



Listeria monocytogenes

Laboratorio Nazionale di Riferimento

Data on *Listeria monocytogenes* and listeriosis in Italy: results of laboratory surveillance in 2017-2018

Workshop

Evaluating the risk from the presence of
Listeria monocytogenes in RTE meat products
Athens, 14-15 February 2019

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Surveillance of listeriosis in Italy



Two NRLs

a) NIH (ISS - Rome) for human listeriosis

b) IZSAM (Teramo) for food, environmental
samples and animals





 *Listeria monocytogenes*
Laboratorio Nazionale di Riferimento

Ministry of Health

Circular letter n. 0008252 date 13/03/2017

«Sorveglianza e prevenzione della Listeriosi»


Content

- a) Remarks- preface
- b) The disease
- c) Listeriosis surveillance: at national and at EU level
- d) Notification of human cases, handling of strains from human cases and from food, environment and animals
- e) Case definition
- f) Recommendation

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Data collection

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- a) Harmonisation of data collection at local, regional and central level, complying with Dir 99/2003
 - b) Data collection on zoonoses clinical cases by Member States to comply with data collection system implemented in EU (ECDC)



Integration between human and vet side

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- a) Strains are collected at local and at regional level
 - b) The laboratory is in charge of performing molecular typing and WGS (ISS and IZSAM)**
 - c) Collaboration between ISS and IZSAM for matching
 - d) Notification to ECDC for human strains (TESSy)
 - e) Wgs database activity planned to do in the future with EFSA, but ongoing with EURL
 - f) IZSAM performs WGS on human strains for some regions in Italy including Abruzzo and Molise



Human invasive listeriosis



Number of cases

2016	2017	2018
179	165	180*

*Evaluation ongoing

Human invasive Listeriosis

- a) In 2016, in Italy, 179 cases of listeriosis were notified,
 - b) In 2017, 165 cases
 - c) In 2018, 180 “strains” sent to ISS, confirmed number of cases is not available to date
 - d) 70 to 76% of cases individuals > 64 , with a peak in subjects aged between 76 and 80
 - e) pregnancy-related cases represent only the 3%, much lower value than European and international data (16.7%).
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- upward trend from 2012 (112 cases),
 - Italy ranked fourth for the number of cases in Europe, after Germany, France and Spain.




Human invasive Listeriosis

- a) The most common manifestation is septicemia
- b) Serotype 1/2a continues to be the most frequently isolated one, followed by serotype 4b
- c) The percentage of hospitalization is around 100%
- d) Lethality is between 25 and 30% but decreasing



Large outbreak in 2015-16

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- a) Fourteen cases of listeriosis in 2016 marked a large outbreak of epidemic that began in 2015 and involved 24 subjects, four of whom died.
 - b) Epidemiological and microbiological investigations have identified the source of infection in a meat product.



Veterinary side



The legal framework is represented by 3 different norms:

- OM 1993
- Reg 2073/2005 as amended
- Intesa Stato Regioni 2016, Rep. Atti n. 212 CSR del 10 November 2016



Capitolo 1. Criteri di sicurezza alimentare

Categoria alimentare	Microrganismi/loro tossine, metaboliti	Piano di campionamento ⁽¹⁾		Limiti ⁽²⁾		Metodo d'analisi di riferimento ⁽³⁾	Fase a cui si applica il criterio
		n	c	m	M		
1.1 Alimenti pronti per lattanti e alimenti pronti a fini medici speciali ⁽⁴⁾	<i>Listeria monocytogenes</i>	10	0	Assente in 25 g		EN/ISO 11290-1	Prodotti immessi sul mercato durante il loro periodo di conservabilità
1.2 Alimenti pronti che costituiscono terreno favorevole alla crescita di <i>L. monocytogenes</i> , diversi da quelli destinati ai lattanti e a fini medici speciali	<i>Listeria monocytogenes</i>	5	0	100 ufc/g ⁽⁵⁾		EN/ISO 11290-2 ⁽⁶⁾	Prodotti immessi sul mercato durante il loro periodo di conservabilità
		5	0	Assente in 25 g ⁽⁷⁾		EN/ISO 11290-1	Prima che gli alimenti non siano più sotto il controllo diretto dell'operatore del settore alimentare che li produce
1.3 Alimenti pronti che non costituiscono terreno favorevole alla crescita di <i>L. monocytogenes</i> , diversi da quelli destinati ai lattanti e a fini medici speciali ⁽⁴⁾ ⁽⁸⁾	<i>Listeria monocytogenes</i>	5	0	100 ufc/g		EN/ISO 11290-2 ⁽⁶⁾	Prodotti immessi sul mercato durante il loro periodo di conservabilità

22.12.2005

IT

Gazzetta ufficiale



ALLEGATO 1

V. - ALIMENTI SFUSI O PRECONFEZIONATI DESTINATI PER LORO NATURA AD ESSERE CONSUMATI PREVIA COTTURA O CHE RECHINO SULLA CONFEZIONE LA DIZIONE "DA CONSUMARSI PREVIA COTTURA" (ESCLUSI IL LATTE E I DERIVATI DEL LATTE).

Prodotti alimentari	Determinazioni analitiche	N (*)	Limiti di tolleranza
a) Alimenti crudi non sottoposti a trattamento di riscaldamento	Listeria monocytogenes	3 u.c.	non oltre 11/g in 1 u.c. non oltre 110/g in 2 u.c.
b) Alimenti congelati o surgelati	Listeria monocytogenes	5 u.c.	non oltre 11/g in 2 u.c. non oltre 110/g in 3 u.c.
c) Alimenti precotti o pastorizzati	Listeria monocytogenes	5 u.c.	non oltre 11/g in 4 u.c. non oltre 110/g in 1 u.c.

