

APHL Position/Policy Statement

PulseNet and Foodborne Disease Surveillance: A Critical National Priority

A. Statement of Position

The Association of Public Health Laboratories (APHL) recommends that the US Department of Health and Human Services (HHS) elevate PulseNet laboratory and associated epidemiology activities to a higher level in its food safety priorities and fund the program accordingly.

B. Background/Data Supporting Position

PulseNet, the Centers for Disease Control and Prevention (CDC)-based national molecular subtyping network for foodborne disease surveillance, currently monitors eight foodborne disease agents, including two of the Category A bioterrorism agents and three Category B agents (1). The PulseNet infrastructure can potentially be applied to tracking almost any infectious disease agent. Together with the nation's foodborne disease surveillance system, PulseNet is arguably our nation's most sensitive and specific outbreak-detection and investigation tool, and is the most likely mechanism by which a widely distributed foodborne or waterborne bioterrorism event would be recognized. It has been responsible for detecting many national and international outbreaks such as *E. coli* O157:H7 in spinach, lettuce, peanut butter, and beef, *Listeria monocytogenes* in deli meats, and *Salmonella* in breakfast cereal and ice cream; resulting in the recall of millions of pounds of contaminated products, changes in food production and distribution processes, and the prevention of significant amounts of illnesses and death.

By providing a means for early detection of foodborne outbreaks, PulseNet results in a significant return (improved human health) for what has historically been a modest financial investment. For example, avoiding a single case of hemolytic uremic syndrome (HUS), one of the serious potential consequences of *E. coli* O157:H7 infection, can save as much as 6.2 million dollars in medical costs alone (2). This amount is over 32 times the cost of installing the PulseNet system in a single state and operating it for one year. In the 2006 national *E. coli* O157:H7 outbreak associated with fresh spinach, 31 individuals developed HUS (3), while untold numbers of cases were likely prevented. The utility of the PulseNet program in foodborne illness surveillance depends on real-time laboratory analysis of patient isolates, real-time case interviews, and real-time epidemiological follow-up. Despite its central role in disease surveillance and detection of foodborne bioterrorism, PulseNet functions unevenly across the nation. In 2004, 27 state public health laboratories had only one or less than one full-time equivalent employee funded for food-related molecular biology testing (4).

Consequently, in many public health laboratories subtyping work for PulseNet becomes significantly backlogged or stops entirely when other crises, such as West Nile virus, severe acute respiratory syndrome (SARS), or norovirus occur. In 2004, only 65.3% of PulseNet laboratories were able to conduct real time PFGE analysis of *E. coli* O157:H7 samples; and only 60% conducted real-time subtyping analysis of *Listeria* samples due to inadequate staffing and other delays (4).

Currently, the primary source of funding for foodborne disease surveillance and PulseNet is CDC's Epidemiology and Laboratory Capacity Cooperative Agreement (ELC). However, this funding source is problematic. There are many basic public health priorities competing for these ELC funds, and the ELC funds are level or declining while the cost of clinical laboratory diagnostic supplies continues to increase. In 2002, the federal government began making funds available to states for bioterrorism preparedness through the Public Health Emergency Preparedness Cooperative Agreement, but it was not until 2005 that PulseNet and Foodborne Disease Surveillance were recognized as critical components in preparedness efforts. The Cooperative Agreement has experienced severe cuts in fiscal years 2005, 2006, and 2007, eliminating any

sustainable progress that may have been made through this funding source. There are currently no other national funding initiatives designed to address this need.

Because foodborne disease surveillance, including PulseNet activities, has a central role in food safety and foodborne bioterrorism detection, APHL recommends that the HHS consider it as a national priority and consider seeking alternate supplemental funding for this purpose. This supplemental funding would support both current PulseNet activities and the next generation of molecular technologies that will allow PulseNet to operate in a more efficient, real-time manner. If PulseNet is to reach its full potential for national food safety and defense, it is necessary for HHS to take additional action to assure full and effective participation by all state public health departments.

C. References

1. <<http://www.cdc.gov/pulsenet/pathogens.htm>>
2. Elbasha, EH et al. Costs and benefits of a subtype-specific surveillance system for identifying Escherichia coli O157:H7 outbreaks. Emerging Infectious Diseases. 2000. May-June; 6(3):293-7.
3. Centers for Disease Control (CDC). Press Release- Update on Multi-State Outbreak of *E. coli* O157:H7 Infections From Fresh Spinach. October 6, 2006. <<http://www.cdc.gov/foodborne/ecolispinach/100606.htm>>
4. Unpublished data from the 2004 APHL Survey of PulseNet Activities.

D. Implementation

1. APHL will send this position statement to policy-makers at the U.S. Department of Homeland Security (DHS) and the US Department of Health and Human Services (HHS).
2. APHL will advocate that HHS and DHS elevate the priority of state and federal PulseNet funding in the overall bioterrorism preparedness and food safety efforts, and fund the program accordingly. PulseNet funding should not come from the existing laboratory or epidemiology funding, which is already insufficient in many states.
3. APHL will encourage its members to take responsibility in ensuring that PulseNet is both a national and state priority. Laboratories will be encouraged to assess their own food safety capacities and use those assessments to seek funding.

Recommended by: APHL Food Safety Committee
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Sunset Date: