

Insights

Issue 1: March 2022

A look at *Listeriosis*

Welcome to the first edition of LGC ASSURE Insights, a free digital newsletter to support your food safety management journey.

LGC ASSURE Insights is different from other news sources as it combines otherwise unpublished food safety management data held across the LGC ASSURE Network of companies with real-time events to provide an unparalleled view of current and emerging issues and trends. And, of course, it is free.

As the independent Editor of LGC ASSURE Insights, and someone who has managed food safety and quality for over 30 years, I know how important it is to be able to access the facts in the here and now whilst also having available the information sources to support more detailed, strategic food safety management programmes.

Enjoy this first edition and I look forward to sharing my thoughts on the events that are shaping our world of food safety management be that in factories,

So this is what you're going to get from LGC ASSURE Insights:

- Issues and incidents - a snapshot of what's happening around the world
- Food safety trends - analytical and assurance databases will be mined to give you insight into the management of current and emerging hazards
- Tools and tips - links to products and services that can support your food safety management needs
- Much more - this is just a flavour of what we have planned for you in the months ahead and we will be building in new features as we hear from you about what you are finding helpful and what more we can provide you with.



laboratories, academia and the many more industries and professions that belong to the broad food safety management family.

A Look at *Listeria*

There is certainly no shortage of material for this month's edition; *Salmonella* spp. in [pork scratchings](#), [feeder mice](#), [chicken nuggets](#) and [raw pastry](#); *E. coli* O157 in [Kimchi](#); lead in [plums](#); metal in [cream puffs](#) and [yogurt](#); and the numerous recalls associated with undeclared allergens in foods ([protein bar](#), [mycoprotein](#), [prepared meal](#)). However, I wanted to focus this edition on something very close to my heart and that is foodborne disease, and *Listeriosis* in particular. If you're interested in food safety and food security more broadly I would encourage you to dip into the first ever [United Kingdom Food Security Report](#) published at the end of 2021 that provides an unparalleled deep dive into global and UK food security matters including food supply, food crime and food safety. It also has a case-study on a *Listeriosis* outbreak caused by sandwiches that resulted in 9 cases of which 7 were fatal.

Turning to *listeriosis*, It is nearly 100 years since [E.G.D. Murray](#) first described *Bacterium monocytogenes* (now *Listeria monocytogenes*) isolated from infected rabbits and 40 years since [Schlech](#) reported the first widely recognised foodborne outbreak. Despite huge investment in research, manufacturing controls, education and analytical capability, this organism remains a significant hazard to most minimally processed, extended shelf life, refrigerated, ready-to-



eat foods.

Outbreaks have implicated soft cheeses, cooked meats, smoked fish and composite foods containing them such as sandwiches and prepared meals (ready meals). You only have to look at [outbreak datasets](#) to see how prevalent the organism remains as a cause of devastating outbreaks of listeriosis and huge public recalls. For example, in the USA over the last few months there were [public recalls](#) associated with [Enoki mushrooms, fresh salads, smoked fish and ice cream](#). Although most were due to presence of *Listeria monocytogenes* in the ready to eat food, two large recalls implicating fresh salads were associated with outbreaks of illness affecting [10 people](#) and [17 people respectively](#). One of those recalls implicated over [2 million cases of 90 separate products](#).

What is remarkable is that with recent advances in genomics and whole genome sequencing (WGS) in particular, cases as far back as 2014 and 2018 were able to be linked to the outbreak at the end of 2021. Due to Covid-19, many of us are now familiar with genomics and the technology is now being used to pinpoint outbreaks of foodborne disease across the globe. For those new to genomics and WGS there's a very basic introduction [here](#). But genomics is a powerful tool for a wide range of other applications ranging from fraud detection to therapeutics and if you need some support, LGC has a number of specialist services in this [area](#).

Of course, the key to control of *Listeria monocytogenes* and many other foodborne pathogens is to prevent it being in foods at levels presenting a risk to the consumer which, of course, varies in the opinion of

different countries across the world from complete [absence in a 25g sample through to levels below 100 per gram at point of consumption](#). Notwithstanding opinions on unsafe levels in food, what is generally agreed is the need for effective strategies to control the organism in product (raw materials through to finished product), equipment and environment plus the need for effective training of individuals involved in production and handling of the foods ([EFSA, USFDA, New Zealand, Canada, Campden BRI](#)). Factory hygiene and cleaning in particular are fundamental prerequisites for the control of this organism and data from BRCGS audits against the Global Standard [Food Safety](#) of over 20,000 sites across over 130 countries provides some interesting insight to the common challenges facing food producers.

