level 2 – Additional Skills*, are now available from the FSAI.

Exclusion from Work of Infected Staff

Staff should stay at home if they have acute diarrhoea and in particular, if *E. coli* O157 infection has been diagnosed.

If a case occurs in the workplace, management should seek advice from the local health board.

Spread of Infection

Food handlers can spread the infection by:

1. Handling contaminated food and then other food that will not be further processed without washing hands
2. Using the same utensils for raw meat and other foods
3. Insufficient cooking
4. Using unchlorinated water in food production
5. Attending work while infected
6. Poor personal hygiene.

Specific Guidance for Meat Processors

Minced meat and minced meat products are a major source of *E. coli* O157. The bacterium, if present, will normally be on the external surfaces of whole joints but during mincing it is redistributed throughout the product. Similarly, rolled joints where the meat surface is turned inside means that any surface bacteria become distributed to the centre of the joint where they are more difficult to kill. The risk of *E. coli* O157 multiplying in minced meat can be reduced by the following precautions:

- Meat should be kept below 2°C.
- Room temperatures in processing areas should be kept below 12°C.
- Processors should adopt a food safety management system based on the principles of HACCP.
- Mincing equipment should be regularly cleaned and sanitised.

The E.C. (Minced Meat and Meat Preparations) Regulations, 1996 (S.I. No. 243 of 1996) require processors to withdraw batches of product in the event of a human health risk from a suspect meat source. To enable these obligations to be met, processors should label discrete batches or lots of minced meat with a batch number. Correct identification may minimise the quantity of product recalled and will speed up the recall process thereby protecting consumers.

To further protect and inform consumers, processors should label minced meat and minced meat products with clear instructions:

- This product may contain harmful bacteria
- Instructions on handling to prevent cross contamination
- Instructions for correct cooking, “*Minced meat and minced meat products should be thoroughly cooked until the juices run clear and no pink meat remains*”.

Human Infection

People can become infected with *E. coli* O157 by:

1. Coming into direct contact with livestock or livestock faeces
2. Drinking contaminated water or eating uncooked fruit and vegetables grown or washed using contaminated water
3. Eating contaminated food
4. Coming into contact with the faeces of an infected person, most commonly small infants or frail people where personal hygiene practices may be inadequate.

Leaflets in the *E. coli* O157 series available from the Food Safety Authority of Ireland include: Reducing the Risk on the Farm; Preventing the Spread of Infection in the Abattoir; Preventing the Spread of Infection in the Food Factory; Preventing the Spread of Infection in Catering and Retailing; Protecting Yourself and Your Family; Protecting Vulnerable Groups.

Food Safety Authority of Ireland
Abbey Court, Lower Abbey Street,
Dublin 1

Advice Line: 1890 336677
Telephone: +353 1 817 1300
Facsimile: +353 1 817 1301
E-mail: info@fsai.ie
Website: www.fsai.ie

© 2002 FSAI: F499-E3



E. coli O157 Can Kill

Escherichia coli (*E. coli*) is the name given to a large family of bacteria commonly found in the gut of humans and animals. The majority of *E. coli* are harmless however, some types can cause illness. One particular type, known as *E. coli* O157 may cause serious illness in humans ranging from diarrhoea to kidney failure. Up to 30% of people infected with *E. coli* O157 can develop kidney failure and 3-5% of these people die.

Human infection has been increasing worldwide since the early 1980s. In 1996 Scotland had a large outbreak that affected over 500 people and 21 people died.

The table below outlines the number of cases of VTEC O157 in Ireland from 1996-2000

| Year | Number of reported cases |
|------|--------------------------|
| 1996 | 8 |
| 1997 | 31 |
| 1998 | 76 |
| 1999 | 51 |
| 2000 | 35 (41)* |

* 41 cases notified but 6 of which occurred in non Irish nationals

Low Infectious Dose

Normally, it takes hundreds if not thousands of germs to make someone ill. Unfortunately, with *E. coli* O157, the number required may be as little as 10 so even a small number of germs can cause serious illness, particularly in the young, the elderly and those already suffering from other diseases.

