FoodNet Active Manuscripts

Status	#	Lead	Coauthors	Title	Journal	Updated	Comment
10							
	460	Jones, Timothy F.	Angulo, Fredrick J.	Eating in Restaurants: A Risk Factor for Foodborne Disease?	CID	10/20/2006	
8							
	105	Fullerton, Kathleen E.	Ingram, Amanda, Jones, Timothy F., Anderson, Bridget J., McCarthy, Patrick V., Hurd, Sharon, Shiferaw, Beletshachew, Vugia, Duc J., Haubert, Nicole, Hayes, Tameka, Wedel, Stephanie, Scallan, Elaine, Henao, Olga L., Angulo, Fredrick J., EIP FoodNet Working Group	Risk Factors for Infant Campylobacter Infections: A FoodNet Case-Control Study	PIDJ	7/13/2006	Accepted to PIDJ
	24	Jones, Timothy F.	Ingram, Amanda, Fullerton, Kathleen E., Marcus, Ruthanne, Anderson, Bridget J., McCarthy, Patrick V., Vugia, Duc J., Shiferaw, Beletshachew, Haubert, Nicole, Wedel, Stephanie, Angulo, Fredrick J.	A Case Control Study of Salmonella Infection in Infants, FoodNet, 2002-2004	Pediatrics	7/13/2006	Accepted to Pediatrics
	65	Jones, Timothy F.	McMillian, Marcella B., Scallan, Elaine, Thomas, Stephanie M., Cronquist, Alicia B., Frenzen, Paul D., Angulo, Fredrick J.	A Population-Based Estimate of the Substantial Burden of Diarrheal Disease in the United States; FoodNet, 1996-2003	Epidemiology and Infection	1/6/2006	Accepted to Epi and Infection
	121	Samuel, Michael C.	Vugia, Duc J., Koehler, Kathleen M., Marcus, Ruthanne, McNees, Alexander A., Deneen, Valerie C., Damaske, Barbara, Shiferaw, Beletshachew, Hadler, James L., Angulo, Fredrick J.	Consumption of Risky Foods Among Adults at High Risk for Severe Foodborne Diseases: Room for Improved Targeted Prevention Messages		10/5/2006	Accepted to Journal of Food Safety
	104	Scallan, Elaine	Jones, Timothy F., Cronquist, Alicia B., Thomas, Stephanie M., Frenzen, Paul D., Hoefer, Dina, Medus, Carlota, Angulo, Fredrick J.	Estimating the Burden of Foodborne Illness: Factors Associated with Seeking Medical Care and Submitting a Stool Sample		9/18/2006	Accepted to Foodborne Pathogens and Disease

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Status	#	Lead	Coauthors	Title	Journal	Updated	Comment
	113	Varma, Jay K.	Samuel, Michael C., Marcus, Ruthanne, Hoekstra, Robert M., Medus, Carlota, Segler, Suzanne D., Anderson, Bridget J., Jones, Timothy F., Shiferaw, Beletshachew, Haubert, Nicole, Megginson, Melanie, McCarthy, Patrick V., Graves, Lewis M., Van Gilder, Thomas J., Angulo, Fredrick J.	Listeria Monocytogenes Infection From Food in the Regulatory Era: A Case-Control Study of Risk Factors for Sporadic Illness in the United States	CID	10/11/2006	Accepted to CID
	107	Voetsch, Andrew C.		Analysis of Trends in Listeriosis in the FoodNet Sites, 1996-2003		9/14/2006	Accepted to CID
	118	Voetsch, Andrew C.	Rabatsky-Ehr, Therese R., Lance-Parker, Susan, Thomas, Stephanie M., Smith, Kirk E., Mohle-Boetani, Janet C., Keene, William E., Mead, Paul S.	Risk Factors for Sporadic Shiga Toxin-Producing Escherichia coli O157 Infections in FoodNet Sites, 1999-2000	Epidemiology and Infection	5/23/2006	Accpted to Epidemiology and Infection.
7							
	455	Aragon, Tomas J.	Vugia, Duc J., Shallow, Sue, Samuel, Michael C., Reingold, Art, Angulo, Fredrick J., Bradford, William Z.	A Case-Control Study of Shigellosis in San Francisco: The Role of Sexual Transmission and HIV Infection		9/14/2006	Submitted to JID
	461	Jones, Timothy F.	Scallan, Elaine, Angulo, Fredrick J.	FoodNet: Overview of a Decade of Achievement		9/18/2006	Submitted to Foodborne Pathogens and Disease
	465	Scallan, Elaine		Activities, Achievements, and Lessons Learned During the First 10 Years of FoodNet		11/7/2006	Submitted to CID
	325	Shiferaw, Beletshachew		Comparison of Three Surveillance Systems for Hemolytic Uremic Syndrome in Oregon		6/6/2006	Submitted to AJPH.
6							
	124	Dunne, Eileen F.	Griffin, Patricia M., Snider, Cynthia J., Bender, Jeffrey B., Beletshachew, Shiferaw, Vugia, Duc J., Dembek, Zygmunt F., Wesolowski, Laura G., Carter, Michael A., Zansky, Shelley M., Boothe, Effie J., Burnite, Steve, Wells, Joy G., Bibb, William, Mead, Paul S., Henao, Olga L., EIP FoodNet Working Group	Pediatric Hemolytic Uremic Syndrome in the United States, 1997-2002: A Study of 379 Cases			

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Status	#	Lead	Coauthors	Title	Journal	Updated	Comment
	117	Patrick, Mary	Griffin, Patricia M., Mead, Paul S., Voetsch, Andrew C.	The Effectiveness of Recall Notification: Community Response to a Nationwide Recall of Hot Dogs and Deli Meats		10/5/2006	Submitted to JFP
5							
	22	Crump, John A.	Crump, John A., Joyce, Kevin W., Vugia, Duc J., Megginson, Melanie, Segler, Suzanne D., Hurd, Sharon, Luedeman, Jeff, Shiferaw, Beletshachew, Hanna, Samir S., Stevenson, Jennifer E., Angulo, Fredrick J.	Clinical Consequences of Typhoid Fever due to Salmonella Typhi with Decreased Susceptibility to Ciprofloxacin		9/11/2006	
	363	Hassan,Valley	Kirk, Martyn D., Scallan, Elaine, Angulo, Fredrick J., Hall, Gillian,	Reporting Rates of Campylobacter Infections in Australia and the United States - Exploring Reasons for the Difference		11/7/2006	
	26	Majowicz, Shannon E.	Scallan, Elaine, Hall, Gillian, Banerjee, Anyana, Kirk, Martyn D., Angulo, Fredrick J.	Respiratory Symptoms Among Persons with Gastrointestinal Illness		11/7/2006	
	394	Nelson, Jennifer M.	Nadle, Joelle, Daniels, Allison, Clogher, Paula, Gillespie, Jennifer, Furuno, Jon P., Plantenga, Melissa, Bernarczyk, Robert, Ingram, Amanda	Foods Associated with Listeria monocytogenes Infections Are Common at Long-Term Care Facilities in Eight States, FoodNet 2005		7/11/2006	
	459	Voetsch, Andrew C.		Case-Only Manuscript (dissertation)		5/23/2006	
4							
	341	Snider, Cynthia J.	Lynch, Michael, Cronquist, Alicia B., Phan, Quyen, Vugia, Duc J., Burnett, Cindy, Morse, Dale L., Keene, William E., Edwards, Leslie, Swanson, Ellen, Jones, Timothy F., EIP FoodNet Working Group,	Factors Associated with Confirming an Etiology During Foodborne Outbreak Investigations, FoodNet Sites, 2001-2004		10/16/2006	
3							
	109	Demma, Linda	Snider, Cynthia J., Shiferaw, Beletshachew, Vugia, Duc J., Hurd, Sharon, Zansky, Shelley M., Scheftel, Joni, Voetsch, Andrew C., Angulo, Fredrick J., Griffin, Patricia M., EIP FoodNet Working Group	Risk Factors for Developing Hemolytic Uremic Syndrome or Death Among Persons with Escherchia coli O157 Infection, FoodNet sites, 1997-2002			

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Status	#	Lead	Coauthors	Title	Journal	Updated	Comment
	464	Townes, John M.	Swanson, Ellen, Deodhar, Atul, Smith, Kirk E., Krug, Hollis, Wagner, Molly M., Barkhuizen, Andre, Thompson, Mollie, Sobel, Jeremy	Rheumatologic Sequelae of Enteric Bacterial Infection in Minnesota and Oregon: A Population-based Study		9/14/2006	
	360	Voetsch, Andrew C.	Henao, Olga L., Cronquist, Alicia B., Hurd, Sharon, Thomas, Stephanie M., Scheftel, Joni M., McMillian, Marcy, Megginson, Melanie, Hatch, Julie, Angulo, Fredrick J., EIP FoodNet Working Group	Surveillance Trends for Vibrio Infections in FoodNet sites, 1996-2004		11/9/2005	
2							
	103	Ailes, Elizabeth	Nelson, Jennifer M.	Foodborne Diseases Active Surveillance Network Surveillance Summary, 1996-2003			
	344	Henao, Olga L.	Ryan, Patricia A., Scallan, Elaine, Choudhuri, Julie, Norton, Dawn M., Edge, Karen, Ryan, Patricia A., Tobin-D'Angelo, Melissa, Nelson, Jennifer M., Hanna, Samir S., Jones, Timothy F., Angulo, Fredrick J., EIP FoodNet Working Group	Proportion of Visits to Health Care Providers Resulting in Request of Stool Samples: Data from the National Ambulatory Medical Care Survey (NAMCS) and the Foodborne Diseases Active Surveillance Network (FoodNet) Population Survey			
	331	Long, Cherie	Hayes, Tameka, Vugia, Duc J., Ryan, Patricia A., Scheftel, Joni, Shiferaw, Beletshachew, Jones, Timothy F., Demma, Linda, Voetsch, Andrew C., EIP FoodNet Working Group	Yersenia pseudotuberculosis infections in FoodNet, 1996-2005			
	432	Maldonado, George		Blending Project		1/3/2006	
	462	Steinmuller, Nicole	Demma, Linda, Hoekstra, Robert M., Angulo, Fredrick J.	Higher Incidence of Escherichia coli O157:H7 Infection in Rural Counties and Possible Association with Animal Contact			
1							
	381	Demma, Linda	Vugia, Duc J., Hurd, Sharon, Segler, Suzanne D., Kielbauch, Julie, Leano, Fe, Dumas, Nellie B., Hatch, Julie, Hanna, Samir S., Angulo, Fredrick J., Barrett, Timothy J.	Is the Incidence of Campylobacter coli Infection Increasing? Speciation by Clinical Diagnostic and Public Health Laboratories in Food Net, 1997-2004		11/16/2005	

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Status	#	Lead	Coauthors	Title	Journal	Updated	Comment
	102	Dunn, John R.		Substantial Decline in the Incidence of Escherichia coli O157:H7 Infections in FoodNet, 2003		6/8/2006	
	386	Hurd, Sharon	Demma, Linda, Shin, Sam, Cronquist, Alicia B., Segler, Suzanne D., Kielbauch, Julie, Swanson Laine, Ellen, Smith, Glenda, Hatch, Julie, Hanna, Samir S., Fitzgerald, Collette, EIP FoodNet Working Group	Clinical Laboratory Practices for the Identification of Campylobacter in FoodNet Sites: Do Differences Explain Variation in Incidence Rates?		11/16/2005	
	101	Scallan, Elaine	Vugia, Duc J., Cronquist, Alicia B., Marcus, Ruthanne, Thomas, Stephanie M., Blythe, David, Fuller, Candace, Zansky, Shelley M., Cieslak, Paul R., Jones, Timothy F.	Burden of Bacterial Foodborne Illness in the United States			

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Non Typhi Salmonella MDR Clinical Outcomes Cohort Study Status

State	Sampling Scheme	Study Start Date	FoodNet Cases	Eligible	Interviewed (% of eligible)	Pending (% of eligible)	Refused (% of eligible)	Other Not Enrolled (% of eligible)
CA	1/10	1/1/2006	325	38	21 (55%)	6 (16%)	3 (8%)	8 (21%)
CO	1/4	1/1/2006	267	70	53 (76%)	2 (3%)	13 (19%)	8 (11%)
CT	1/4	1/1/2006	348	94	76 (81%)	3 (3%)	8 (9%)	7 (7%)
GA GOA	1/20	3/7/2006	583	36	12 (33%)	13 (36%)	0 (0%)	11 (31%)
GA MSA	1/20	3/15/2006	331	16	10 (63%)	2 (13%)	1 (6%)	3 (19%)
MD	1/10	5/1/2006	*	42	23 (55%)	13 (31%)	2 (5%)	4 (10%)
MN	1/5	1/1/2006	501	111	87 (78%)	9 (8%)	8 (7%)	7 (6%)
NM	1/5	1/1/2006	165	34	18 (53%)	7 (21%)	2 (6%)	7 (21%)
NY	1/5	1/1/2006	367	60	31 (52%)	10 (17%)	5 (8%)	14 (23%)
OR	1/20	1/1/2006	273	20	13 (65%)	5 (25%)	1 (5%)	1 (5%)
TN	1/10	1/1/2006	863	59	50 (85%)	5 (8%)	3 (5%)	1 (2%)
		Total	4023	580	394 (68%)	75 (13%)	46 (8%)	71 (12%)

Updated 10/19/06.

* MD is currently working to extract data from NEDSS.

2005 outbreaks: summary of reports in eFORS and FoodNet Supplemental database. 2 or more ill						
State	Foodborne outbreaks reported to eFORS	Supplemental forms	Outbreaks where at least 1 CF was reported to eFORS	CF forms	Outbreaks where food prepared in Restaurant or Deli	Ill Foodworker forms
CA	18	7	4	0	11	0
CO	13	13	9	0	7	0
CT	14	16	13	0	7	0
GA	29	28	12	0	16	0
MD*	18	23	4	0	14	0
MN	44	43	29	0	29	0
NM	1	0	0	0	0	0
NY	15	15	12	0	5	0
OR	27	0	14	0	14	0
TN	16	16	16	0	10	0

***For selected pathogens MD files an eFORS report with 1 case**

2006 outbreaks: summary of reports in eFORS and FoodNet Supplemental database. 2 or more ill						
State	Foodborne outbreaks reported to eFORS	Supplemental forms	Outbreaks where at least 1 CF was reported to eFORS	CF forms	Outbreaks where food prepared in Restaurant or Deli	Ill Foodworker forms
CA	10	0	3	1	6	0
CO	20	19	10	7	12	8
CT	11	4	3	2	7	0
GA	22	11	5	0	13	4
MD*	12	5	2	3	4	0
MN	57	10	22	9	40	0
NM	2	5	0	0	0	0
NY	11	0	2	0	4	0
OR	20	9	8	4	9	3
TN	21	15	12	9	14	13

DATE: November 6, 2006

TO: Food Safety Inspection Service, U.S. Department of Agriculture

FROM: Foodborne Diseases Active Surveillance Network (FoodNet)

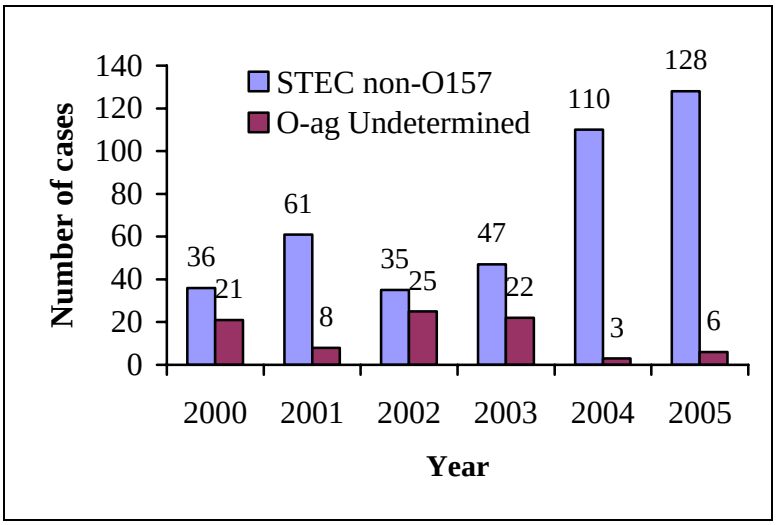
SUBJECT: FSIS request for data on lab-confirmed non-0157 STEC cases reported in FoodNet; received October 18, 2006

Surveillance for laboratory-confirmed cases of Shiga toxin-producing *Escherichia coli* O157 (STEC O157) has conducted since the Foodborne Diseases Active Surveillance Network (FoodNet) was established in 1996. In 2000, FoodNet began surveillance for laboratory-confirmed cases of STEC non-O157 infections. Several factors influence surveillance data, including laboratory practices. It is important to note, therefore, that laboratory practices for STEC non-O157 vary across sites participating in FoodNet. The data presented here are incomplete and do not provide a reliable estimate of the burden of non-O157 STEC in the United States.

Summary of STEC non-O157 cases ascertained in FoodNet, 2000-2005

From 2000-2005, FoodNet ascertained 417 laboratory-confirmed cases of STEC non-O157 infection; ranging from 35 and 36 cases in 2002 and 2000, respectively, to 128 cases in 2005 (Figure 1). An additional 85 STEC cases with O-antigen undetermined were ascertained during this time period. Almost all isolates were known to be obtained from stool; STEC non-O157 (98.8%; 412/417), O-antigen undetermined (96.5%; 82/85)

Figure 1: Frequency of laboratory-confirmed STEC non-O157 and O-antigen undetermined infections ascertained in FoodNet, 2000-2005



O antigen information was available for 382 of the 417 (92%) laboratory-confirmed STEC non-O157 infections. A total of 33 different O antigens were documented; O111 (27%), O103 (21%) and O26 (21%) were the most commonly identified non-O157 serogroups (Appendix A).

The number of STEC non-O157 cases ascertained varied by month with the majority of cases being identified during July, August, September and October (Figure 2). Information on age was available for 401 (96%) cases; of these, 28% were <5 years (Table 1). Females accounted for 55% of cases.

Figure 2: Frequency of laboratory-confirmed STEC non-O157 infections ascertained in FoodNet, by month, 2000-2005

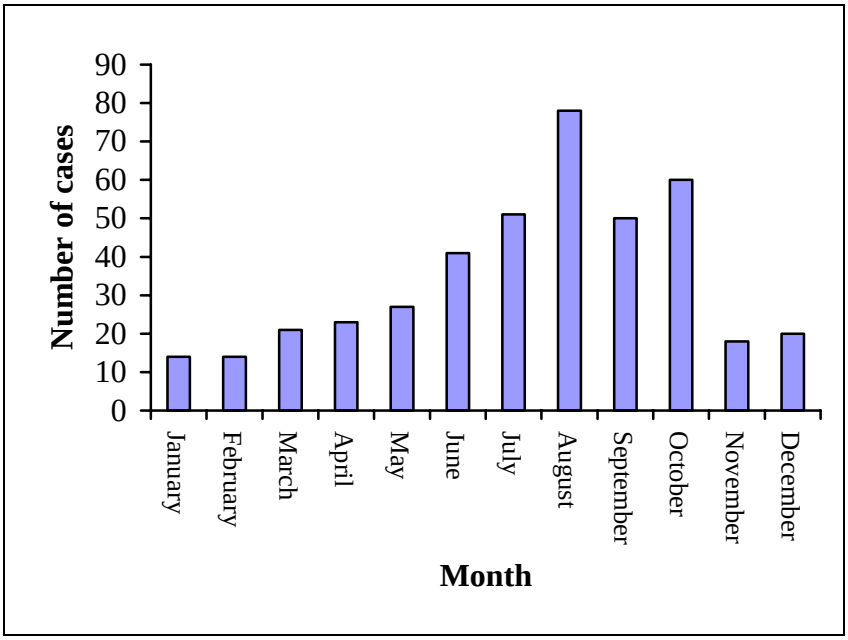


Table 1: Frequency of laboratory-confirmed STEC non-O157 infections ascertained in FoodNet, by age group, 2000-2005

	STEC non-O157	
Age Categories	**N**	**%**
<5	112	27.9
5-9	50	12.5
10-19	104	25.9
20-29	41	10.2
30-39	25	6.2
40-49	18	4.5
50-59	16	4.0
60-69	15	3.7
70+	20	5.0
Total responses	**401**	**100.0**
Missing	*16*	

Travel information was available for 175 (42%) cases; of these, 16 (9%) had traveled internationally in the seven days prior to illness onset. Hospitalization status was known for 368 (88%) cases; of these, 51 (14%) were hospitalized. From 2000-2005, there was one death associated with an STEC non-O157 infection.

In addition to surveillance for laboratory-confirmed infections, FoodNet conducts surveillance for hemolytic uremic syndrome (HUS) via a network of pediatric nephrologists and infection control practitioners. From 2000-2005, there were 520 HUS cases ascertained in the FoodNet catchment area. Of these, 440 (87%) had a stool specimen obtained, and of these, 9 (2%) were tested for STEC non-O157 infection. Seven (78%) of those tested for STEC non-O157 were positive. Of those with a known O antigen, two were O111, two were O14, and one was O2.

APPENDIX A: Frequency of STEC non-O157 serogroups, by year, 2000-2005

	Year							
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2000-2005**	
Serogroup	**n**	**n**	**n**	**n**	**n**	**n**	**n**	**%**
0	0	3	0	0	0	0	3	0.8
8	1	0	0	0	0	0	1	0.3
22	0	0	0	0	2	1	3	0.8
26	5	17	9	7	12	31	81	21.2
33	0	0	0	1	0	0	1	0.3
45	3	8	3	4	6	7	31	8.1
51	0	1	0	0	0	1	2	0.5
76	0	0	0	1	1	2	4	1.0
84	0	0	0	1	0	0	1	0.3
87	0	0	0	0	0	1	1	0.3
88	1	1	0	0	1	0	3	0.8
91	1	1	1	0	0	3	6	1.6
103	6	13	6	9	15	30	79	20.7
110	0	0	0	0	1	0	1	0.3
111	10	11	9	13	41	20	104	27.2
113	0	0	0	1	0	0	1	0.3
117	0	0	0	0	0	1	1	0.3
118	1	1	0	2	1	1	6	1.6
119	1	0	0	0	0	0	1	0.3
121	2	0	2	3	0	8	15	3.9
126	0	0	0	0	1	0	1	0.3
128	0	1	0	0	0	0	1	0.3
132	0	0	0	0	1	0	1	0.3
145	3	2	2	3	5	3	18	4.7
146	0	0	2	0	0	1	3	0.8
153	0	0	1	0	1	1	3	0.8
159	1	0	0	0	0	0	1	0.3
163	1	0	0	0	0	0	1	0.3
165	0	1	0	2	0	0	3	0.8
174	0	1	0	0	2	0	3	0.8
177	0	0	0	0	0	1	1	0.3
181	0	0	0	0	0	1	1	0.3
Total serotypes	**36**	**61**	**35**	**47**	**90**	**113**	**382**	100.0
Missing	*0*	*0*	*0*	*0*	*20*	*15*	*35*	

Trends in Incidence of Listeriosis in Adults 50 Years of Age and Older, Foodborne Diseases Active Surveillance Network (FoodNet), 1996-2005.

Teates K[1,2], Jones TF[3], Vugia D[4], Hurd S[5], Anderson BJ[6], Cronquist A[7], Farley MM[8], Plantenga M[9], Henao OL[1,2]

[1]Division of Foodborne, Bacterial, and Mycotic Diseases, Centers for Disease Control and Prevention, [2]Atlanta Research and Education Foundation, [3]TN Dept of Health, Nashville TN, [4]CA Dept of Health Services, Berkeley CA, [5]CT EIP, New Haven CT, [6]NY Dept of Health, Albany NY, [7]CO Dept of Public Health and Environment, Denver CO, [8]Emory University School of Medicine and the Atlanta VAMC, GA EIP, Atlanta GA, [9]OR Dept of Human Services, Portland OR

Background

Nearly 2,500 persons are infected annually with *Listeria monocytogenes (LM)* in the United States, resulting in approximately 500 deaths.

Methods

We examined population-based surveillance data collected via Foodborne Diseases Active Surveillance Network (FoodNet) from 1996-2005 to determine the burden of listeriosis infection among adults <50 years and ≥50 years of age. Using the most recent FoodNet population survey we also examined the frequency of consumption of risky foods in these age groups.

Results

The proportion of listeriosis cases among persons ≥50 years of age has increased from 61% in 1996 to 72% in 2005, whereas the proportion of persons ≥50 years of age under surveillance in FoodNet has remained fairly constant. The average incidence of listeriosis among persons ≥50 years of age is 9.2 per 1,000,000 compared to 2.2 among persons <50 years of age. Among persons ≥50 years of age, the average incidence was highest among individuals ≥80 years of age (20.0 per 1,000,000). Of the cases with known race and ethnicity, most were white and non-Hispanic. The proportion of hospitalized cases ≥50 years of age (89%) did not differ from the proportion among cases <50 years old (87%). Individuals ≥50 years of age were more likely to be immunocompromised than those <50 years of age (65% and 23%, respectively). Analysis of the population survey data revealed that reported consumption patterns of food items often associated with listeriosis did not differ by age group or immunocompromised status.

Conclusion

Listeriosis disproportionately affects individuals ≥50 years of age. These individuals are likely to be immunocompromised and many continue to report consumption of foods that place them at higher risk for listeriosis. Further declines in listeriosis incidence require continued efforts to reduce contamination of the food supply and to educate clinicians, caregivers, and consumers about risks factors for *Listeria* infection among older adults.

Implementation of safe food policies for preventing *Listeria monocytogenes* infections at Long-Term Care Facilities, FoodNet 2005

Elaine Scallan PhD, MA1, Jennifer M. Nelson MPH1,2, Bridget J Anderson PhD3, Joelle Nadle MPH4, Paula Clogher MPH5, Jennifer Gillespie MPH6, Allison Daniels MSPH7, Melissa Plantenga8, Amanda Ingram MPH9, Karen Edge MPH10, Jon P. Furuno PhD11 and the FoodNet EIP Working Group

1CDC, Atlanta, GA; 2Atlanta Research and Education Foundation, Atlanta, GA; 3New York Dept of Health, Albany NY; 4California EIP, Oakland, CA, 5Connecticut EIP, New Haven, CT, 6Georgia Division of Public Health, Atlanta, GA, 7Colorado Dept of Public Health and Environment, Denver, CO, 8Oregon Dept of Human Services, Portland, OR, 9Tennessee Dept of Health, Nashville, TN, 10 New Mexico Emerging Infections Program, Albuquerque NM, 11University of Maryland, Baltimore, MD

Background: *Listeria monocytogenes* (LM) is an important cause of foodborne illness in person ≥65 years. Accordingly, the U.S. Department of Health and Human Services and the U.S. Department of Agriculture recommend that elderly persons not consume foods known to be associated with LM infection, including ready-to-eat processed meats (unless heated until steaming hot before serving), unpasteurized milk or unpasteurized soft cheeses. We surveyed long-term care facilities (LTCFs) serving elderly populations to assess safe food practices and policies aimed at preventing LM infection.

Methods: We mailed a self-administered questionnaire regarding food preparation practices and policies to food service directors at LTCFs certified to receive Medicare or Medicaid reimbursement in 8 states (CA, CO, CT, GA, NM, NY, OR, and TN) participating in the Foodborne Disease Active Surveillance Network (FoodNet).

Results: Of eligible LTCFs, 55% (865/1,568) returned a completed questionnaire. Only three LTCFs completely followed the national recommendation for LM prevention. Policies regarding use of ready-to-eat deli meats or hot dogs in the preparation of resident's meals were present in 22% and 30% of facilities, respectively. Of these, most had policies detailing when opened containers of ready-to-eat deli meats or hot dogs should be discarded (91% and 57%, respectively). Only 5% of facilities had policies regarding soft cheeses; of these, most (62%) recommended that soft cheese or blue-veined cheese made from unpasteurized milk should not be served. 10%, 9%, and 4% of facilities with soft cheese, ready-to-eat meat, and hot dog policies, respectively, indicated that the policy applied only to individuals in special populations (e.g., immunocompromised).

Conclusions: These findings suggest that most LTCFs are not aware of or have not implemented the national LM prevention recommendations. Education of LTFC food service managers at LTCFs should emphasize the importance of restricting the use of unheated ready-to-eat processed meats, unpasteurized milk and unpasteurized soft in elderly populations.

Listeria and Federal Regulations – How are they related?

ISOPOL XVI: 16th International Symposium on Problems of Listeriosis

Ong, K.[1], Holt, K.[2], Buchanan, R.[3], Dennis, S.[3]

[1]ASPH/USDA/FSIS Fellow, Atlanta GA [2]Food Safety and Inspection Services, Atlanta GA
[3]Food and Drug Administration, College Park MD

Background: Listeriosis is a serious infection commonly caused by eating food contaminated with *Listeria monocytogenes*. In 1999, CDC estimated that nearly 2,500 persons are infected with *Listeria* each year resulting in approximately 500 deaths. Data from the Foodborne Diseases Active Surveillance Network (FoodNet) shows that the incidence of listeriosis has decreased. During the same time period various initiatives have been introduced by the Food Safety Inspection Service (FSIS), and the Food and Drug Administration (FDA) to decrease the human burden of listeriosis**.**

Methods: Our goal is to describe federal initiatives that address the presence of *Listeria* in food products since 1996.

Results: The Hazard Analysis and Critical Control Point (HACCP) program was launched in 1996 in an effort to regulate the inspection and monitoring of processing practices for ready to eat foods. Lessons learned from HACCP and a large multi-state outbreak of listeriosis in 1998, led to reevaluation of HACCP and implementation of more stringent control measures. In 2000, to better understand the impact from the farm to fork continuum, FSIS and FDA conducted a *Listeria* risk assessment and the information gathered led to the development of the *Listeria* Action Plan in 2001. Further changes in testing practices, such as intensified testing and verification of the effectiveness of growth inhibitors, were introduced in 2002 and 2003.

Conclusion: Since 1996, ongoing federal regulations and HAACP modifications at the processing plants have led to more stringent measures to control the quality of products available to consumers. During the same time period decreases in incidence of listeriosis have been reported by FoodNet. The periods where decreases in incidence were observed correspond with time periods when federal regulations and recommendations were implemented at processing plants. Future studies are needed to determine what steps either at the regulatory level or at the consumer level are needed to ensure further reduction in the incidence of listeriosis in the United States.

Pregnancy-associated listeriosis, Foodborne Diseases Active Surveillance Network (FoodNet), 1996-2005

Henao OL[1,2], etc…., Scallan E[1]

[1]Centers for Disease Control and Prevention, Atlanta, Georgia, [2]Atlanta Research and Education Foundation

Background: Listeriosis, a serious infection caused by eating food contaminated with the bacterium *Listeria monocytogenes*, is recognized as an important public health problem in the United States. About one-third of *L. monocytogenes* infections occur during pregnancy. Infections during pregnancy commonly result in miscarriage, stillbirth, premature delivery, or infection of the newborn.

Methods: We examined population-based surveillance data collected via the Foodborne Diseases Active Surveillance Network (FoodNet) from 1996 through 2005 to determine the burden and trends of listeriosis in individuals 50 years of age or younger. Cases were classified into two groups, pregnancy-associated and other cases 50 years of age or younger. Infections were classified as pregnancy-associated if illness occurred in a pregnant woman or an infant <31 days old. We used the population of children <1 year old for the denominator for pregnancy-associated cases.

Results: Overall, the incidence of listeriosis in the surveillance population was 3.6 cases per million from 1996 through 2005. During the same time period, the incidence of pregnancy-associated listeriosis was 42.7 cases per million whereas the incidence among cases 50 years or younger was 0.9 cases per million. The incidence of pregnancy-associated infection decreased 36% from and average of 51.4 cases per million in 1996-1998 to 32.9 cases per million in 2005. Among cases 50 years of age and younger, the incidence decreased 65% from an average of 1.43 cases per million in 1996-1998 to 0.5 cases per million in 2005. Pregnancy-associated cases were more likely to be hospitalized (91.0% vs 83.3%, p=0.02) and more likely to be Hispanic (38.6% vs. 21.1%, p=0.003) than cases 50 years and younger. No statistically significant difference was observed in number of deaths, including fetal loss among pregnancy-associated cases (16.8 vs. 10.6, p=0.09).

Conclusion. The rate of listeriosis in pregnant women and newborns is higher than in persons 50 years of age and younger. Pregnancy-associated cases are more likely to require hospitalization and are more likely to be Hispanic. Further declines in listeriosis among pregnant women and newborns require continued efforts of industry and government to reduce contamination of the food supply and targeted education of at-risk groups on prevention of infection with *L. monocytogenes*.

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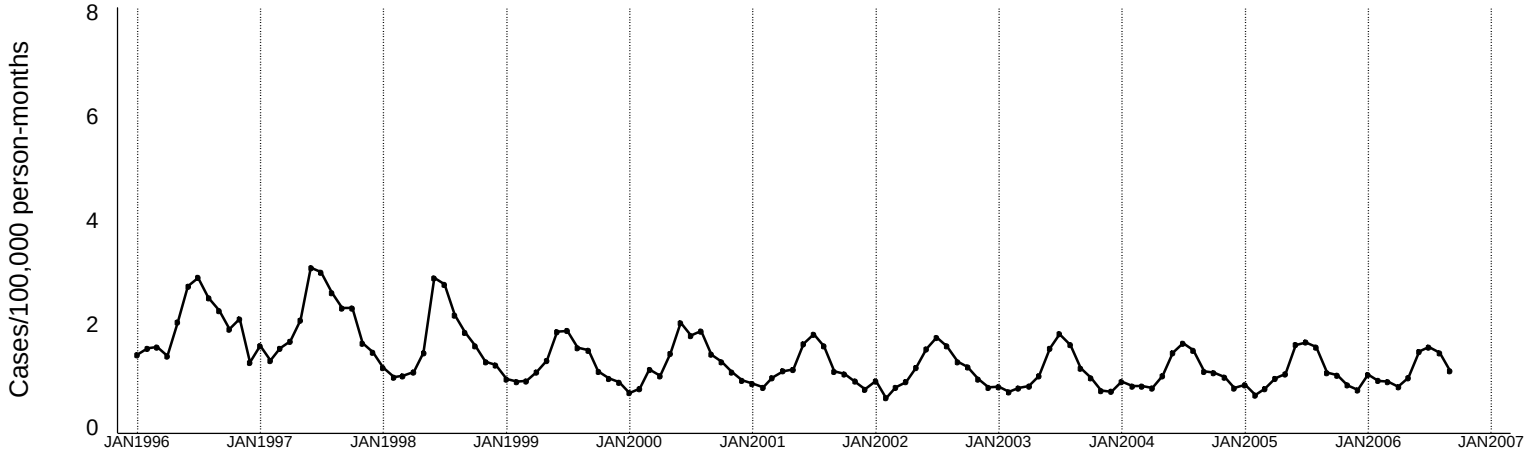
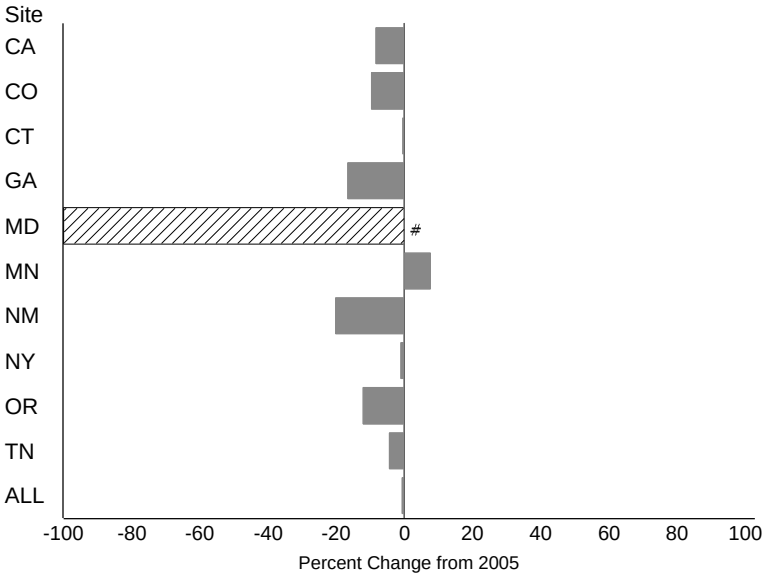
Date of submission: 11/15/06

