Enterohemorrhagic *E. coli P*revalence Study

by Paul D. Fey, Ph.D.

T h e Nebraska Public Health Laboratory (NPHL) in conjunction with the Office of Epidemiology at the Nebraska Health and Human Services System (NHHSS) is conducting a study this spring and summer to determine the prevalence of *Escherichia coli* O157:H7 and other enterohemorrhagic *E. coli* (EHEC) in the state of Nebraska. We plan to collect approximately 500 diarrheal stool specimens from nine participating laboratories throughout Nebraska. Once the specimens arrive at the NPHL, we will perform three different tests to detect EHEC. First, the stool specimen will be plated to cefixime-tellurite sorbitol MacConkey agar to screen for the phenotypic properties of *E. coli* O157:H7. This screen will not detect other EHEC serotypes, as they are known to ferment sorbitol. Secondly, stool specimens will be tested for the presence of shiga-toxin by the Meridian Premier EHEC enzyme immunoassay kit. Lastly, DNA will be extracted from the stool specimens and shiga toxin and other EHEC virulence genes will be detected using multi-plex PCR. If EHEC are detected by any of these three methods, the strain will be isolated and serotyped using type specific anti-sera. Results from this study will give Nebraska health care providers and microbiologists essential information on the frequency of this group of organisms and optimal methods for detection.

Participating laboratories:

Omaha
UNMC
Bergan Mercy Medical Center

North Platte
Great Plains Medical Center

Grand Island
St. Francis Medical Center

Lincoln
Quest Laboratories

Kearney
Good Samaritan Hospital

Hastings
Mary Lanning Hospital

McCook
Community Hospital

Beatrice
Beatrice Community Hospital