

## **Salmonella Serotyping Underway at the NPHL**

by Tony Sambol

The NPHL recently completed the first full year of *Salmonella* serotyping. Prior to 2000, no serotyping had been performed in the State of Nebraska. The CDC estimates that from 1 to 4 million cases of salmonellosis occur each year in the U.S. with approximately 500 deaths. About 40,000 of these infections are confirmed by culture, with most isolates serotyped at state public health laboratories. The CDC tests about 1,000 problem isolates that are referred from the state public health labs each year. Serotyping is an important epidemiological tool to determining the source of disease outbreaks.

The salmonellae are first classified or serogrouped based on their somatic (O) antigens, and then serotyped based on the flagellar (H) antigens. To date, there are 2,435 serovars described by the CDC, with 20 to 35 new serotypes described each year by the World Health Organization (WHO). Currently, the CDC recognizes two species of *Salmonella*, *S. enterica* and *S. bongori*. *S. bongori* contains 18 serovars, and *S. enterica* contains over 2300 serovars, divided among six subspecies.

Most *Salmonella* serotypes isolated from humans belong to *Salmonella enterica* subspecies with the most common serotypes in the U.S. being *Salmonella* serotype Enteritidis and *Salmonella* serotype Typhimurium. To serotype the salmonellae requires the availability of more than 250 O and H typing antisera. The CDC maintains an inventory of the antisera needed to serotype the 100 most common isolates found in the U.S., and these reagents are available for the state public health laboratories to use.

Serotyping in 2000 was

performed on isolates sent to the NPHL from 14 different hospital and private laboratories in the state. The NPHL received 184 isolates from human sources. Of these, 179 have been identified and fall into 8 different serogroups and 42 serotypes, some which have rarely been reported in the Midwest. The top ten *Salmonella* serotypes seen in Nebraska for 2000 are shown in Table 1. Clinical laboratories are encouraged to continue submitting all isolates of *Salmonella* to the NPHL for serotyping. Nebraska has had excellent cooperation from the various microbiology laboratories in the state for this activity. The test is performed without charge and the only requirement for processing of the isolate is completion of the "Special Microbiology Requisition Form". In the future, the NPHL Newsletter plans to report *Salmonella* serotypes by county, so listing the county of suspected origin of the *Salmonella* isolate on the requisition will be helpful to generate this data.

**Top ten *Salmonella* serotypes for Nebraska in year 2000**

<u>Salmonella serotype</u>	<u>Serogroup</u>	<u>Number</u>
1/ Typhimurium		
var. Copenhagen	B	35
2/ Typhimurium	B	32
3/ Enteritidis	D1	30
4/ Heidelberg	B	12
5/ Newport	C2	11
6/ Montevideo	C1	7
6/ Paratyphi B		
var. Java	B	7
7/ Derby	B	4
8/ Agona	B	3
8 /St. Paul	B	3