

Restaurant-associated Ground Beef *E. coli* O157:H7 Outbreak

The Vermont Department of Health, the Vermont Agency of Agriculture, Food & Markets, and the USDA recently investigated an outbreak of *E. coli* O157:H7 among ten people who had eaten ground beef in Vermont restaurants. A case-control study demonstrated a statistically significant association between illness and eating ground beef at one of the implicated restaurants. Although no *E. coli* was isolated from the beef, the Vermont processor issued a recall of beef produced on five different days in September. No additional cases have been reported.

Pulsed Field Gel Electrophoresis (PFGE) was used during this investigation to distinguish outbreak-associated cases from other, sporadic *E. coli* cases. PFGE is a laboratory technique used to subtype bacteria at the molecular level. PFGE goes beyond the use of surface antigens for differentiation and instead uses minor differences in the bacterial DNA in order to determine how genetically similar one bacterial isolate is to another. PFGE is not a diagnostic tool; it is an epidemiologic tool for narrowing the focus of an outbreak investigation.

All 50 state public health laboratories (PHLs) currently perform PFGE typing, and in doing so, comprise the national foodborne illness detection network called PulseNet USA. Through PulseNet USA, VDHL communicated quickly with other PHLs, which lead to the importation of PFGE data on the 10th isolate (discovered as part of the epidemiologic investigation) from an Arizona resident who had visited Vermont during his incubation period. VDHL continues to monitor this outbreak on the local and national levels.

This investigation reinforces the importance of testing for bacterial enteric pathogens, and of submitting isolates to the VDHL for PFGE analysis.

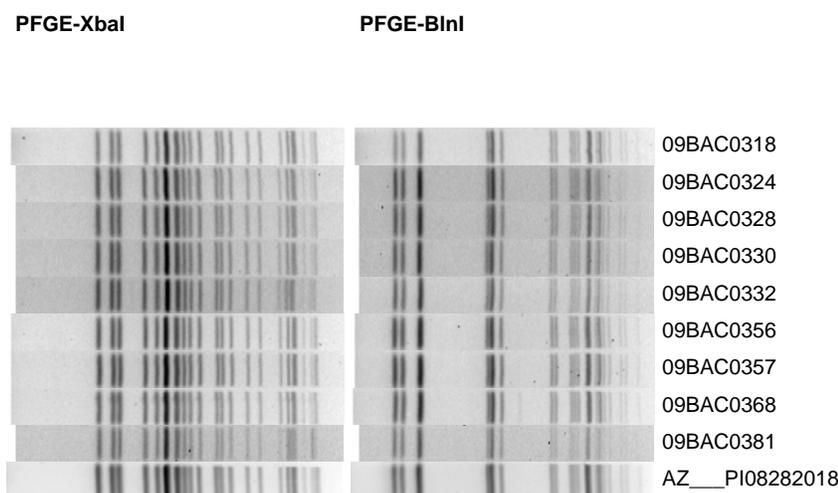


Figure: PFGE patterns of identical strains of *E. coli* O157:H7 recovered from patients with illness associated with the consumption of ground beef products.

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The *Infectious Disease Bulletin* can be viewed at:

<http://healthvermont.gov/pubs/IDB/index.aspx>

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