

Salmonella Enteritidis

Background: *Salmonella enterica* subsp. *enterica* serovar Enteritidis (antigenic formula 1,9,12:g,m:-) is a polyphyletic serovar of the O:9 (D₁) serogroup. This serovar is associated with table [eggs and chickens](#). Serovar Enteritidis has caused numerous outbreaks associated with the consumption of [contaminated eggs](#). *S. Enteritidis* can successfully contaminate eggs because it is adapted to the reproductive organ of laying hens. This serovar is further classified according to the susceptibility to typing phages (phage typing ([PT](#))), the most common PTs are PT8 and PT4. Molecular subtyping with Pulse field gel electrophoresis (PFGE) shows that approx. 40% of the isolates fall in the same PFGE type. [Invasive](#) strains of *S. Enteritidis* emerged in sub-Saharan regions of Africa and have caused systemic salmonellosis in travelers returning from Africa.

Serovar *S. Nitra* shares the same serotype, although it is very rare and is [genetically indistinguishable](#) from *S. Enteritidis*.

Animal reservoir: Chicken is the main reservoir. *S. Enteritidis* is also found in low percentage (<1%) in turkey and cattle.

Geographical distribution: The distribution of serovar Enteritidis is global; according to the World Health Organization, it is the most common serovar reported from human salmonellosis cases in Europe, North and South America, Africa and Asia.

Outbreaks: Numerous outbreaks have been associated with serovar Enteritidis. Here we mention the latest outbreaks caused by this serovar.

| Year | Location | Associated source | Number of cases |
|------|----------------|-----------------------------------|-----------------|
| 2018 | US-multistate | Eggs | 44 |
| 2016 | Multi-country* | Eggs | 112** |
| 2012 | US-multistate | Ground beef | 46 |
| 2012 | US-multistate | Restaurant chain A | 68 |
| 2011 | US-multistate | Turkish Pine Nuts | 43 |
| 2011 | US-multistate | Alfalfa Sprouts and Spicy Sprouts | 25 |
| 2011 | England | eggs | 63 |
| 2011 | Singapore | Seafood Marinara Pasta Seafood | 270 |
| 2010 | US-multistate | Shell- eggs | 1,939 |
| 2010 | Austria | eggs | 66 |

*Belgium, Denmark, Luxembourg, the Netherlands, Norway, Sweden and the UK, and potentially Croatia

**112 confirmed, 148 probable

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Recalls and Border Rejections:

| Year | Exporting Country | Country Issuing Recall/Rejection | Food |
|------|-------------------|----------------------------------|--------------|
| 2019 | Poland | Czech Republic | Chilled Beef |
| 2019 | Sudan | Greece | Sesame Seeds |

Relevant links and references:

1. <http://www.ncbi.nlm.nih.gov/pubmed/19207743>
2. <http://www.ncbi.nlm.nih.gov/pubmed/1757554>
3. http://www.cdc.gov/nczved/divisions/dfbmd/diseases/salmonella_enteritidis/
4. <https://www.efsa.europa.eu/en/supporting/pub/1110e>
5. https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Polish%20eggs%20traced-back%20for%20across%20Europe%20outbreak%20of%20Salmonella._Warsaw_Poland_11-7-2016.pdf
6. <https://www.cdc.gov/salmonella/enteritidis-09-18/index.html>
7. <http://analytics.foodtrack.net/cgi-bin/read?rid=MjAxOTAyMjExMzQ0Rk9PRFRSQ0tCVUxMRVRTXzAyMjExOUw0MjY=&style=html&source=email>