

# Salmonella Enteritidis

**Background:** *Salmonella enterica* subsp. *enterica* serovar Enteritidis (antigenic formula 1,9,12:g,m:- ) is a polyphyletic serovar of the O:9 (D<sub>1</sub>) 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/](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](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>