HIGH-RISK FOODS AND DATA INTEGRATION
Bi-national consumer advocacy organization founded in 1971 by Michael Jacobson, Ph.D.
- Focuses on nutrition and health, and food safety
- Publishes award-winning *Nutrition Action Healthletter*
- Represents over 900,000 subscriber/members in the United States and Canada
OVERVIEW

- World Health Organization/AGISAR Surveillance Model
- U.S. Data Sources
- Utility of Outbreak Data

Linking *Salmonella* serotype data in food to human illness
  - What existing data sets tell us
  - Is it predictive, either long-term or short-term?
The WHO model for surveillance looks at pathogens at three points in the food chain.

- Pathogens in the animal population
  - Broilers, Turkeys

- Pathogens in the retail meat sector
  - Ground meat, retail samples

- Public health (outbreaks/cases)
  - Cases linked to outbreaks/FoodNet cases
U.S. DATA SOURCES

- FSIS PR/HACCP testing
  - Broilers, ground chicken, turkey, ground turkey
- FDA NARMS retail testing
  - Chicken breast, ground turkey
- CDC FoodNet
  - 15% of U.S. population under active surveillance, captures cases of foodborne illness
- CSPI Outbreak Alert
CSPI’S OUTBREAK ALERT!

- Over 6,800 outbreaks between 1990-2009
- Using CDC’s Foodborne Outbreak Online Database (FOOD), CSPI maintains a database of those foodborne illness outbreaks with an identified etiology and food vehicle.
- Outbreaks in the CSPI database are indexed into one of thirteen food categories. Each category is then subdivided into food types.
### Food Categories in Outbreak Alert!

<table>
<thead>
<tr>
<th>FDA-Regulated Food</th>
<th>USDA-Regulated Food</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beverages</td>
<td>Beef</td>
<td></td>
</tr>
<tr>
<td>Breads &amp; Bakery</td>
<td>Pork</td>
<td></td>
</tr>
<tr>
<td>Dairy</td>
<td>Poultry</td>
<td></td>
</tr>
<tr>
<td>Eggs &amp; Egg Dishes</td>
<td>Luncheon &amp; Other Meats</td>
<td></td>
</tr>
<tr>
<td>Game</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-Ingredient Foods (No-Meat)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produce</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seafood</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Analyzed 3 years of data, 2006-2008

FSIS PR/HACCP testing – Lists top 10 serotypes for each year
  - Looked at serotypes of public health import (excluded S. Kentucky)

FDA NARMS retail testing – looked at overall *Salmonella* prevalence data

CDC FoodNet – Lists top 20 serotypes for each year, does not include food attribution
Note: FoodNet data has no food attribution
SALMONELLA IN CHICKEN 2006-2008

Percent of Positive Salmonella (all serotypes) in Chicken 2006-2008

Note: FoodNet data has no food attribution
SALMONELLA IN TURKEY 2006-2008

Percent of Positive Salmonella (all serotypes) in Turkey 2006-2008

Note: FoodNet data has no food attribution
SALMONELLA SEROTYPES IN CHICKEN 2006

Note: FoodNet data has no food attribution
SALMONELLA SEROTYPES IN CHICKEN 2007

Chicken - Percent of Total Salmonella Serotypes 2007

Note: FoodNet data has no food attribution
SALMONELLA SEROTYPES IN CHICKEN 2008

Note: FoodNet data has no food attribution
Dominant serotypes in chicken samples are
S. Enteritidis, S. Heidelberg

Serotype most dominant in chicken at retail is
S. Typhimurium, S. Heidelberg

The dominant strain causing human illnesses
(captured in the FoodNet data) are
S. Enteritidis, S. Typhimurium
SALMONELLA IN TURKEY 2006-2008

Note: FoodNet data has no food attribution
SALMONELLA SEROTYPES IN TURKEY 2006

Turkey - Percent of Total Salmonella Serotypes 2006

- FSIS PR/HACCP Turkey (N=198)
- FSIS PR/HACCP Ground Turkey (N=90)
- FDA NARMS Ground Turkey (N=159)
- FoodNet Salmonella Cases (N=6,689)

Note: FoodNet data has no food attribution
SALMONELLA SEROTYPES IN TURKEY 2007

Turkey - Percent of Total Salmonella Serotypes 2007

Note: FoodNet data has no food attribution
SALMONELLA SEROTYPES IN TURKEY 2008

Turkey - Percent of Total Salmonella Serotypes 2008

Note: FoodNet data has no food attribution
The dominant serotype in turkey samples is S. Hadar.

The serotypes most dominant in turkey at retail are S. Hadar, S. Heidelberg.

The dominant serotypes causing human illnesses (captured in the FoodNet data) are S. Enteritidis, S. Typhimurium.
A CAUTIONARY NOTE: RECENT ANTIBIOTIC-RESISTANT SALMONELLA OUTBREAKS

- 2011 Multi-state outbreak of *S. Heidelberg* in ground turkey – ABR resistant
- 2011 Multi-state outbreak of *S. Hadar* in ground turkey – ABR resistant

Other ABR outbreaks of interest
- 2011 Multi-state outbreak of *S. Typhimurium* in ground beef – ABR resistant
- 2009 Two multi-state outbreaks of *S. Newport* in ground beef – ABR resistant
- 2009 Multi-state outbreak of *S. Typhimurium* in ground beef – ABR resistant
FDA is receiving new food testing data from industry as a result of recent legislation.

- The Reportable Food Registry requires companies to report food contamination events to FDA when food has been released to the public.
- FSMA requires laboratories to report certain food testing data to FDA.
- FDA needs to develop a method of capturing this data and applying it as appropriate to anticipate existing and emerging hazards.
- IFSAC should consider methods to incorporate new sources of food testing data into its analysis.
Thank you!

Caroline Smith DeWaal
Food Safety Director
Center for Science in the Public Interest
1220 L St., NW Suite 300
Washington, DC 20005

Phone: (202) 777-8364  Fax: (202) 265-4954
E-mail: cdewaal@cspinet.org