Salmonella Muenchen

Background: *Salmonella enterica* subsp. *enterica* serovar Muenchen (antigenic formula 6,8:d:1,2) is a serovar of the O:8 (C_2-C_3) serogroup. In the U.S., *S almonella* Muenchen is a common serovar that is reported among the top ten serovars isolated from humans. Strains of *S.* Muenchen with multidrug resistant phenotypes have been reported; one of these reports described an strain of S. Muenchen resistant to up to 12 antibiotics (i.e., ampicillin, chloramphenicol, streptomycin, sulfamethoxazole, tetracycline, amoxicillin-clavulanic acid, kanamycin, gentamicin, cephalothin, and ceftriaxone). Outbreaks caused by *S.* Muenchen have been associated with several foods, including orange juice and alfalfa sprouts. S. Muenchen was identified in rural areas of South Georgia in watersheds and wild animals; importantly, same PFGE patterns were idientified in human salmonellosis cases.

Animal reservoir: *S.* Muenchen is typically isolated from poultry, swine, cattle, and wilde animals.

Geographical distribution: *S.* Muenchen have been reported among the most common serovars in multiple locations; including the U.S., Australia, and Europe. In addition, microbiological identifications of *S.* Muenchen have benn reported in some countries in Africa (South Africa and Ethiopia), Asia (Singapore and Malaysia), and South America (Brazil). This serovar was identified in rural areas of Georgia, US.

Outbreaks: A number of outbreaks in the U.S., Europe and Australia have been linked to *S.* Muenchen.

Year	Location	Associated source	Number of cases
2023	Denmark	Unknown	16
2016	US-multistate	alfalfa sprouts	25*
2014	Germany	Raw pork sausage	247
2013	Germany	Raw pork sausage	203
2003	US-multistate	Melon	58
2001	Germany	Pork	198
1999	US-Wisconsin	Alfalfa sprouts	157
1999	US-Canada	Orange juice	207
1997	Australia	Corn beef	24
1980	London	Nosocomial in pediatric hospital	28

*one cases associated with this outbreak was identified as *Salmonella* Kentucky (i.e. N=26)

Relevant links and references:

1. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4827a2.htm
2. http://www.ncbi.nlm.nih.gov/pubmed/11574556
3. http://www.sciencedirect.com/science/article/pii/0195670182900652
4. http://aac.asm.org/content/49/2/503.full
5. http://www.plosone.org/article/fetchObject.action?uri=info:doi/10.1371/journal.pone.0128937&representation=PDF
6. http://www.cdc.gov/salmonella/muenchen-02-16/index.html
7. https://www.ssi.dk/sygdomme-beredskab-og-forskning/sygdomsudbrud/udbrud-med-salmonella-muenchen-sekvenstype-82-i-danmark