Environmental controls

Between March 2021 and 2022, BRCGS audits at food manufacturing sites where *Listeria monocytogenes* may be considered to present a risk e.g. in factories making ready-to-eat meals, the suitability of equipment to minimise risk of contamination was a big non-conformity in areas impacting on cleaning, hygiene and general environmental control. Other areas of high non-conformity included the condition of staff facilities to minimise contamination, building fabrication, and housekeeping and hygiene. In those factories with high-risk, high-care or ambient high-care zones, the highest non-conformity related to layout, product flow and segregation.

One often forgotten aspect is analytical verification to provide additional assurance that the organism is under control in the identified risk materials and sources. Effective sampling plans including environmental testing are key in the control of this organism but don't forget the importance of the laboratory and the method as well – using a [laboratory accredited to a recognised standard](#) is a must and making sure it has a good [proficiency testing programme](#) is also key – there's no point investing in testing if the laboratory cannot reliably detect and identify the organism.

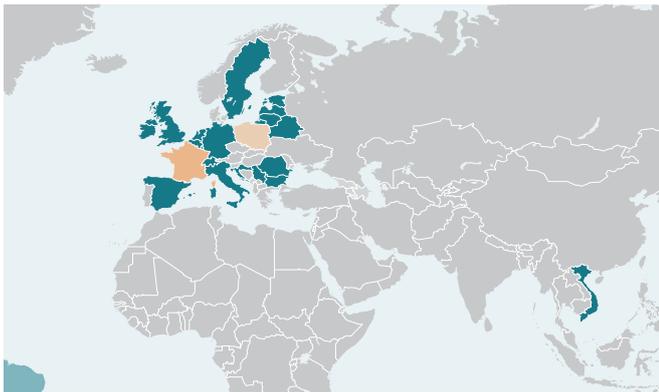
One of the big challenges we all face whether it is *Listeria monocytogenes* or other food safety hazards is how to drill down on key risks across our vast supply chains. Data and insight are unquestionably going to be big enablers in food safety management and making best use of one's own data and that in the wider industry is something I want to return to in future editions. In the meantime platforms exist now that have these tools available such as [SafeFood360°](#) allowing country and product category views of food safety

hazards and even if you aren't a paid subscriber take a look at some of these companies' websites as they have gems of content free to access – you will love the [Microbiological](#) and [Chemical Hazards Datasheets](#).

I hope I have whetted your appetite for future editions of LGC ASSURE Insight which in next month's edition will focus on allergens and allergen management examining trends in recalls around the globe, root causes and some tips and tools to manage them more effectively.

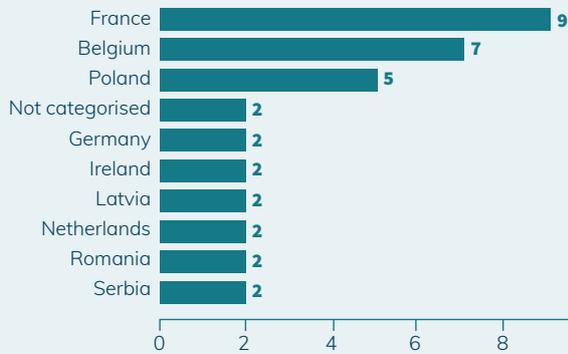


Alec Kyriakides



Notifications of Listeria from September 2021-February 2022 according to RASFF (data from Safefood 360°, Risk)

Number by country of origin

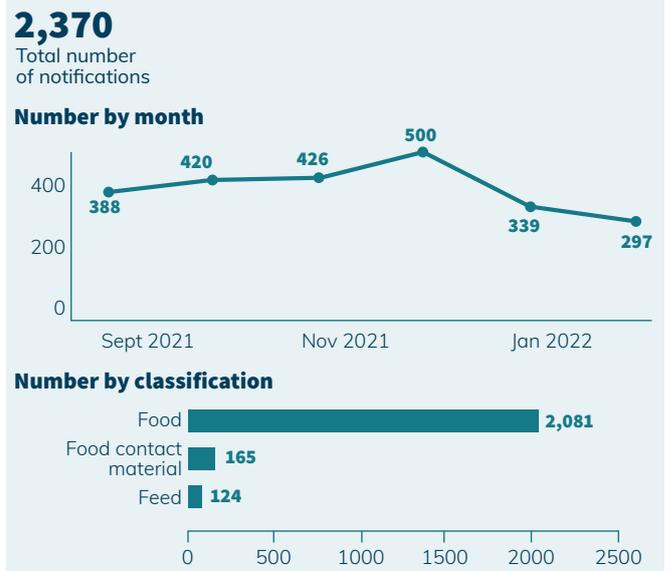


Top 10 countries notifying cases of Listeria from September 2021-February 2022 according to RASFF (data from Safefood 360°, Risk)

