Food Emergency Response Network (FERN)

U.S. Food and Drug Administration
U.S. Department of Agriculture/FSIS

Dr. Jim Pearson
March 4, 2005
Partnerships

Daily Objective: At the end of this day, the participant will be able to:

- Discuss state and local partnerships relating to infectious disease testing and surveillance.

- Discuss how partnerships in laboratory testing, surveillance and reporting of infectious diseases within the local and national laboratory community benefit the laboratory community and the public’s health.
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<tr>
<th>Health Department</th>
<th>Program Directors and Staff</th>
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<td>CDC</td>
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<td>Well Drillers</td>
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<td>Local Emergency Response?</td>
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<td>Infection Control Nurses</td>
<td>Agriculture Department</td>
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<td>Pediatric Nurses</td>
<td>Police Departments</td>
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<td>Local Health Agencies</td>
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<td>Practitioners</td>
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<td>Public Health Advisors</td>
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<td>Epidemiologists</td>
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<td>Public Health Nurses</td>
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Laboratory Response Network

1999

Centers for Disease Control and Prevention
Association of Public Health Laboratories
Federal Bureau of Investigation

Then – 9/11/01
# Federal Agencies Involved in Bioterrorism 2001

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<th>Federal Agency</th>
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Bioterrorism

Key Federal Agencies

Domestic Terrorism Response: Who are the key players?

- FBI
- Environmental Protection Agency
- Department of Justice
- National Security Council
- Department of Health and Human Services
- Department of Energy
- Federal Emergency Management Agency

Food?

- Office of Emergency Preparedness
- Public Health Service
- Centers for Disease Control and Prevention
- Army Soldier and Biological Chemical Command (SBCCOM)
- Army Technical Escort Unit
- Marine Corps Chem-Bio Incident Response Force
Norovirus
Non-O157 EHEC
ETEC
Campylobacter spp.
Rotavirus
Toxins
Cyclospora
Brucella
Cryptosporidium spp.
E. coli O157:H7
Cesium
Entamoeba histolytica vs. dispar
Yersinia
FERN Mission & Objectives

Mission - Integrate the nation’s food-testing laboratories for the detection of threat agents in food at the local, state, and federal levels.

Comprehensive effort – chemical, biological, radiological disciplines involving full range of food commodities

Objectives

- Prevention – federal/state surveillance sampling programs
- Preparedness – strengthening lab capabilities/capacities
- Response – surge capacity
- Recovery – provide assurance to the consumer
Food Emergency Response Network
Organizational Chart

Co-Chairs

Executive Board

Steering Committee

National Programs Office

FERN Support Programs

Regional Coordination Center
Regional Coordination Center
Regional Coordination Center
Regional Coordination Center
Regional Coordination Center
FERN Steering Committee

Co-Chaired by Senior Executives from FDA and USDA/FSIS

FDA  DOD
USDA  EPA
CDC/LRN  DHS
NAHLN  FBI
APHL  Other Federal Representation

State Agriculture/Food Laboratory
93 Laboratories representing 43 States and Puerto Rico have satisfactorily completed FERN Laboratory Qualification Checklists.

- Affiliations – 25 Federal (DHHS/FDA, USDA/FSIS, USDA/AMS, DOD, DHS, CBP); 68 State/local

- Disciplines – 67 Chemical; 69 Microbiological; 25 Radiological
Surveillance

Conducted small scale surveillance assignment in April 2004 with 18 Federal and State laboratories receiving samples for Microbiological and Chemical analyses.

- Practiced coordination and communication protocols
- Evaluated sample preparation, transportation, receipt, and timeframes.
- Method identification – data for validating standard methods
- Data entry- identify eLEXNET mechanism regarding user roles, data handling, and reporting

A FERN Surveillance Assignment was issued September 8, 2004 with 40 participating Federal and State laboratories.

- Assessed and demonstrated the effectiveness and capabilities of the FDA FERN Chem/Micro and Rad laboratories
- Tested the operating mechanisms and protocols
Training Performed

- Developed a training plan which includes both web-based and face-to-face training on methods, BSL-3 level laboratories, tour of FERN, etc.

- Recent training done by FERN includes:
  - Real time PCR training – August 2004 (35 Federal, state and local participants)
  - *Bacillus anthracis* and *Salmonella* training – Aug 2004 (13 International, Federal and state participants)
Proficiency Testing

- Standard Operating Procedures developed by FERN sub-committee.
  - Process ensures participating laboratories can demonstrate ability to successfully conduct the analysis of CT samples.

