



Reporting on *L. monocytogenes* in animals and food in the European Union

9th workshop of the NRLs for *Listeria monocytogenes*, 25- 27 March 2015 – ANSES Maisons-Alfort, France

LISTERIA IN HUMANS

“The rise of reported invasive listeriosis cases is of great concern as the infection is acquired mostly from ready-to-eat food and it may lead to death, particularly among the increasing population of elderly people and patients with weakened immunity in Europe”, says Mike Catchpole, the Chief Scientist at ECDC.



Despite the rise of listeriosis cases reported in humans, *Listeria monocytogenes*, the bacterium that causes listeriosis in humans and animals, was seldom detected above the legal safety limits in ready-to-eat foods.



LISTERIA DATA IN 2013

Human listeriosis is a relatively rare but serious zoonotic disease, with high morbidity, hospitalisation and mortality rates in vulnerable populations.

Origin	Total number of MSs reporting	Countries
human	26	All MS except PT and IT
	3	Non-MS: CH, IS, NO
animal	15	MS:HR,EE,FI,DE,GR,HU,IE,IT,LV,NL,PL,SK,SI,ES,GB
	1	Non-MS:CH
food	26	MS:AT,BE,BG,HR,CY,CZ,DK,EE,FR,DE,GR,HU,IE,IT,LV,LT,LU,NL,PL,PT,RO,SK,SI,ES,SE,GB
	2	Non-MS:NO,CH

As regards the **sample size**, there was **no restriction** and also smaller sample sizes, of fewer than 25 units, are included in all tables.

REGULATION (EC) 2073/2005

Chapter 1. Food safety criteria

Food category	Micro-organisms/their toxins, metabolites	Sampling-plan ⁽¹⁾		Limits ⁽²⁾		Analytical reference method ⁽³⁾	Stage where the criterion applies
		n	c	m	M		
1.1. Ready-to-eat foods intended for infants and ready-to-eat foods for special medical purposes ⁽⁴⁾	<i>Listeria monocytogenes</i>	10	0	Absence in 25 g		EN/ISO 11290-1	Products placed on the market during their shelf-life
1.2. Ready-to-eat foods able to support the growth of <i>L. monocytogenes</i> , other than those intended for infants and for special medical purposes	<i>Listeria monocytogenes</i>	5	0	100 cfu/g ⁽⁵⁾		EN/ISO 11290-2 ⁽⁶⁾	Products placed on the market during their shelf-life
		5	0	Absence in 25 g ⁽⁷⁾		EN/ISO 11290-1	Before the food has left the immediate control of the food business operator, who has produced it
1.3. Ready-to-eat foods unable to support the growth of <i>L. monocytogenes</i> , other than those intended for infants and for special medical purposes ⁽⁴⁾ ⁽⁸⁾	<i>Listeria monocytogenes</i>	5	0	100 cfu/g		EN/ISO 11290-2 ⁽⁶⁾	Products placed on the market during their shelf-life

(7) This criterion applies to products before they have left the immediate control of the producing food business operator, when he is not able to demonstrate, to the satisfaction of the competent authority, that the product will not exceed the limit of 100 cfu/g throughout the shelf-life.

(8) Products with $\text{pH} \leq 4,4$ or $\text{aw} \leq 0,92$, products with $\text{pH} \leq 5,0$ and $\text{aw} \leq 0,94$, products with a shelf-life of less than five days are automatically considered to belong to this category. Other categories of products can also belong to this category, subject to scientific justification.

LISTERIA IN FOOD – MICROBIOLOGICAL CRITERIA

Criteria according to Regulation (EC) No. 2073/2005

Missing information on the ability of RTE food tested to support the growth of *L. monocytogenes*.

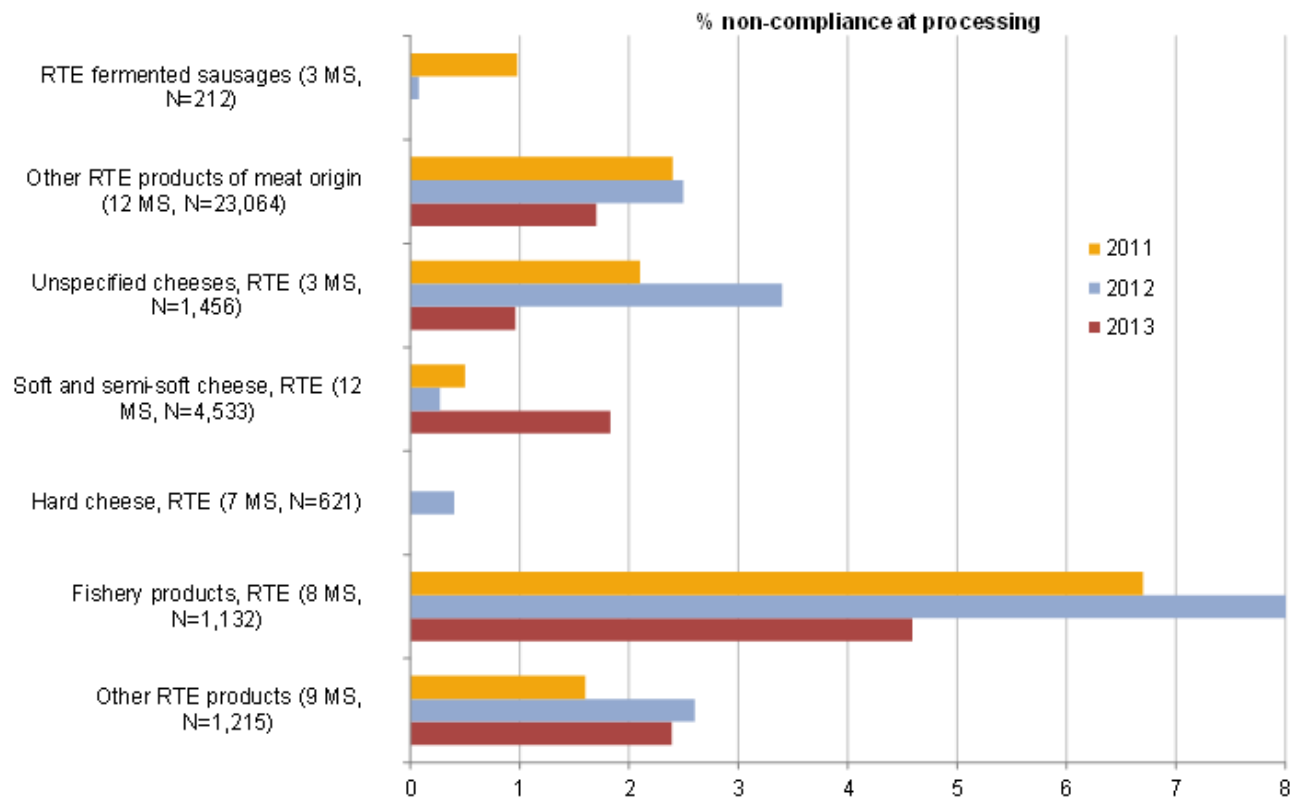
Assumptions made:

- For the non-compliance analysis of samples collected **at processing**, the criterion of absence in 25 g was applied
 - ❖ Exception: samples from hard cheeses and fermented sausages (assumed to be unable to support the growth of *L. monocytogenes*) where the limit ≤ 100 CFU/g was applied.
- For samples collected **at retail**, the limit ≤ 100 CFU/g was applied
 - ❖ Exception: RTE products intended for infants and for special medical purposes, where presence in *L. monocytogenes* must not be detected in 25 g of sample.
- For all investigations for which the **sampling stage was not reported**, it was assumed that samples were collected from products placed on the market, and the criterion ≤ 100 cfu/g was applied.

