Getting it right with *Salmonella* nomenclature

**What are the *Salmonella* species and subspecies that I need to know?**

There are two species of *Salmonella*:

- *Salmonella enterica*
- *Salmonella bongori*

Within *Salmonella enterica*, there are six subspecies which are commonly abbreviated by Roman numerals:

- *Salmonella enterica* subspecies *enterica* (subspecies I)
- *Salmonella enterica* subspecies *diarizonae* (subspecies IIIb)
- *Salmonella enterica* subspecies *salamae* (subspecies II)
- *Salmonella enterica* subspecies *hautenae* (subspecies IV)
- *Salmonella enterica* subspecies *arizonae* (subspecies IIIa)
- *Salmonella enterica* subspecies *indica* (subspecies VI)

Most human infections are associated with *Salmonella enterica subspecies enterica*.

**How should I abbreviate *Salmonella* serovars?**

- **Main point:** Clearly define abbreviation before using it, i.e. *Salmonella enterica* serovar *Typhi* (*Salmonella Typhi*)

- **Other points:** The White-Kauffman-Le Minor Scheme recommends against abbreviating genus unless species is also provided. For example:
  - ✗ *S. Typhi* is discouraged
  - ✓ *Salmonella Typhi* is acceptable
  - ✓ *S. enterica* serovar *Typhi* is acceptable
  - 'Serovar Typhi' is particularly useful for multiple serovars, e.g., 'serovars Typhi, Paratyphi A, and Paratyphi B'

  And remember, there is no such thing as ‘*Salmonella Paratyphi*;' rather, *Salmonella Paratyphi A*, *Salmonella Paratyphi B*, and *Salmonella Paratyphi C*. These can also be abbreviated as *Salmonella* serovars Paratyphi A, Paratyphi B, and Paratyphi C.

**What are appropriate collective terms for serovars?**

- **Typhoidal *Salmonella*** refers to serovars that cause typhoid or paratyphoid fever.
- **Nontyphoidal *Salmonella*** (NTS) refers to all other serovars.

  'Serotype' is a widely used alternative to 'serovar,' 'serotyping' is the process of determining serovars.

**What are the appropriate terms for the diseases caused by *Salmonella***?

- **Typhoid fever** is caused by *Salmonella Typhi*.
- **Paratyphoid fever** is caused by *Salmonella Paratyphi A*, *Salmonella Paratyphi B*, or *Salmonella Paratyphi C*.
- **Enteric fever** is the collective noun for typhoid and paratyphoid fevers.
- **Nontyphoidal *Salmonella*** (NTS) are important causes of enterocolitis*, and may cause bloodstream infections and other extraintestinal infections of normally sterile sites. Some serovars and sequence types of NTS cause extraintestinal infections more frequently than others relative to diarrhea.

  *Anatomically and pathologically speaking, NTS cause predominately enterocolitis rather than gastroenteritis.

**Where can I find out more?**

These websites provide an excellent overview of the history and current status of *Salmonella* taxonomy and nomenclature:

- [http://www.bacterio.net/salmonella.html](http://www.bacterio.net/salmonella.html)
- [http://www.bacterio.net/-salmonellanom.html](http://www.bacterio.net/-salmonellanom.html)
- [https://www.pasteur.fr/sites/default/files/veng _0.pdf](https://www.pasteur.fr/sites/default/files/veng _0.pdf)

Learn more and join the effort at [www.takeonyphoid.org](http://www.takeonyphoid.org)  
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