

## Update: *Salmonella* serotyping

by Beth Schweitzer, MT (ASCP), NPHL and Paul Fey Ph.D., Associate Director, NPHL

Since the establishment of the National *Salmonella* Surveillance System in 1962, serotyping of *Salmonella* has become a time-honored tradition within state public health laboratories. Serotyping, along with molecular methods such as pulsed-field gel electrophoresis (PFGE), has allowed epidemiologists to define epidemic patterns, to identify temporal trends in disease transmission, and to monitor control efforts. Currently, over 2400 serotypes have been defined within the two recognized *Salmonella* species: *S. enterica* and *S. bongori*.

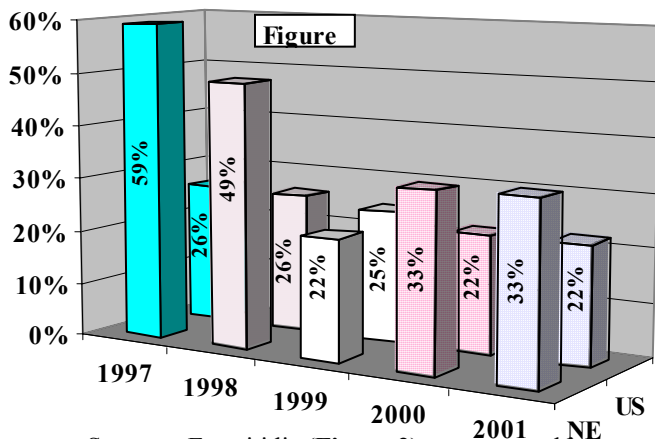
A total of 170 isolates were submitted to the Nebraska Public Health Laboratory in 2002. Forty two different serotypes were identified with serotypes Typhimurium, Heidelberg, Enteritidis, and Newport accounting for more than half (**Table 1**).

Typhimurium 47	Saint Paul 8
Heidelberg 18	Muenchen 7
Enteritidis 11	Oriensburg 6
Newport 10	Larochelle 4
Kottbus 9	

The goal of the serotyping program in Nebraska is to enable the NPHL and the Nebraska Health and Human Services System to track and better understand current and historical changes in *Salmonella* serotypes. For instance, *Salmonella* serotyping, in combination with PFGE, has allowed the public health community to track the current national increase in prevalence of multi-drug resistant *S. Newport*. The following is a description and comparison of the total data from Nebraska from 1997 through 2001 as compared to the National *Salmonella* serotype information during the same period.

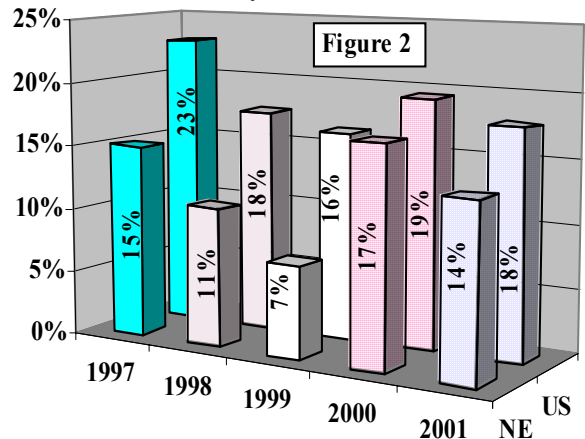
### Serotype Trends in Nebraska and comparison to National Data:

Between 1997 and 2001, there were 762 *Salmonella* isolates submitted to the NPHL for serotyping. The most common serotype for each year was *S. serotype* Typhimurium (36%) followed by serotypes Enteritidis (15%), Heidelberg (5%) and Newport (5%). Nationally, *S. serotype* Typhimurium constituted 27% of all isolates over the same time period. The incidence of *S. Typhimurium* (**Figure 1**) from 1997 to 2001 decreased in Nebraska over this same time frame from a high of 59% in 1997 to 33% in 2001.

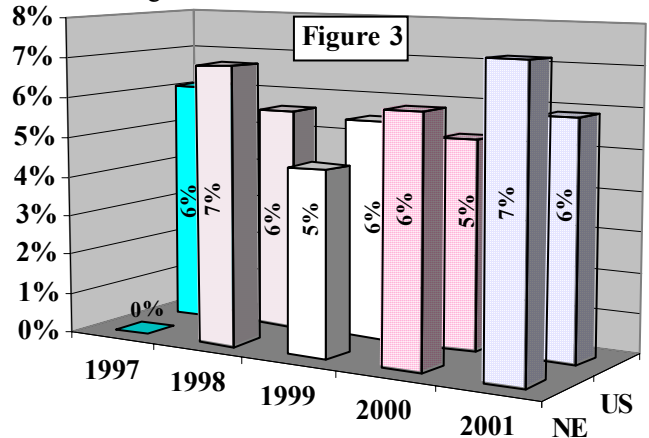


Serotype Enteritidis (**Figure 2**) was seen at higher rates in the United States than in Nebraska over the five year comparison. However, the incidence of *S. Enteritidis* rose to near the

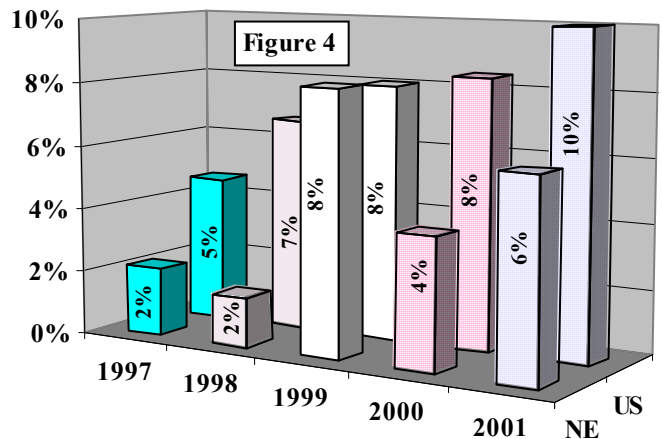
national incidence in both years 2000 and 2001.



Prior to 1998, some *Salmonella* serotypes including serotype Heidelberg were not being monitored in Nebraska. However, from 1998-2001, *S. Heidelberg* appeared to have a similar prevalence in Nebraska compared to the United States (**Figure 3**). *S. Heidelberg* isolated in Nebraska ranged from 5% to 7% for each year of analysis, compared with national data where the range was 5% to 6%.



*S. Newport* (**Figure 4**) was isolated more often in the United States than in Nebraska. Between 1997 and 2001, the number of *S. Newport* isolates increased in the United States from 5% to 10%. Overall, the *S. Newport* incidence has increased in Nebraska following the national trend.



The NPHL would like to thank all of the microbiology laboratories in Nebraska for submitting *Salmonella* isolates for serotyping and epidemiological analysis. For questions about this program, please call Beth Schweitzer at 402-559-6098.