LISTERIA IN FOOD – MICROBIOLOGICAL CRITERIA

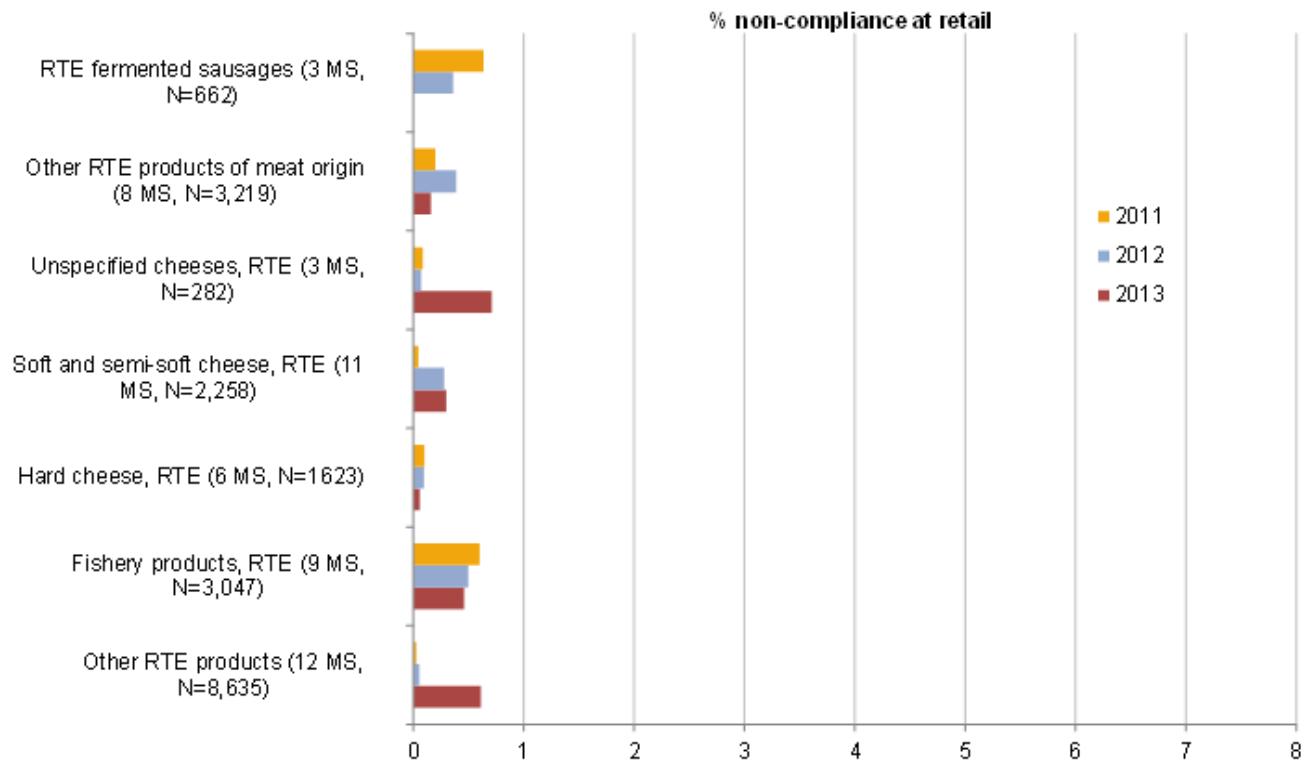
- In 2013, the non-compliance for different RTE food categories generally was at a level comparable to previous years. However, it must be noted that these results are highly influenced by the MSs reporting and the sample sizes in their investigations.
- For all categories, the proportion of non-compliant units at retail was lower ($< 1\%$) than at processing (from none to 4.6 % of single samples).