Infection Reservoir

E. coli O157 is commonly found in the gut of healthy livestock and it is not currently feasible to eliminate it. It may also be present in unchlorinated water supplies or in contaminated ready-to-eat food. *E. coli* O157 can be passed from person to person.

This makes it so important to pay attention to food safety and hygiene at all stages of food production and preparation if foodborne illness is to be prevented.

Foods Implicated in Outbreaks

Foods implicated or suspected of being associated with *E. coli* O157 outbreaks

| Meat and Meat Products | Fruit and Vegetables | Dairy Products |
|------------------------|-----------------------------|--------------------|
| Minced meat | Bean sprouts | Unpasteurised milk |
| Beef burgers | Lettuce | Cheese |
| Dry salami | Apple juice (unpasteurised) | Yoghurt |
| Roast beef | | |
| Turkey roll | Potatoes | |

A wide range of foods from different sectors of the food industry are potential sources of *E. coli* O157. The bacterium is a threat to consumers' health and consequently to the food industry as a whole. Everyone in the food industry and consumers must be involved in the reduction of the risk of infection.

Shared Responsibility

Because of the seriousness of the disease, steps must be taken to reduce the risks of *E. coli* O157 infection throughout the food chain: from farm to fork.

Farmers, processors, distributors, retailers, caterers and consumers all have their part to play. All share the responsibility to minimise the risks.

Control Measures for Food Factories

Since it is not possible to eliminate *E. coli* O157 from raw meat and vegetables at present it may find its way into the food factory. Processors should assume it is present and must employ a strategy whereby the bacterium is not allowed to multiply and where possible, employ a processing method to kill it. They should do this within a framework of a formal food safety management system.

Up to 30% of people infected with *E. coli* O157 can develop kidney failure and 3-5% of these people die

HACCP

By law, food businesses must have a food safety management system based on the principles of Hazard Analysis Critical Control Points (HACCP). The standard - *Food Safety Management Incorporating HACCP (I.S. 343:2000)* is available from the National Standards Authority of Ireland (NSAI) to help fulfil this obligation. Within this system, processors should pay particular attention to the following control measures designed to reduce the risk of *E. coli* O157 infection:

- Prevention of cross contamination between raw and ready-to-eat foods
- Effective heat treatment of food
- Careful management of food storage conditions such that hot food is kept hot (generally above 63°C) and cold food is kept cold (generally below 5°C) .

Prevention of Cross Contamination

E. coli O157 can be passed from raw food to cooked and ready-to-eat foods. Because consumers may not heat these foods before consumption they may be at risk from infection. Cross contamination can be prevented by taking the following steps:

- Physically separate raw and cooked or ready-to-eat foods at all times during processing, storage and distribution
- Where this is not possible, the handling of raw and cooked or ready-to-eat foods should be separated in time and by a thorough and adequate cleaning protocol
- Staff must wash their hands thoroughly between handling raw and cooked or ready-to-eat foods.

Adequate cooking kills this germ

Effective Heat Treatment

Cooking should ensure that the centre of the food is heated to at least a temperature of 70°C for 2 minutes or an equivalent time/temperature process. This will kill any *E. coli* O157 that may be present. Effective heat treatment involves both a time and a temperature element. Equivalent cooking processes could involve lower temperatures for longer times or higher temperatures for shorter times. Expert guidance should be sought when calculating equivalent cooking processes.

Processing equipment that uses microwaves may not heat food evenly and processors must take care to avoid 'cold spots'. Unlike food heated in conventional ovens, the centre may not necessarily be the coldest part for measurements used to confirm application of the correct cooking time and temperature.

Good Hygiene Practice

Good hygiene practice regarding the safe preparation, storage and distribution of food is essential to minimise the risk of *E. coli* O157 infection. HACCP does not replace good hygiene practice; rather it adds an extra layer of safety by specifically targeting the points critical to ensuring the production of safe food. In fact HACCP will not be effective unless good hygiene practice is in place. The following standards on hygiene practice are available from the NSAI - I.S. 3219: 1990 is a code of practice for hygiene in the food and drink manufacturing industry generally, while I.S. 342:1997 gives direction specifically on the requirements to comply with the European Communities (Hygiene of Foodstuffs) Regulations, 2000 (S.I. No. 165 of 2000).