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Human listeriosis and epidemiological data in Greece

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Listeriosis in humans

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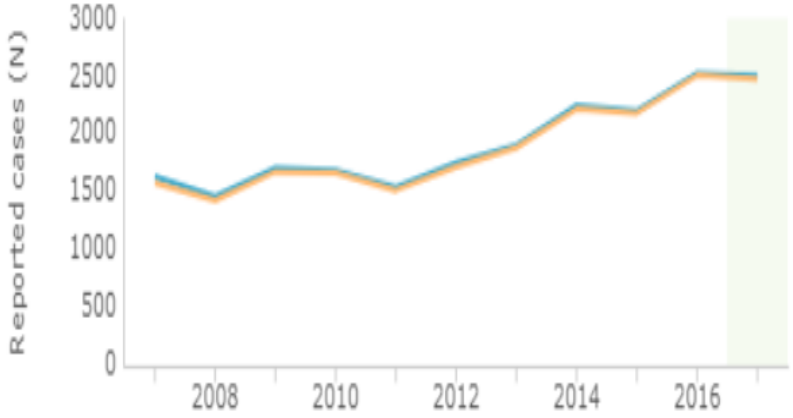
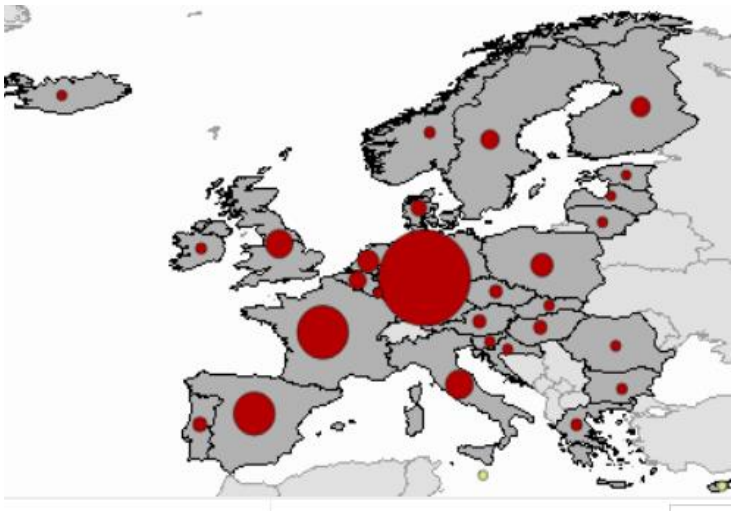
- Foodborne disease caused by *Listeria monocytogenes*
- Non-invasive listeriosis (febrile listerial gastroenteritis)
  - mild form of the disease
  - affects mainly otherwise healthy people
  - causes diarrhoea, fever, headache and myalgia
  - incubation period short (a few days)
  - outbreaks generally involve ingestion of foods containing high doses of *L. monocytogenes*
- Invasive listeriosis
  - a more severe form of the disease
  - affects high risk groups of the population (pregnant women, patients undergoing treatment for cancer, AIDS and organ transplants, elderly people, infants)
  - characterised by severe symptoms (fever, myalgia, septicemia, meningitis)
  - has a high case fatality rate (20%–30%).
  - incubation period: usually 1 -2 weeks (can vary from few days up to 90 days)

European situation

- The mean notification rate in the EU and EEA/EFTA countries was 4.8 cases per 1,000,000 population in 2017 (2502 cases reported)





Listeriosis in Greece

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- Mandatory notifiable disease since 2004
- 158 reported cases, 2004 - 2017
- Mean annual number of cases: 11.3 (SD: 8.35) and mean annual notification rate: 1.03 cases / 1,000,000 population
- 2015-2017, increased number of cases observed

Annual number of notified cases and notification rate of listeriosis, Mandatory Notification System, Greece, 2004-2017

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Year	Number of cases	Annual notification rate /1,000,000 population
2004	3	0.27
2005	8	0.73
2006	7	0.64
2007	10	0.91
2008	1	0.09
2009	4	0.36
2010	10	0.90
2011	10	0.90
2012	11	0.99
2013	10	0.91
2014	10	0.92
2015	35	3.22
2016	20	1.85
2017	21	1.95
Total	**158**	**1.03***

*Mean annual notification rate for the period 2004-2017

Annual notification rate of listeriosis (cases / 1,000,000 population), Mandatory Notification System, Greece, 2004-2017

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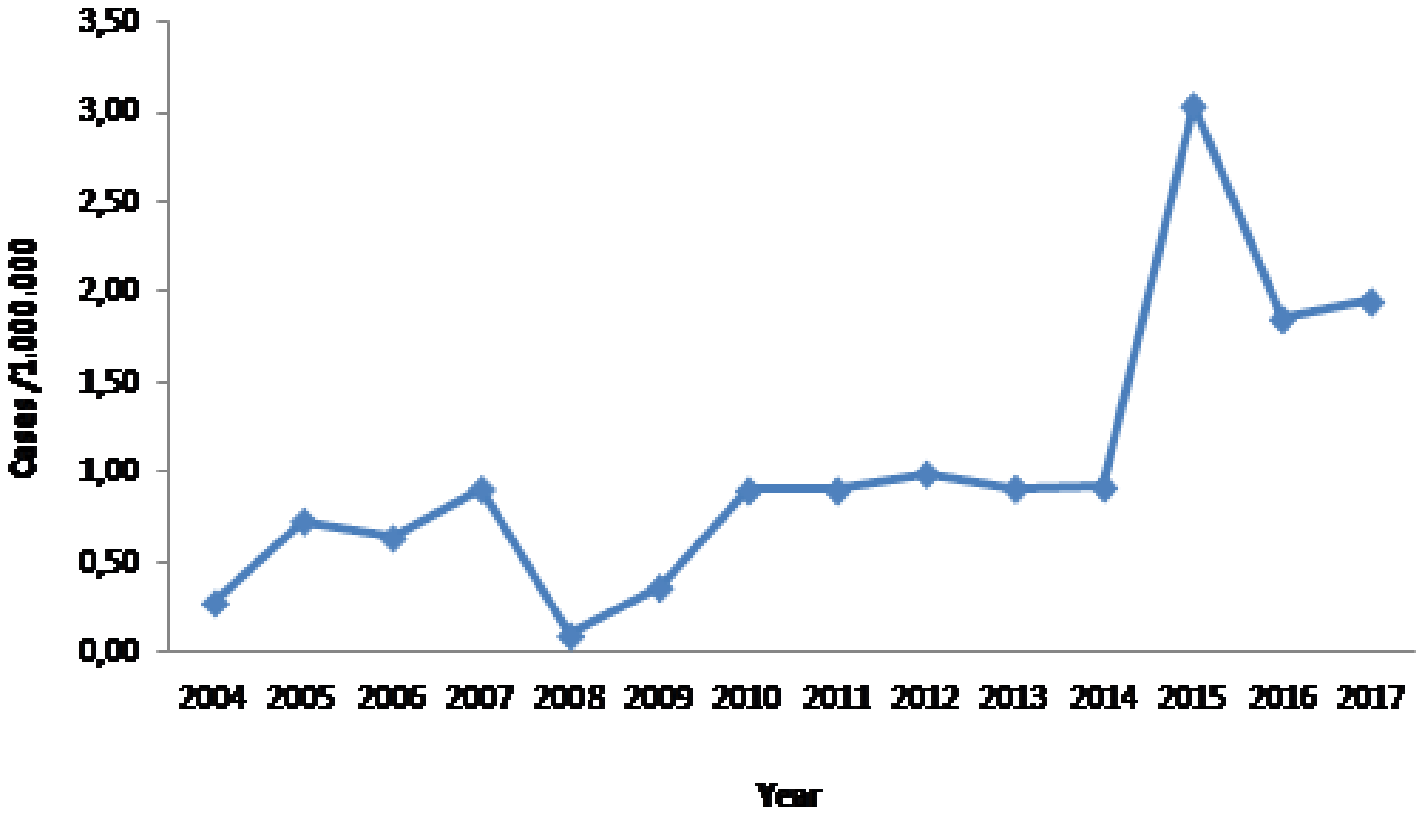

Age and gender distribution 2004 -2017

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- Age groups with the highest mean annual notification rate
  - ≥ 65 years old (3.4/1,000,000 population)
  - 0-4 years old (1.4/1,000,000 population).
- Mean annual notification rate
  - 1.19 cases/1,000,000 population for males
  - 0.88/1,000,000 population for females