Campylobacter

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

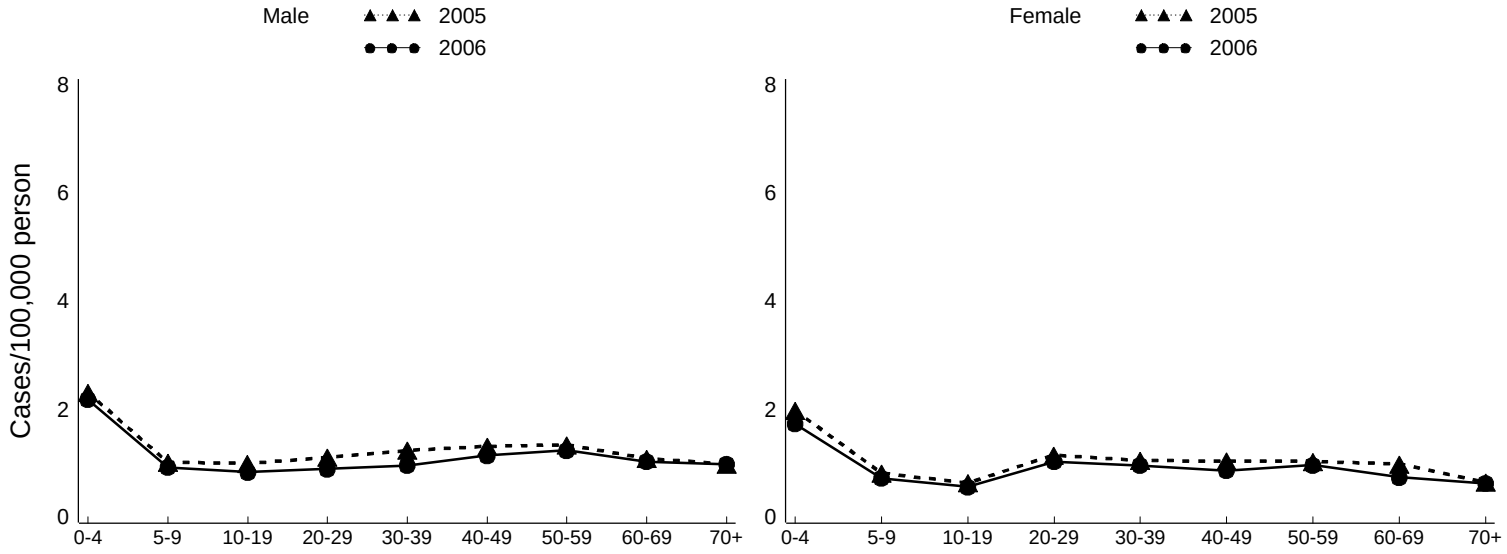


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	**Cases**	**Rate^**	**Cases**	**Rate^**	**Cases**	**Rate^**
CA	649	20.24	708	22.08	737	22.94
CO	363	14.03	402	15.54	334	13.54
CT	420	11.96	422	12.02	425	12.21
GA	395	4.354	474	5.225	492	5.637
MD	0	0.000	325	5.803	285	5.418
MN	723	14.09	672	13.09	726	14.35
NM	222	11.51	278	14.42	273	14.22
NY	390	9.053	394	9.146	338	9.367
OR	462	12.69	525	14.42	487	13.67
TN	320	5.366	335	5.618	270	5.717
ALL	3944	10.02	4535	10.09	4365	10.32

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

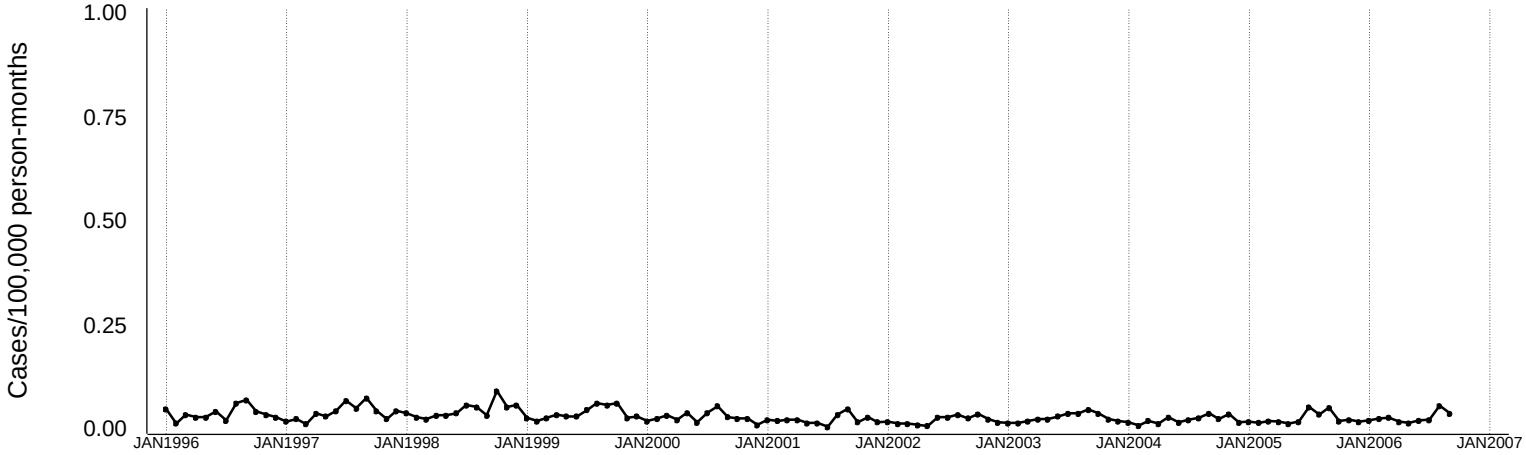
Calendar year through September: Rates for 2005 and 2006 by age group and sex



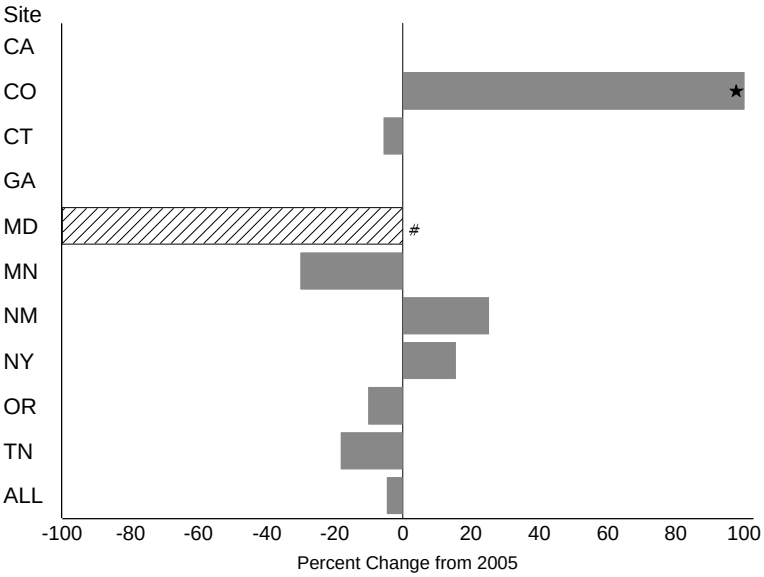
Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

