

# ***Fighting Listeria*** *in a food processing facility*

## **Introduction**

Since entering the consciousness of public health authorities and consumers in the 1980s, *Listeria monocytogenes* has befuddled and bedeviled processors across the food industry. While refrigeration temperatures can stymie the growth of many disease causing organisms, *L. monocytogenes* – a bacteria which is widespread throughout nature – can thrive in the wet and cold conditions found in ready-to-eat (RTE) processing facilities.

Historically, *L. monocytogenes* has been associated with a long list of products including raw milk, cheeses (particularly soft-ripened varieties), ice cream, raw vegetables, fermented raw-meat sausages, raw and cooked poultry, raw meats (all types), and raw and smoked fish. (1). In more recent times, *L. monocytogenes* contamination has been documented in a diverse range of products such as frozen fruits and vegetables, walnuts, hard boiled eggs, and hummus. *L. monocytogenes* causes nearly 1,600 illnesses annually in the United States and is responsible for more than 1,400 hospitalizations and 250 deaths (2).

The frequency of outbreaks associated with *L. monocytogenes* pales in comparison with other prevalent pathogens, such as *Salmonella* and *Clostridium perfringens*. At the same time, however, the high hospitalization and mortality rates (estimated at 90% and 20%, respectively) for listeriosis rouses serious health concerns when an occurrence is identified. Multiple research studies have shown that *Listeria* infection is particularly risky for pregnant women and unborn fetuses (2).

## **Getting Strong Now**

Like Rocky Balboa, the never say quit heavyweight boxing champion of Hollywood movie lore, food processors must exercise abundant amounts of grit, guile and tenacity in their constant and non-stop fight against *Listeria*. *L. monocytogenes* enters the food processing environment through raw materials, incoming air, people and a variety of other sources. Due to its ubiquity, hardiness, and uncanny ability to adapt to its surroundings, it is virtually impossible to deliver a knockout blow to this bad bug. This stark reality is exacerbated by the knowledge that *Listeria* can produce biofilms and proliferate in hard-to-reach niches in processing facilities. Control, however, is possible through a science-based *Listeria* management program.

## **Go the Distance**

From utilizing listericidals to conducting finished product testing, a host of industry guidance documents, such as the Food and Drug Administration's "Control of *Listeria monocytogenes* in RTE Food: Guidance for Industry," outlines a comprehensive roadmap for building an effective management program (3). The following section summarizes a quartet of those all-important aspects.

- **Cleaning and Sanitizing Programs:** Processors must create an inhospitable environment for *Listeria* through rigorous and regularly scheduled programs. Sanitation must encompass three distinct elements: 1) The effective removal of soil from product contact surfaces, non-product surfaces, and other identified reservoirs of concern; 2) An effective rinse step; and 3) Proper application of an EPA-approved sanitizing agent in accordance with proper contact time, concentration and temperature directions (4). Processors must utilize sanitizers in concert with manufacturer's instructions and be cognizant of the fact that effective sanitization cannot be achieved without thorough cleaning and rinsing.

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- **Equipment Design and Inspection:** Hard-to-clean areas on and inside food processing equipment can foster the accumulation of water and food debris resulting in *Listeria* colonization and growth (5). Well-designed hygienic equipment, such as clean-in-place (CIP) technology, can significantly minimize contamination risks. Even with this cutting-edge machinery, food processors should regularly strip down equipment and deep clean areas that are difficult to reach (e.g., slicers and hollow sealed rollers) during daily cleaning. Quality assurance professionals should conduct a risk assessment to determine the frequency of deep cleaning.
- **Industry Best Practices:** Controlling cross-contamination is an integral part of *Listeria* control initiatives. Through GMPs and employee training, it is important to impress on employees that adhering to defined personnel practices (e.g., good personal hygiene) and production practices (e.g., designated traffic patterns) can significantly reduce cross-contamination in facilities. Researchers have reported that recontamination from the processing environment is the principal source of *Listeria* contamination in RTE foods (6).
- **Environmental Monitoring Programs:** Under the FDA's Food Safety Modernization Act (FSMA), food production and processing facilities are required to have environmental monitoring programs in place as part of their preventive controls. Frequent and strategic sampling of the processing environment is necessary to establish that cleaning and sanitation procedures, as well as other *Listeria* control initiatives, are performing as intended.

## Unanimous Decision

As a result of its complexity, fighting *Listeria* in the processing plant can be both challenging and confusing. When faced with such a formidable foe, industry stakeholders unanimously agree that processors do not need to climb into the boxing ring with one arm tied behind their back. By forging partnerships with reputable food safety and sanitation experts, such as Best Sanitizers, processors can gain the vital assistance they need to strengthen and sustain their *L. monocytogenes* management programs.

[Best Sanitizers, Inc.](http://www.bestsanitizers.com) provides Alpet® sanitizing hand soaps, hand sanitizers and surface sanitizers to help control the growth of *L. monocytogenes* in processing facilities. As the first company to achieve an E3 rating for an alcohol-based hand sanitizer and a D2 rating for an alcohol/quat-based surface sanitizer, we're committed to delivering innovative solutions to our customers and partners. Visit [www.bestsanitizers.com](http://www.bestsanitizers.com) to learn more about our complete portfolio of products and support services.

### Sources:

1. <https://www.foodsafetymagazine.com/magazine-archive1/junejuly-2013/the-burden-of-listeriosis/>
2. Scallan, E., R.M. Hoekstra, F.J. Angulo, R.V. Tauxe, M.A. Widdowson, S.L. Roy, J.L. Jones and P.M. Griffin. 2011. Foodborne illness acquired in the United States - Major pathogens. *Emerg Infect Dis* 17:7-15.
3. [www.fda.gov/downloads/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/UCM535981.pdf](http://www.fda.gov/downloads/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/UCM535981.pdf)
4. <http://www.foodprotect.org/media/guide/2006CFPLmInterventionvoluntaryguidelines.pdf>
5. [www.foodprotect.org/media/site/january-2016-cfp-lm-document-v3.pdf](http://www.foodprotect.org/media/site/january-2016-cfp-lm-document-v3.pdf)
6. [www.fsis.usda.gov/wps/wcm/connect/48912709-a74f-420d-a74a-1eca58ea2329/Seminar\\_Detecting\\_Sources\\_of\\_LM.pdf?MOD=AJPERES](http://www.fsis.usda.gov/wps/wcm/connect/48912709-a74f-420d-a74a-1eca58ea2329/Seminar_Detecting_Sources_of_LM.pdf?MOD=AJPERES)



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