

Training of Food Handlers

An essential prerequisite of any food safety 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. For more details, see FSAI Guides on Food Safety Training.

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 Service Executive area.*

Specific Guidance

Meat products

Minced meat and minced meat products are a major source of *E. coli* O157. A survey conducted by the FSAI revealed that 3% of raw minced meat and burgers were contaminated with *E. coli* O157. The bacterium is usually associated with 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.

*Formerly known as the health board.

To protect and inform consumers, processors and retailers should label minced meat and minced meat products with clear cooking instructions: "*Minced meat and minced meat products should be thoroughly cooked until the juices run clear and no pink meat remains*".

Dairy products

A number of *E. coli* O157 outbreaks have been traced to the consumption of raw milk and raw milk products. Unpasteurised milk products, such as "farmhouse cheeses" should be clearly labelled as such, indicating to vulnerable groups the risk of *E. coli* O157 infection associated with the consumption of such products.

Fruit and vegetables

Crops that have been grown using uncomposted manure as a fertiliser or irrigated with faecal contaminated water pose a risk. All fruit and vegetables to be eaten raw should be washed in potable (chlorinated) water.

E. coli O157 can also penetrate damaged lettuce plants. Damaged leaves should always be discarded.

Water

If not on a mains supply (chlorinated), get water quality checked on a regular basis.

Spread of Infection

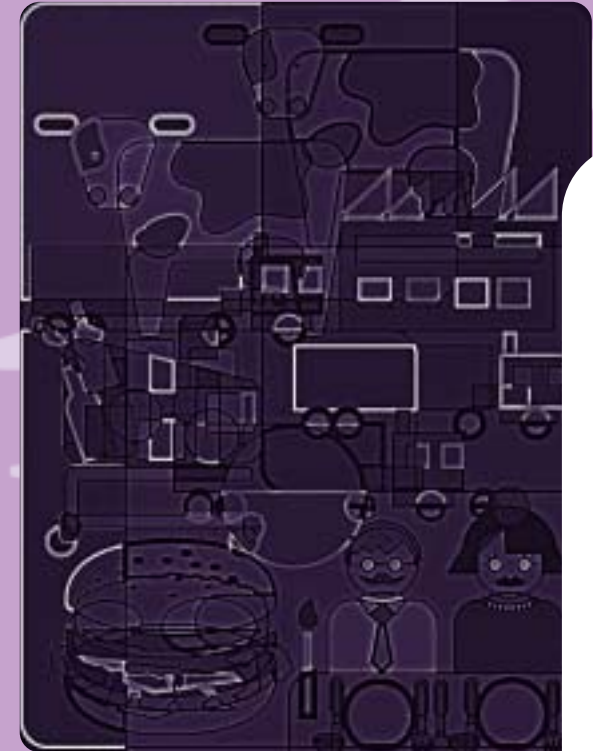
Food handlers can spread the infection by:

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 preparation
5. Attending work while infected
6. Poor personal hygiene.

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.

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

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. While the majority of *E. coli* are harmless, 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 and even death.

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. Here in Ireland the number of reported cases is on average 50 per year.

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.

Reservoir of Infection

E. coli O157 is commonly found in the gut of healthy livestock and can be shed in their faeces. 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 that attention is paid 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 handling food, at any point in the food chain, needs to play their part in ensuring *E. coli* O157 is kept out of food where possible and is removed or destroyed from foods that are likely to be contaminated.

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 Retailers and Caterers

Since it is not possible to eliminate *E. coli* O157 from raw meat and vegetables at present it **will** find its way into the shop or catering outlet. Managers 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.

By law, food businesses must have a food safety management system based on the principles of HACCP (Hazard Analysis Critical Control Point). A series of booklets outlining HACCP – what it is, how to get started, explaining the terminology and a guide specifically for caterers – are available from the Food Safety Authority of Ireland (FSAI). The National Standards Authority of Ireland (NSAI) has a series of guides to good hygiene practice: I.S. 340 for caterers and I.S. 341 for retailers. In addition, the NSAI guide I.S. 343 outlines a general food safety management system incorporating HACCP.

Within this system, food handlers 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
- Temperature control - cooking and storing
- Food hygiene training.

Prevention of Cross Contamination

E. coli O157 can be passed from raw food to cooked and ready to-eat-food. Cross contamination can be prevented by taking the following steps:

- Physically separate raw and cooked or ready-to-eat foods at all times during handling, storage and display
- 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

Temperature Control

Cooking

Cooking should ensure that the thickest part of the food is heated to at least 75°C or equivalent, e.g. 70°C for 2 minutes. Processing equipment that use 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.

Storage

- Pre-cooked food which has been reheated should be held at a temperature greater than 63°C, especially where the food is to be stored for more than 2 hours.
- Chill-held food should be stored at less than 5°C (2°C for minced meat). Chilling does not kill *E. coli* O157, so food should not be returned to chill storage if it has been above 5°C for some time.
- Rapid cooling of food to chill temperatures is essential.