LISTERIA IN FOOD – MICROBIOLOGICAL CRITERIA



Single samples

LISTERIA IN FOOD – MICROBIOLOGICAL CRITERIA



Single samples

LISTERIA IN FOOD – MICROBIOLOGICAL CRITERIA

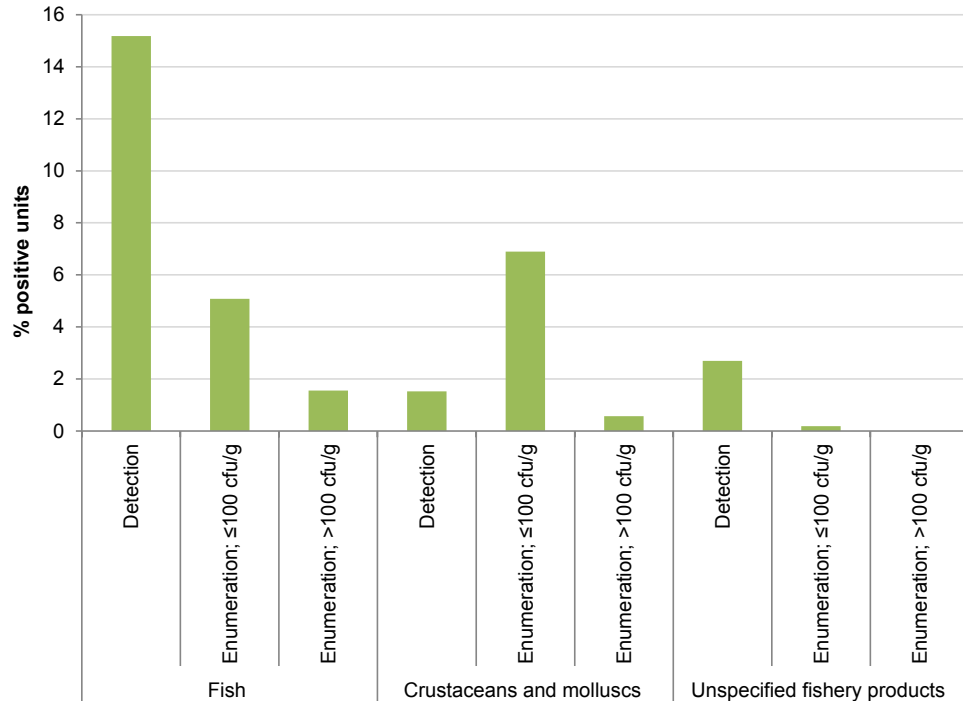
- As observed in the past two years, the food category with the highest levels of non-compliance at processing was **RTE fishery products** (4.6 % of single samples and 19.9 % of batches), mainly in smoked fish.
- In 2013, the overall level of non-compliance for **soft and semi-soft cheeses** was considerably higher than in previous years, mainly due to one MS.
- Overall, the EU level findings based on the monitoring of *L. monocytogenes* in certain retail foods are consistent with the results of the baseline survey on the EU level prevalence of *L. monocytogenes* in certain RTE foods at retail, which was carried out in 2010 and 2011.

LISTERIA IN FOOD

Proportion of *L. monocytogenes*-positive units in ready-to-eat fishery products, 2013

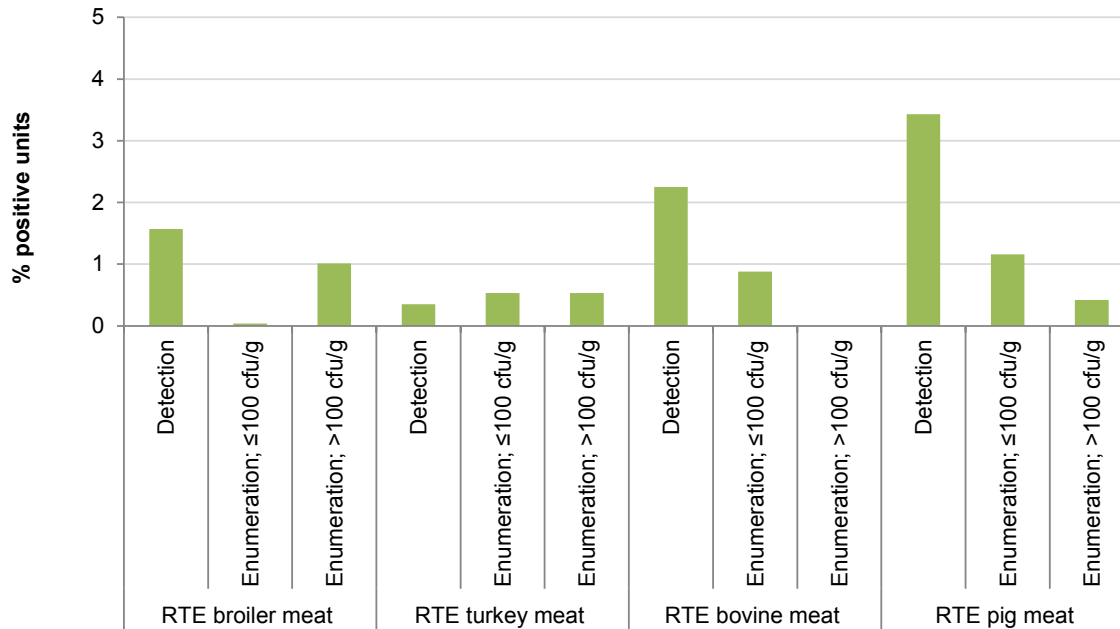
In total, 14,564 samples of fish were tested at retail or at processing plants in the MS and overall *L. monocytogenes* was found in 10.8 % of these.

L. monocytogenes was most often detected in **RTE fish** (mainly smoked fish)



LISTERIA IN FOOD

Proportion of *L. monocytogenes*-positive units in ready-to-eat meat categories in the EU, 2013



Detection methods:

- ❖ *L. monocytogenes* most commonly detected in RTE products from pig meat.

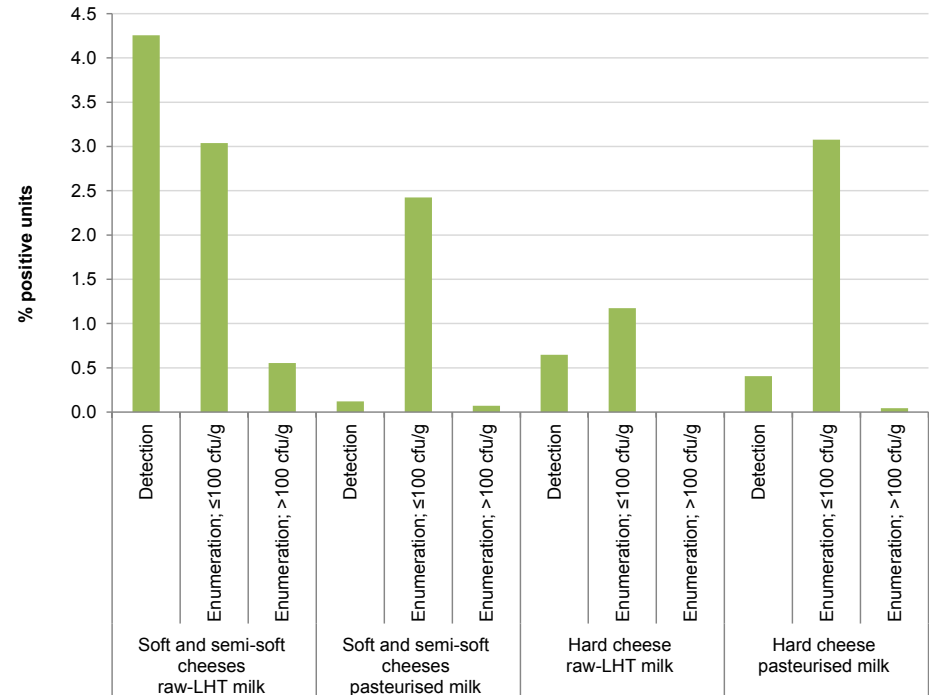
Enumeration methods:

- ❖ Occurrence in pig meat products also appeared to be the highest
- ❖ but levels exceeding 100 CFU/g most frequently observed in RTE products from broiler meat.

LISTERIA IN FOOD

Proportion of *L. monocytogenes*-positive units in soft and semi-soft cheeses made from raw or low heat-treated milk, 2013

L. monocytogenes was more often detected in samples of soft and semi-soft cheeses made from raw or low heat-treated milk than in samples of cheeses made from pasteurised milk.



LISTERIA IN ANIMALS

The majority of findings were reported as *L. monocytogenes* (234) or *Listeria* spp. (162).

A few findings of two additional *Listeria* species, *L. innocua* (4) and *L. ivanovii* (1), were also reported.

Listeria was most often reported in cattle, sheep and goats, but also in laying hens and broilers, pigs, dogs, foxes, horses, African wild dogs and alpacas.

In total, 37,419 animals or flocks/herds were tested for *Listeria* and **2.0 %** of these were found to be *Listeria* positive.



LISTERIA OUTBREAKS

Foodborne outbreaks

In 2013, 12 food-borne outbreaks caused by *L. monocytogenes* were reported by seven MSs.

Of these, 7 were supported by strong-evidence.

The food vehicles implicated were:

- Crustaceans, shellfish and molluscs and products thereof (3 outbreaks of which crab meat in 2 outbreaks)
- Cheese
- Meat and meat products
- Pig meat and products thereof
- Vegetables and juices and products thereof (mixed salad)



LISTERIA OUTBREAKS

Foodborne outbreaks

Three *Listeria* strong-evidence outbreaks were responsible for **one fatal case each**.

- ❖ One person died in each of the two strong-evidence general outbreaks associated with the consumption of crab meat, related to mobile retailers or street vendors.
- ❖ One fatal case was reported in a general outbreak associated with the consumption of mixed salad in a hospital or medical facility.

This represents 37.5 % of all deaths due to strong-evidence food-borne outbreaks reported in 2013.



LISTERIA OUTBREAKS

Foodborne outbreaks

In addition, Norway reported one strong-evidence general outbreak associated with the consumption of fish and fish products (half-fermented trout). It affected three people, of which, one person died.





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