

## **Contamination**

*Listeria monocytogenes* (Lm) is commonly associated with the environment, including water, soil, raw foods, equipment, pests and humans. Since Lm is present in many environments it is extremely difficult to eliminate completely in food establishments. Employees, and incoming raw materials or products may easily reintroduce the bacteria into the food establishment. Unclean equipment, and poor sanitation can result in the transfer of Lm onto Ready to Eat (RTE) foods. The widespread nature of this organism mandates a systematic approach for control.

### **Preventing Cross Contamination of RTE Foods by Raw Foods**

Ensuring complete separation of raw and RTE foods throughout all areas of receiving, storage, preparation, display and service is ideal for preventing contamination.

If space is limited, where raw and RTE foods are kept in the same area, separation can be achieved by using sufficient physical space, physical divider, or different production times for raw and RTE food items with a complete cleaning and sanitizing in between, or storing raw foods below RTE foods.

Color-coding of cutting boards, handles on knives, tongs and utensils can be a useful visual reminder for keeping food contact surfaces that touch raw foods separate from those that touch RTE foods.

### **Preventing Contamination of RTE Foods From Other Sources**

Food and packaging material must be protected from contamination during storage and display. Store food and food packaging material in a clean, dry location protected from overhead contamination. These items must be stored at least six inches above the floor on shelves, racks, pallets, or other means to avoid moisture absorption and to facilitate cleaning and pest control.

Food or food packaging material should not be stored below dripping or leaking condensate.

Pallets, boxes, shipping containers or other items from outside the food establishment should not be brought directly into RTE food preparation areas, since they may be a source of Lm contamination.

Foot traffic into food preparation areas should also be controlled, since shoes might be a source of Lm contamination. Do not allow maintenance personnel, sales people, customers, visitors, or other unauthorized individuals into areas where RTE food is being prepared unless they have followed proper preventative procedures.

Maintenance personnel clothing, tools and equipment such as ladders can also be a source of contamination. Therefore, their access into food preparation areas must be limited. Food and food packaging materials must be removed or otherwise protected during any necessary maintenance activities. Food processing equipment that may have been

contaminated during any maintenance activities must be cleaned and sanitized prior to use. Whenever possible, defective equipment should not be repaired in a food preparation area.

Garnishes may also be a source of contamination. To reduce this risk, fresh garnishes should be thoroughly washed if they come in contact with RTE foods and replaced regularly. Plastic garnishes should be cleaned and sanitized between uses.

Minimize adding to or topping off RTE foods while on display. If this is not possible, a system should be in place to ensure a complete break in the cycle of commingling RTE products. The timeframe should be 7 days or less from the time the first RTE was prepared and placed out on display. The temperature of the commingled RTE product must be kept at 41°F or below.

Wet cleaning and sanitizing should only take place after all exposed food and packaging products have been removed from the area or covered to protect them from splash contamination.

When it is necessary to temporarily retain product determined to be unsaleable for any reason, it should be segregated in a designated area (morgue) separate from saleable food items. Unsaleable products may include food items that are being returned to the distributor, food items that are out of code, or food items that are damaged or spoiled.

### **Employee Practices to Prevent Lm Contamination**

Lm can enter the food establishment on employee's clothing, including shoes, and contaminate food through poor food safety practices. A very important factor in limiting the risk of Lm contamination is ensuring employees are trained and knowledgeable about the sources of contamination and practices that can minimize or prevent problems. Employees should be aware of the severity of listeriosis and the potential damaging impact it could have on the establishment and its customers.

A written employee health and personal hygiene policy should be established. Refer to the FDA Food Code for specific requirements. Employees must be trained on proper hand washing, glove usage and other associated risks related to Lm.

An adequate number of hand washing sinks including a supply of soap and paper towels must be available and conveniently accessible to all employees in food preparation areas and restrooms. If used, nailbrushes should be cleaned and sanitized regularly.

Employees should avoid direct bare hand contact with any RTE foods. Single-service gloves, or cleaned and sanitized utensils, such as tongs, spoons or ladles should be used whenever possible.

Gloves should be changed and discarded and hands washed every time the employee changes tasks or the gloves become soiled or contaminated. Gloves are never a substitute for proper hand washing.

Because employees clothing might get contaminated with Lm, consideration should be given to having employees wear aprons or smocks in RTE areas. Prior to leaving food preparation areas, such as leaving for breaks, eating meals or visiting toilet facilities, employees should remove aprons and smocks.

Traffic flow of employees into and out of RTE food preparation areas should be limited where possible to prevent the introduction or spread of Lm. When movement within the RTE food area is necessary, appropriate precautions must be taken, e.g., change of outer clothing and immediate hand washing.