Notification rate of listeriosis by age group and gender, Greece, 2004-2017

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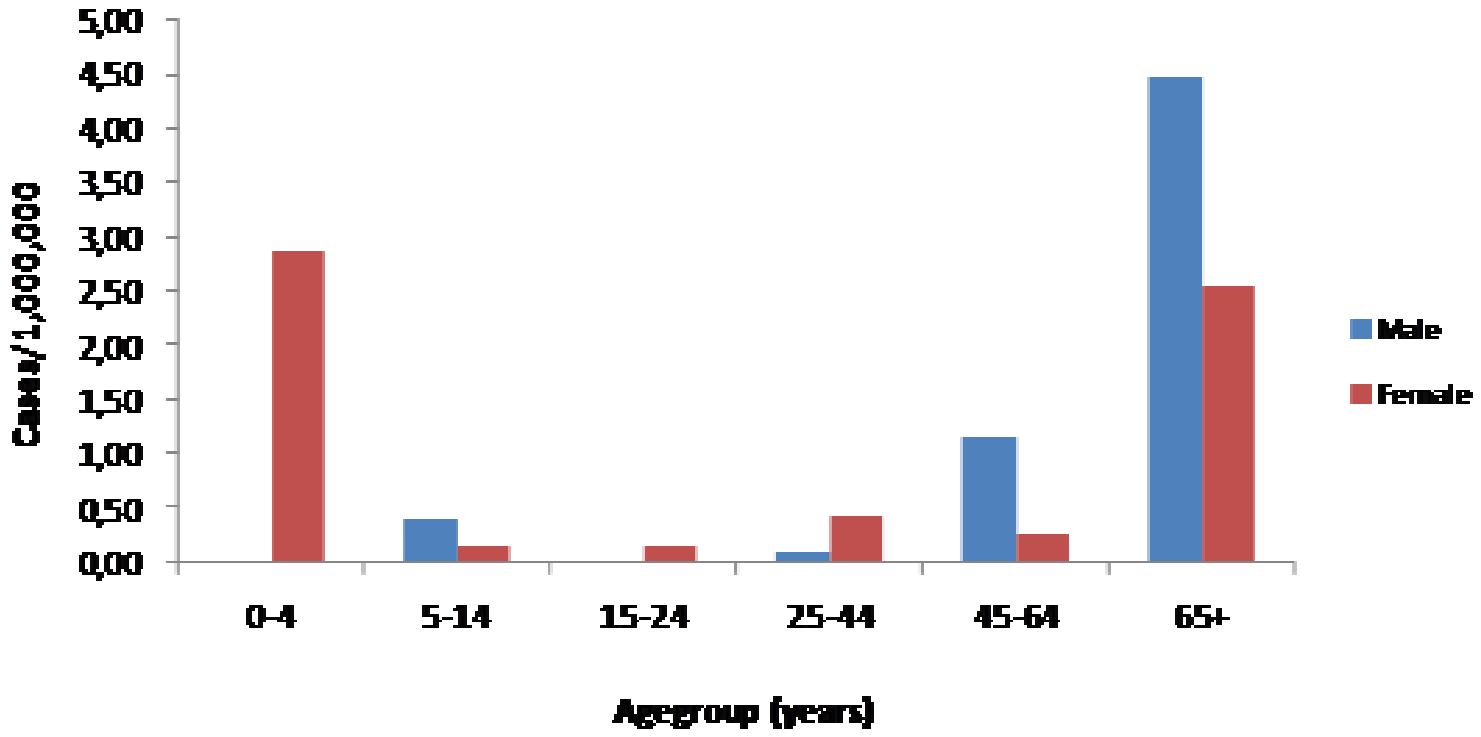

Geographical distribution and seasonality, Greece, 2004-2017

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- **Seasonality**
  - mean monthly notification rate increased during spring,
  - peak in March
  - gradually decrease and a second peak in August
- **Geographical distribution**
  - No significant differences
  - The geographical region of Attica had the highest mean annual notification rate for 2004-2017 (1.58/1,000,000 population) and Northern Greece (0.55/1,000,000 population) the lowest

Mean monthly notification rate of listeriosis, Greece, 2004-2017

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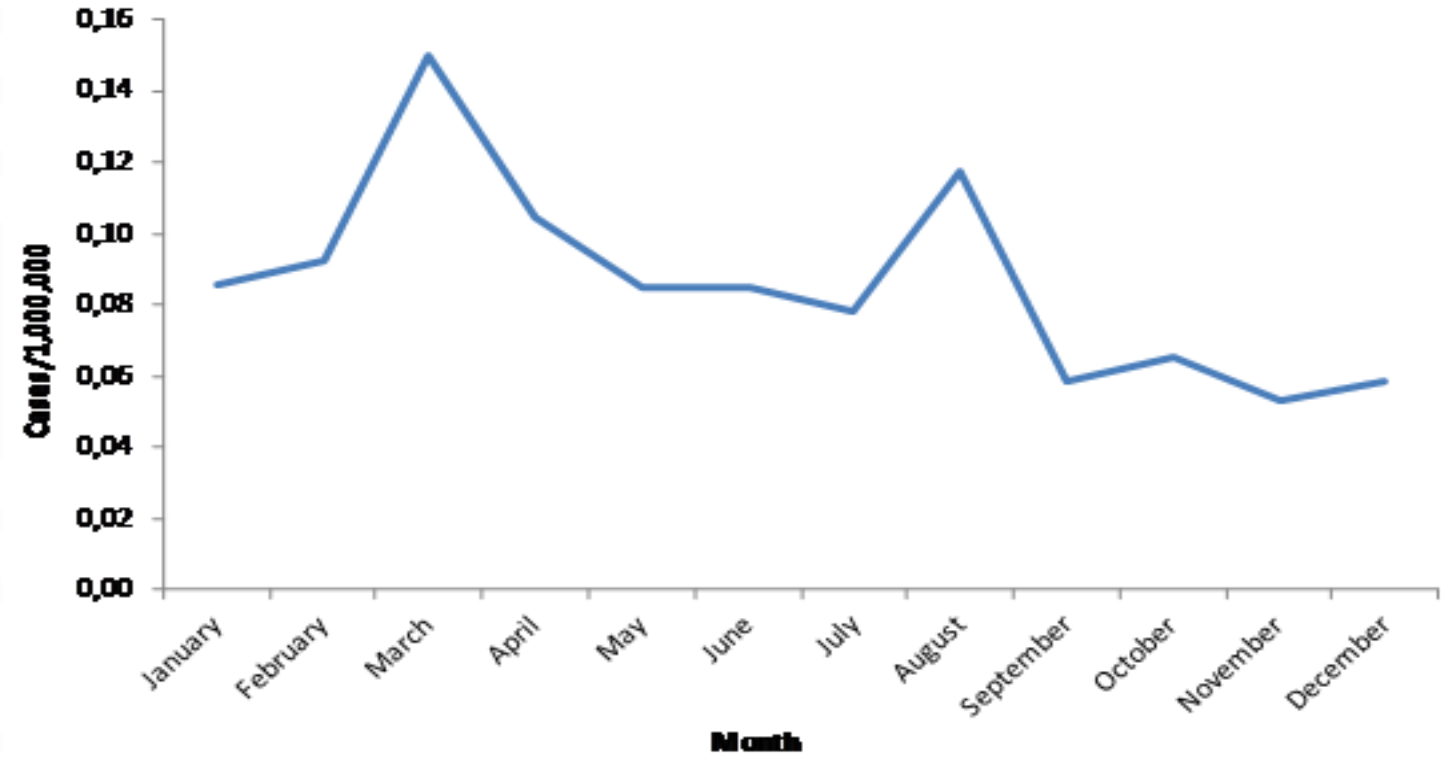

“Risk factors” and outcome

- Eighty-two (51.9%) cases were immunocompromised, 6 (3.8%) pregnant, and 4 (2.5%) newborns
- Among cases with known outcome (n=144), 33 (22.8%) recorded deaths

Increase of notified listeriosis cases, Greece, 2015-2017

- 33, 20 and 21 cases were reported in 2015, 2016, 2017 respectively, indicating an increase of the notification rate
- No major changes at the mandatory notification system / laboratory capacity of local hospitals
- Distribution of listeriosis cases by age and gender did not differ from previous years
- Available epidemiological data (geographical distribution, temporal distribution etc.) did not lead to a hypothesis on a possible common source – small clusters identified
- WGS not performed

Epidemiological data for 2018 (provisional)

- 20 reported cases
- 1.84 / 1,000,000 population
- Same age distribution as in previous years
- Notification rate: stable
- No identified clusters

Summary

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- Notification rate of listeriosis is low in Greece
- Notification lower than that reported in other European countries
- Epidemiological data compatible with those of other European countries
- 23% case fatality rate
- Observed increase after 2015

Challenges

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- Under-ascertainment
  - Laboratory investigation is lacking
  - Almost 50% of public hospitals do not have the lab capacity to diagnose listeriosis
- Underreporting
- Epidemiological investigation challenging (a lot exposed - few develop the disease, long incubation period, etc.)
- Lack of written protocols for the co-operation of public health authorities in investigation of cases / clusters

Challenges – Laboratory investigation

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- Low laboratory capacity at a local level
- Lack of a reference lab in Greece
- WGS not performed
- Under an initiative of ECDC human isolates will be sent for WGS, starting from March 2019

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THANK YOU!

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