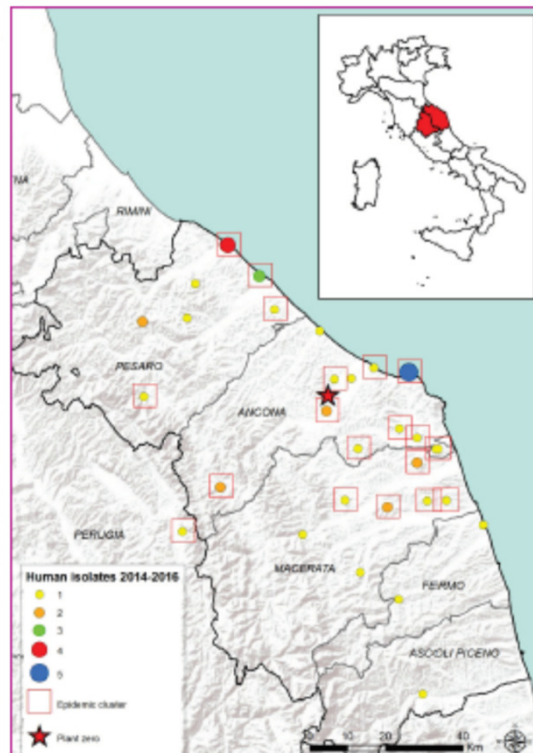




 *Listeria monocytogenes*  
Laboratorio Nazionale di Riferimento

# Foodborne outbreak investigation by IT NRL *for L. monocytogenes* and *Campylobacter*



**IZSAM**  
Francesco Pomilio

"Training on FoodChain-Lab"  
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# Data collection from strains

- IZSAM as NRL for *L. monocytogenes* and *Campylobacter* spp. developed and use SEAP
- Collection of strain information and metadata needed for foodborne outbreak investigation and surveillance





<https://sorveglianza.izs.it/seap/index.jsp>

# SEAP

SEAP is a system for data collection of the strains sent for characterisation to the IT NRL Lm

Results from strain characterization allow to obtain the data needed for foodborne outbreak investigation

Sending labs fill in the metadata useful to identify food producing plants or retail or consumer houses



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# Tracing and Tracking

A second web based data collection tool was developed (focolaio Listeria - tracciabilità) to collect data about economic transactions, purchases from suppliers and sales to customers. All the data from all the producing plants are also collected.

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## Listeriosis outbreak data collection system

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### Introduction

Listeriosis outbreak data collection system (LDBS) is a web application (web 2.0) - available on the Internet - that is intended to collect data about Listeria monocytogenes (Lm) outbreaks and related economic transactions, purchases from suppliers and sales to customers, during the investigation of outbreaks, related to Lm infection, showing the epidemiological, microbiological and molecular data, as well as the economic data related to the outbreak.

During a recent outbreak (2015) ongoing in the central Italy, a system has been implemented in order to collect data about Lm, including all related epidemiological, microbiological and molecular data, as well as the economic data related to the outbreak (Figure 1).

### Data collection system

LDBS is a web application (web 2.0) - available on the Internet - that is intended to collect data about Lm outbreaks and related economic transactions, purchases from suppliers and sales to customers, during the investigation of outbreaks, related to Lm infection, showing the epidemiological, microbiological and molecular data, as well as the economic data related to the outbreak.

### Catalogues

The first module contains catalogues of Lm outbreaks and related economic transactions, purchases from suppliers and sales to customers, during the investigation of outbreaks, related to Lm infection, showing the epidemiological, microbiological and molecular data, as well as the economic data related to the outbreak.

### Traceability

The module collects all data regarding the daily production, the purchase and the sale of products for each company, showing the economic transactions, purchases from suppliers and sales to customers, during the investigation of outbreaks, related to Lm infection, showing the epidemiological, microbiological and molecular data, as well as the economic data related to the outbreak.

### Analysis

The module (Figure 2) collects the results of the epidemiological, microbiological and molecular data, as well as the economic data related to the outbreak, showing the epidemiological, microbiological and molecular data, as well as the economic data related to the outbreak.

### Conclusions

The system is able to collect and store all the data related to Lm outbreaks and related economic transactions, purchases from suppliers and sales to customers, during the investigation of outbreaks, related to Lm infection, showing the epidemiological, microbiological and molecular data, as well as the economic data related to the outbreak.



Figure 1. Example of a production data form

Figure 2. Example of a company data form





# Results: molecular characterization

*L. monocytogenes* epidemic cluster (Marche):

- serogroup: IIA flaA+
- serotype: 1/2a
- PFGE *Apa* I: GX6A12.0063
- PFGE *Asc* I: GX6A16.0183

		Environmental samples(2 pig farms)		Food samples; «coppa di testa»		Food samples: other meat products		Other	
		Strains analysed	P cluster	Strains analysed	P cluster	Strains analysed	P cluster	Strains analysed	P cluster
1	S <sub>0</sub>	49	13	58	21	168	18	2	0
2	Fc <sub>1</sub>	116	5			110	8		
3	Fc <sub>2</sub>	63	0			12	0		
4	Fc <sub>3</sub>	17	0			4	0		
5	Fc <sub>4</sub>	50	0						
6	Fc <sub>5</sub>	26	0						
7	Fc <sub>6</sub>	40	0						
Total		361	18	58	21	294	26	2	0



