Getting it right with *Salmonella* nomenclature

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

There are two species of *Salmonella*:

**Salmonella enterica**

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 IIIa)
- **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*.

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 website 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.takeontyphoid.org](http://www.takeontyphoid.org)

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