Retail Food Study: The Lab Perspective

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The goal of this surveillance is to determine the prevalence of antimicrobial resistance among *Salmonella, Campylobacter, E. coli*, and enterococci isolated from a convenience sample of chicken breasts, ground turkey, ground beef and pork chops purchased from selected stores in the United States

NYS Participation

- Participating since 2003
- Purchase chicken breast, ground turkey, pork chops, ground beef
- Test for *Campylobacter*, *Salmonella*

Purchasing

- Randomly generated list of stores within approximately 15-mile radius (zip code)
- 5 different stores per month
- 2 of each product from each store
- Different brands or different lot numbers

Processing

- Set up within 96 hrs of purchase
- Copy package information (photograph)
- Sample and process on shaker
- Incubate in broth, screen (Sals), plate
- Serotype (Sals), speciate (Campy)
- Ship to FDA-CVM, log sheets to CDC
- Keep duplicate of strain

Shipment

- Isolates sent quarterly to FDA-CVM
- CDC – logsheets
- FDA – logsheets
- Quarterly conference calls

Source/organism	2003		2004		2005	
Chicken breast	**Number**	**% positive**	**Number**	**% positive**	**Number**	**% positive**
Campylobacter coli	36	30.0	41	34.2	13	10.8
Campylobacter jejuni	40	33.3	52	43.3	44	36.7
Salmonella B,5:i:-	0	0.0	1	0.8	0	0.0
Salmonella Heidelberg	1	0.8	0	0.0	1	0.8
Salmonella Kentucky	6	5.0	11	9.2	6	5.0
Salmonella Typhimurium	4	3.3	5	4.2	10	8.3
Total	**87**	**72.5**	**110**	**91.7**	**74**	**61.7**
Ground turkey						
Campylobacter jejuni	0	0.0	0	0.0	1	0.8
Salmonella IIIa:18:z_4,z_{23}:-	2	1.7	0	0.0	0	0.0
Salmonella IIIa:18:z_4,z_{32}	1	0.8	1	0.8	0	0.0
Salmonella Agona	3	2.5	2	1.7	1	0.8
Salmonella Berta	0	0.0	0	0.0	1	0.8
Salmonella Hadar	0	0.0	1	0.8	1	0.8
Salmonella Heidelberg	3	2.5	1	0.8	4	3.3
Salmonella Montevideo	2	1.7	0	0.0	0	0.0
Salmonella Muenster	0	0.0	0	0.0	1	0.8
Salmonella Paratyphi B, var. Java	0	0.0	2	1.7	0	0.0
Salmonella Reading	1	0.8	0	0.0	0	0.0
Salmonella Saintpaul	4	3.3	1	0.8	3	2.5
Salmonella Schwarzengrund	0	0.0	3	2.5	1	0.8
Salmonella Seftenberg	1	0.8	0	0.0	0	0.0
Salmonella Typhimurium	1	0.8	0	0.0	0	0.0
Total	**18**	**15.0**	**11**	**9.0**	**13**	**10.8**
Pork chops						
Salmonella Agona	0	0.0	1	0.8	0	0.0
Salmonella Heidelberg	0	0.0	1	0.8	0	0.0
Salmonella Manhattan	0	0.0	0	0.0	1	0.8
Salmonella Johannesburg	2	1.7	0	0.0	0	0.0
Salmonella Typhimurium	0	0.0	1	0.8	0	0.0
Total	**2**	**1.7**	**3**	**2.5**	**1**	**0.8**
Ground beef						
None	0	0.0	0	0.0	0	0.0
Total	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**

PFGE Matches (*Salmonella*)

- Nine isolates from 2003 and 2004
  - Not in protocol
  - Isolates forwarded to FDA-CVM and tested there (in database twice?)
- 30 isolates from 2005
  - Tested but not forwarded to database

No PFGE matches between patients and food

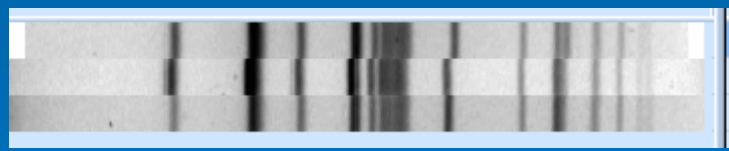
- *Salmonella* Agona (1 pattern)
- *Salmonella* Hadar (2 patterns)
- *Salmonella* Kentucky (3 patterns)
- *Salmonella* Schwarzengrund (2 patterns)
- *Salmonella* Typhimurium (2 patterns)

PFGE matches > 30 days apart

- *Salmonella* Heidelberg (3 patterns)
- *Salmonella* Manhattan (1 pattern)
- *Salmonella* Saintpaul (1 pattern)

PFGE matches <30 days

- *Salmonella* Berta; ground turkey, JAXX01.0029
- *Salmonella* Typhimurium; chicken breast, (1) JPXX01.0003, (2) JPXX01.1245 (5 food, 2 patients)



➡	BAC0500002085	Salmonella	Rensselaer	Typhimurium
➡	BAC0500004795	Salmonella	Albany	Typhimurium
➡	BAC0500005357	Salmonella	Albany	Typhimurium

Limitations

- EID fellow - turnover, competing projects
- List of stores - mainly 2 chains, limited brand variety, difficult to get different lot #'s
- Paperwork - log sheet to CDC (fields blacked out), logsheet to FDA
- Delay in submission of isolates
- PFGE - inability to match cases to food, duplication?

Strengths

- Shows consistent contamination year to year
- Provides feedback via call packets for % of positives, MDR data
- Learn where the cheapest place to shop is
- Reinforces good hygiene practices