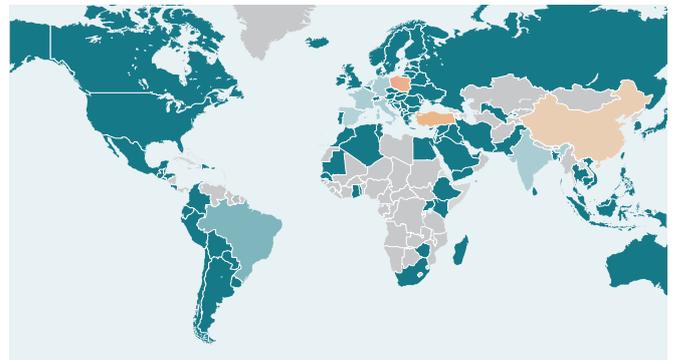
RASFF 55 notifications September 2021-February 2022. In the following product categories:



(data from Safefood 360°, Risk)



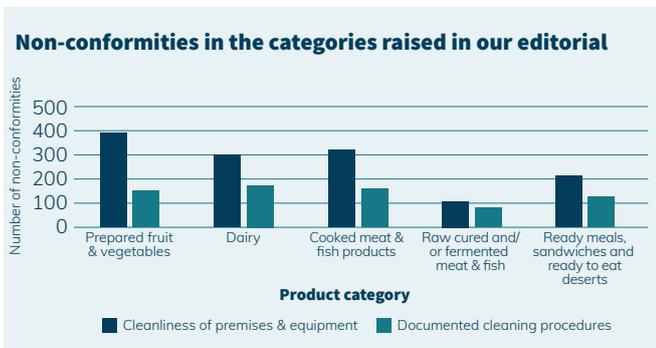
Total RASFF notifications, September 2021- February 2022 (data from Safefood 360°, Risk)



Notifications received by country September 2021-February 2022. (data from Safefood 360°, Risk)



RASFF global heat map for 6 months, September 2021-February 2022 (data from Safefood 360°, Risk)



The most common housekeeping and hygiene non-conformities in 2021 (Data taken from BRCGS Horizon)

Cleanliness of premises and equipment (clause 4.11.1 of the Global Standard Food Safety) was the most commonly occurring cause of a non-conformity in a BRCGS audit in 2021.

Documented cleaning procedures (clause 4.11.2 of the Global Standard Food Safety) was the 10th most common cause of non-conformity, since if a site has not

documented its procedure effectively, then it is much less likely to achieve effective and consistent cleaning.

Some numbers to support this:

Percentage of audits which resulted in a non-conformity against clause 4.11.1 in 2021 = 17.6

Percentage of audits which resulted in a non-conformity against clause 4.11.2 in 2021 = 9.1

8% audits for the Global Standard Food Safety included a non-conformity indicating their environmental monitoring plan didn't match the minimum requirements laid out in the Standard.

News worthy

What does 2022 and the future hold for food safety? Sean Gibbons, Safefood 360°

FDA warns companies about import violations and Listeria in ready-to-eat seafood facility. Food Safety News, 7 March 2022

Alexander and Hornung Recalls Fully Cooked Pork Products Due to Possible Listeria Contamination USA Food Safety and Inspection Service, December 2021

Food Industry Automation: a silver lining of the pandemic. New Food Magazine, March 2022

Codex develops guide on managing foodborne outbreaks. Food Safety News, March 2022

RibU is an essential determinant of Listeria pathogenesis that mediates acquisition of FMN and FAD during intracellular growth. PNAS, vol 19, no 113, March 2022

New report shows incidents almost doubled for global food safety network in 2021. Food Safety News, February 2022

INFOSAN Quarterly Summary, 2021 #4. Food Safety News, February 2022

Combining deep learning and fluorescence imaging to automatically identify fecal contamination on meat carcasses. Scientific Reports 12, 2392 (2022)

LGC ASSURE offers a connected suite of solutions that intelligently analyse the safety, quality and authenticity of your goods and services, alongside evolving value drivers such as health, environmental, human welfare and ethical impact.

For more information about our products and services and to sign up for our regular Assurance Insights visit www.lgcassure.com.

LGC ASSURE

AXIO
PROFICIENCY TESTING

BRCGS

INFORMED
FOOD AND DRINKS
ANALYTICAL SERVICES

Safefood 360°

LGC ASSURE

Queens Road, Teddington, Middlesex, TW11 0LY
contactus@lgcassure.com
www.lgcassure.com