First Microbiological PT sample for *Bacillus anthracis* issued November 29, 2004. *This was a joint PT sample with LRN involving 66 laboratories.*

Second Radiological PT sample for Cesium issued December 6, 2004 to 25 laboratories.
FERN Methods

- Developed and Implemented:
  8 microbiological
  22 chemical
  1 radiological
- Method sub-committee - SOP developed detailing minimum standards, methods provide consistent repeatable results in food matrices
- FERN Methods have also been shared with LRN.
Laboratory Outreach - Regional Coordination

FERN NPO is holding Regional Meetings to:

- Establish operational/communication guidelines within each FERN regional hub
- Communicate FERN objective, policies and current activities
- Enhance collaboration between FERN laboratories within a region
- Provide an opportunity for individual regions to tailor response plans
Electronic Laboratory Exchange Network (eLEXNET).

FERN Uses eLEXNET for Collaboration & Data Sharing:

- FERN National Program Office shares current information, meeting minutes, documentation, and guidance information
- FERN Subcommittees conduct discussions, disseminate information, and develop documentation
- FERN Participants have a central location to check for information regarding activities
- Participants can review information on samples that have been submitted by eLEXNET’s participating laboratories
- FERN Surveillance Assignments: FERN related data can be captured and reported independently
FDA/FSIS FOOD EMERGENCY RESPONSE NETWORK (FERN)

Food Emergency Response Network (FERN)

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The mission of the FERN is to integrate the nation’s food-testing laboratories at the local, state, and federal levels into a network that is able to respond to emergencies involving biological, chemical, or radiological contamination of food. The FERN structure has been organized to ensure federal and state interagency participation and cooperation in the formation, development, and operation of the network. Organizations with representatives on the FERN Steering Committee include state agriculture, environmental, public health, and veterinary diagnostic laboratories as well as federal partners from HHS (FDA, CDC), USDA (FSIS, APHIS, AMS, GIPSA), US Customs, SDD, FBI, EPA, and DHS.

The entire FERN effort is being co-chaired by senior executives from the USDA Food Safety and Inspection Service and HHS Food and Drug Administration.

The FERN plays a number of critical roles related to food-borne terrorism. These include:

1. **Prevention.** FERN will provide a national surveillance program that will offer early means of detecting threat agents in the American food supply;

2. **Preparedness.** FERN will prepare the nation’s laboratories to be able to respond to food-related emergencies;

3. **Response.** FERN will offer significant surge capacity that will allow the nation to respond to widespread complex emergencies related to agents in food, and

4. **Recovery.** The FERN network of laboratories will enhance the ability of the country to restore confidence in the food supply either after an emergency or in response to threats.

The operational structure of FERN consists of National Program Office (NPO) located in Rockville, Maryland and Athens, Georgia, and Regional Coordination Centers (RCCs) located across the U.S. The Northeast and Southeast RCCs are also located in Rockville and Athens, respectively. These two RCCs held a face-to-face meeting in April 2004 that was attended by regional federal, public health, agricultural, and veterinary diagnostic laboratories. This effort is leading to the further development and expansion of the FERN in these regions and initial development in the other regions. As time and resources permit, two additional RCCs, in yet-to-be-determined locations, will be identified and made operational. Three regional meetings have occurred with attendance by FERN laboratories in the region:

The Northeast RCC met July 27-28, the newly organized Southwest RCC met September 14-16, and the Southeast RCC met September 28-29. The minutes of these three are posted on e-LISSnet.

The functions of the FERN Steering Committee include the development of FERN operational policies and procedures, the coordination and integration of national resources to support FERN, and advising and providing guidance to the FERN co-chairs, the FERN NPO, and the FERN Support Programs. The FERN Support Programs are composed of several subcommittees that are addressing issues related to training, surveillance, proficiency testing, electronic communications and reporting, and methods development and validation.

The Methods Development and Validation Committee has identified a limited number of analytes (and appropriate methods if available) and food commodities that are the focus of initial FERN efforts. Initial training, proficiency, and surveillance activities will focus on these targeted analytes. As the FERN develops and as resources become available, the scope and complexity of the support programs will broaden, and laboratory capabilities and capacity will be expanded to include a comprehensive list of biological, chemical, and radiological threat agents.
Partnerships
Federal

- CDC
- FBI
- DHHS
- DHS
- LLNL
- DOD
- USAMRIID
- DARPA
- USDA
- FDA
- EPA
- FEMA
- Treasury
- HSC

- DOE
- NOAA
- DOJ
- NSC
- SBCCOM
- State Department
- Secret Service
- CIA
- USPS
- AFIP
- ECBC
- DOT
- IATA
- Etc. . .
Partnerships

Local/State

- State Police
- Governor’s Emergency Response Coordinator
- Emergency Management
- Attorney General
- Elected Officials
- Environmental Crimes Task Force
- Food Safety Task Force
- FBI Field Office(s)
- Police and Fire Departments
- Crime Laboratory
- Medical Examiner
- Environmental Quality
- Agriculture
- HazMat/EMT
- Health
- Health Care Providers
- National Guard
- Academic Institutions
- And. . . . . . ?
That’s All Folks!