Listeria

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

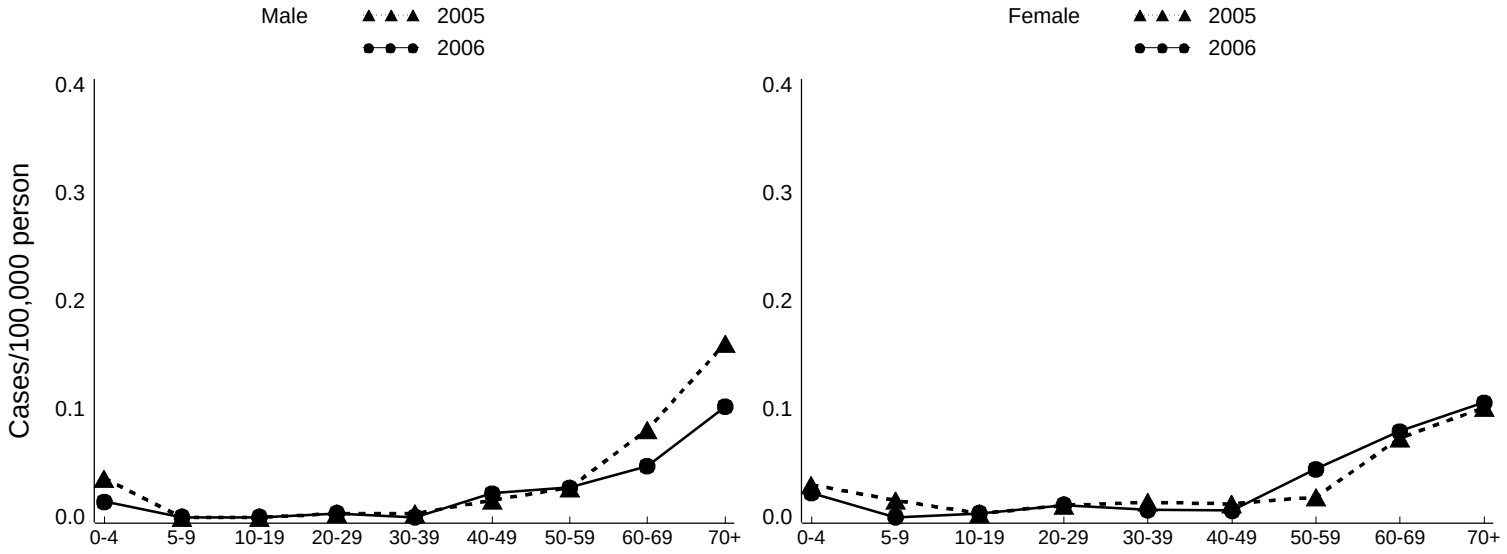


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	7	0.218	7	0.218	10	0.305
CO	3	0.116	1	0.039	4	0.155
CT	17	0.484	18	0.513	14	0.414
GA	19	0.209	19	0.209	16	0.187
MD	0	0.000	16	0.286	15	0.276
MN	7	0.136	10	0.195	4	0.075
NM	5	0.259	4	0.207	3	0.130
NY	15	0.348	13	0.302	10	0.279
OR	9	0.247	10	0.275	7	0.191
TN	9	0.151	11	0.184	7	0.151
ALL	91	0.231	109	0.242	90	0.214

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

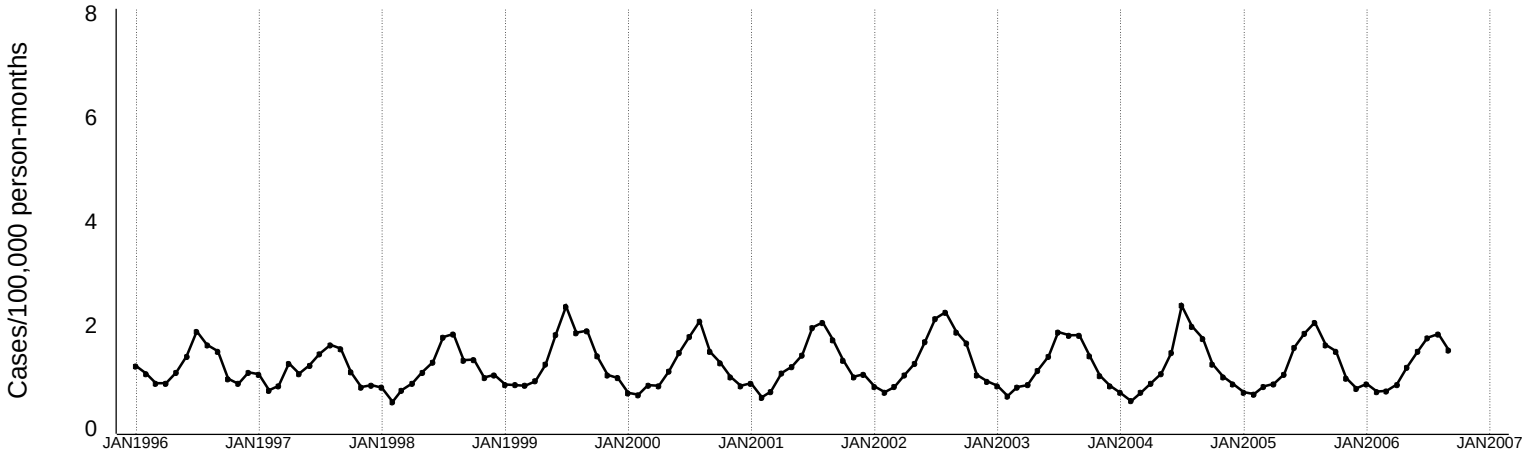
Calendar year through September: Rates for 2005 and 2006 by age group and sex



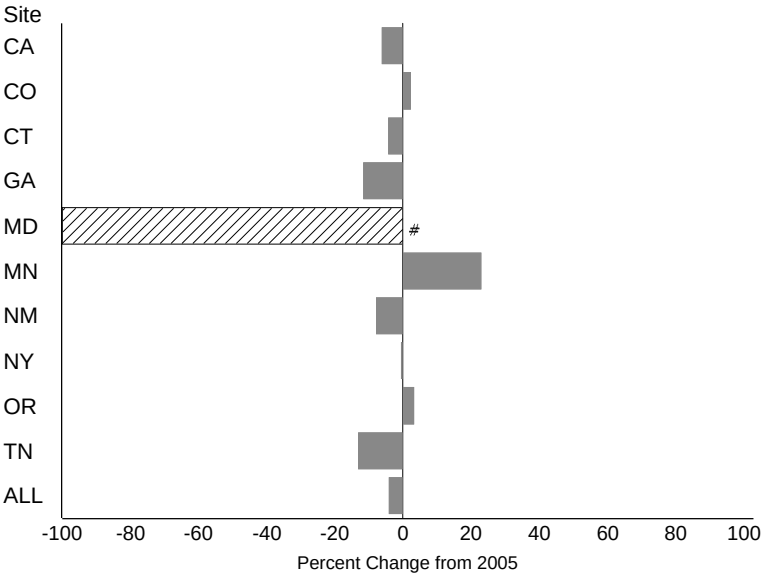
Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