ALLEGATO 2

CAMPIONAMENTO DELLE SOSTANZE ALIMENTARI

V. - ALIMENTI SFUSI O PRECONFEZIONATI DESTINATI PER LORO NATURA AD ESSERE CONSUMATI PREVIA COTTURA O CHE RECHINO SULLA CONFEZIONE LA DIZIONE "DA CONSUMARSI PREVIA COTTURA" (ESCLUSI

National: Intesa Stato Regioni 2016

Rep. Atti n. 212 CSR del 10 November 2016

Process hygiene criteria ≤ 1000 ufc/g

Ingredients to be thermally treated

6. Egg fresh pasta
7. Fresh meat and MSM
8. Minced meat and meat products
9. Meat products as sausages (raw and fresh), fresh raw ham, salami, cotechino , wurstel
10. Fish products to be cooked (as shellfish)
11. Raw milk




Italian activities and data flow

- a) In Italy data collection could be done at different level (laboratory or regional level)
- b) The local competent authorities collect samples and data
- c) Data are sent to Regional competent authorities, they clean the data and confirm data in 2 weeks
- d) After the flow data are sent to a data collection system named NSYS
- e) After two weeks data are available for consultation by the Ministry of Health
- f) A different database was built for Zoonoses data collection (Sinzoo)



Strains from food

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- a) In Italy the strains isolated in food, working areas and animals are sent to NRL Lm of IZSAM (molecular typing and PFGE)
 - b) Last year we started collecting «raw data» from NGS sent by italian labs (data for strains from smoked salmon)
 - c) At LNRLm in Teramo we collect metadata, cluster the strains and perform cluster analysis
 - d) In 2019, in January started a pilot phase to merge human and food NGS data



Lm in RTE in Italy

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- a) Based on the EFSA _ ECDC report of 2018 there are still some aspect to be fixed
 - b) Some data are not reported in the report

Based on the EFSA report we started working to amend the data collection



Tests for *Listeria monocytogenes* in RTE meat products carried out in 2017 in Italy

Official Controls

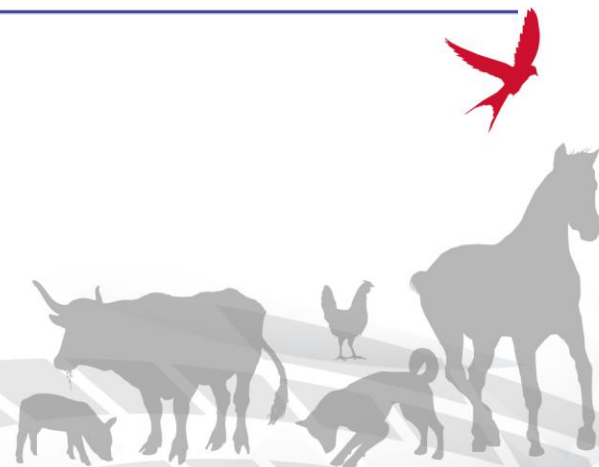
Food category	TESTED UNITS	POSITIVE UNITS	Tested for detection	Tested for enumeration
RTE meat products	2430	95	2093	577
RTE composite meat products	1739	27	1388	468
Total	4169	122	3481	1045



Tests for *Listeria monocytogenes* in RTE meat products carried out in 2017 in Italy

Own-checks by FBOs

Food category	TESTED UNITS	POSITIVE UNITS	Tested for detection	Tested for enumeration
RTE meat products	396	2	375	21
RTE composite meat products	662	1	614	55
Total	1058	3	989	76



		Tested Units	Positive Units
Composite dishes	Cake	6	
	MeatBased	6	
	FishBased	1	
	Special Food	3	
	DairyBased	2	
	CerealBased	12	
	VegetableBased	1	
Milk and dairy products	PastaFilataCheese	20	
	Milk	3	
	SoftCheese	11	
	Hard Cheese	18	1
	Ripened Cheese	9	1
	Yogurt	4	
	Ricotta	2	
	Food for infants	1	
	Milk powder	1	
Eggs		1	
Fish		6	
Meat	Fermented sausages	14	
	Wurstel	2	
	Ham&similar	6	
Sauce		6	
Confectionnery	Candies	3	
	Gelly	1	
Vegetable	Fruits	20	
	Pasta	2	
	Salads	22	
Spices		6	
Food for infants		1	

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Amended framework

2018 Results of Lm detection at IZSAM



Amended framework

2018 Results of Lm enumeration at IZSAM


RTE		<1 ufc/ml	<10 ufc/g
Composite	Cake		6
	Cerealbased		11
	MeatBased		4
	FishBased		1
	VegetableBased		2
Dairy	PastaFilataCheese		19
	Milk	3	
	SoftCheese		11
	Yogurt		3
	HardCheese		23
	Ricotta		2
	RipenedCheese		4
Fish			6
Meat	Ham&similar		6
	Sausages		2
	WURSTEL		2
	FermentedSausage s		14
Sauce			4
SpecialFood			1
Confectionnery	Candies		3
	Dragées		1
Spices			2
Vegetable	Fruits		20
	Salads		19
Total		3	166

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Conclusion

Human side

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- a) the scenario is devoted to Integration between the different actors
 - b) Usage of NGS for human strains
 - c) Real time integration between Human and vet side

Vet side

Amendment of criteria for data collection

Ongoing

Targeted sampling for smoked salmon





Thanks for your
attention
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