FOOD SAFETY ISSUES FOR HANDLING & PROCESSING OF DAIRY FOODS

Pathogenic E.coli

Background
The general term for lactose fermenting gram-negative rods that inhabits the intestinal tract of man and other animals. Coliform infections are usually not contagious and are due to unsanitary environmental conditions. Common coliform bacteria include: Escherichia, Klebsiella, Enterobacter, Citrobacter and may include Serratia, Enterobacter aerogenes, K. pneumoniae and Edwardsiella. Coliforms are normally free-living saprophytes and may be found in many areas of the environment including in soil, on plants, wood, leather, etc.

What is Escherichia coli
A major bacterial food pathogen – Escherichia (E.) coli are bacteria commonly found in the gastrointestinal tract of people and animals. The presence of E. coli along with many other kinds of bacteria within our intestines, are necessary for normal bowel operation and general health. There are many different strains of E. coli, microbiologists classify into more than 170 serogroup & within each serogroup there are one or more serotypes. The serotype 0157:H7 has been isolated and firmly associated with foodborne illness and outbreaks of haemorrhagic colitis and haemolytic uremic syndrome (HUS). The 0157:H7 serotype has been designated as enterohaemorrhagic E. coli (EHEC). Some types of E. coli can produce toxins, these are called ‘Shiga toxigenic E. coli (STEC) a strain of an STEC E. coli is 0157.

Consumption of food containing certain species of E. coli may lead to the development of disease. The 0157:H7 serotype toxin can damage the lining of your intestines and cause other symptoms including; low-grade fever, nausea/vomiting, severe abdominal cramps, watery and bloody diarrhea, & fatigue.

Symptoms usually appear within 2 to 5 days after you eat contaminated food or drink and may last for 8-10 days. Most people recover completely from the disease however, those most at risk & susceptible are the elderly, pregnant women & those with poorly functioning immune systems. In extreme examples (blood infection) septicemia, (the very young can also suffer meningitis) & kidney failure due to (HUS) which can occur, which can result in life-long health care complications (high blood pressure, paralysis, seizures & blindness) & death.

Where does it come from?
E. coli can be found in a variety of foods and liquids; undercooked or raw meats, salami, alfalfa sprouts, lettuce, spinach, unpasteurised milk & dairy products, apple juice, (non-potable) water and post-pasteurisation contamination.

Escherichia coli can be spread by direct contact with an infected food handler, product or food preparation surface. E. coli can also be spread by poor handling, operational & staff hygiene practices with contaminated utensils & non-potable water.
(Dairy) Food manufacturing contamination issues

- Cross contamination & premises hygiene
- Poor handling & personal hygiene practices
- Heat treatment being inadequate
- Employee & visitor hygiene & sickness
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- Pests & waste management
- Cracks and crevices in equipment
- Handling of surface ripened cheeses when turning and surface smearing
- Contaminated brine
- Re-work & reprocessing

Effective means of control

- Staff induction, training & basic hygiene instruction for food handlers
- Effective cleaning & verification (swabbing)
- Effective pasteurisation & control of post pasteurisation contamination risks
- Isolate raw milk and no cross connections to finished product e.g. C.I.P. (cleaning in place)
- Control of entry & storage of ingredients
- Finished product testing (including new product/process trialling)
- Premises & equipment maintenance
- Control & limit entry of visitors / tanker drivers & forklifts
- Isolate receival area and personnel from processing and packing activities

Information Sources:

- NSW Food Authority - Fact Sheet (Pathogenic E. coli), Centers for Disease Control and Prevention: www.cdc.gov
- Royal Children’s Hospital (Victoria) www.rch.org.au
- National Institute of Allergy and infectious Disease: www3.niaid.nih.gov