Salmonella, all serotypes

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

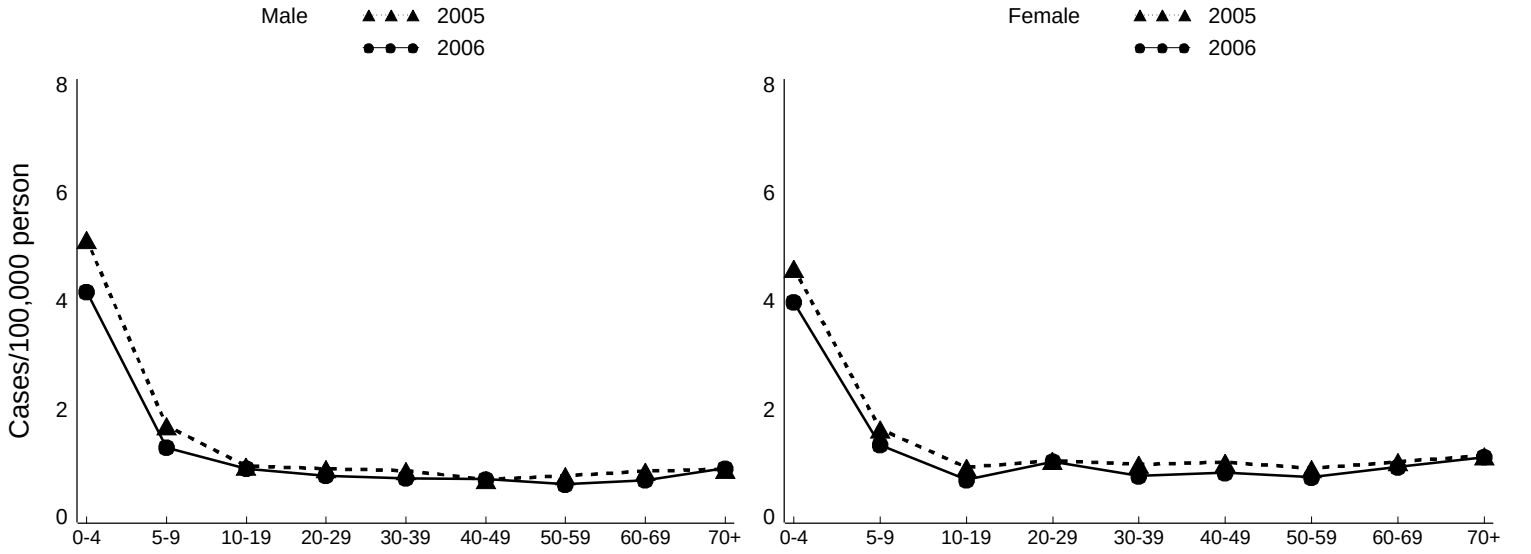


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	350	10.9	373	11.6	378	11.8
CO	278	10.7	272	10.5	242	9.85
CT	381	10.9	398	11.3	361	10.4
GA	1216	13.4	1373	15.1	1394	15.9
MD	0	0.00	627	11.2	631	12.0
MN	560	10.9	456	8.88	480	9.50
NM	191	9.90	207	10.7	212	11.1
NY	385	8.94	387	8.98	352	10.0
OR	302	8.29	293	8.05	279	7.82
TN	569	9.54	654	11.0	528	11.7
ALL	4232	10.8	5040	11.2	4857	11.6

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

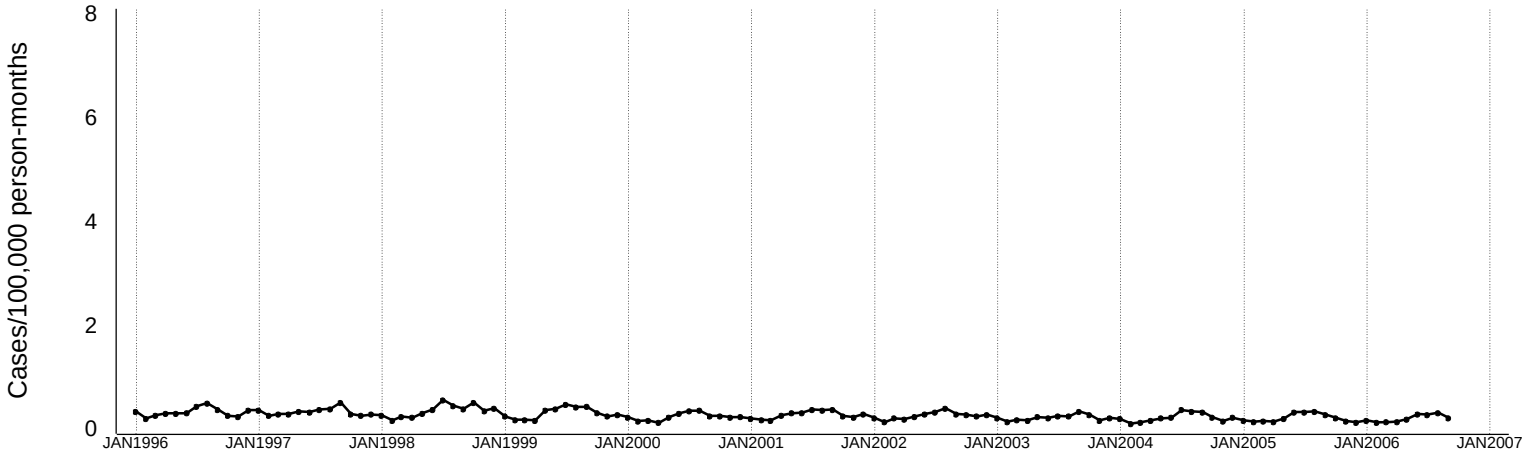
Calendar year through September: Rates for 2005 and 2006 by age group and sex



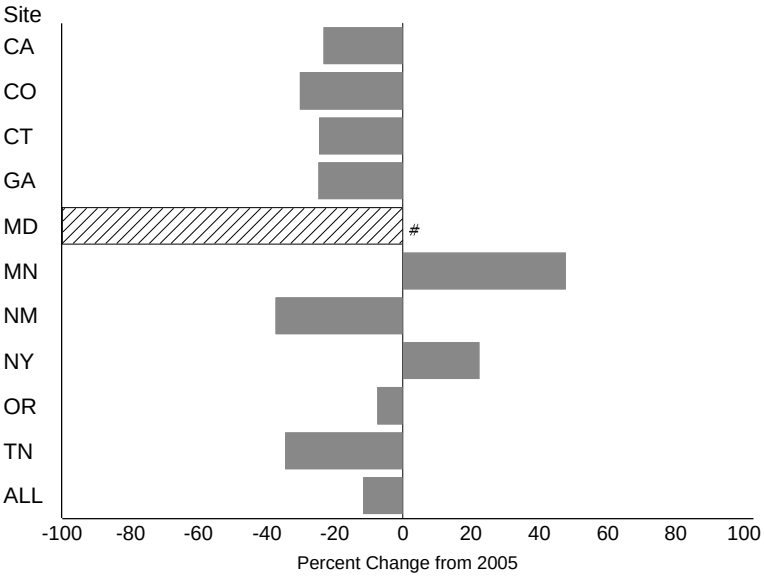
Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

Salmonella Typhimurium

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

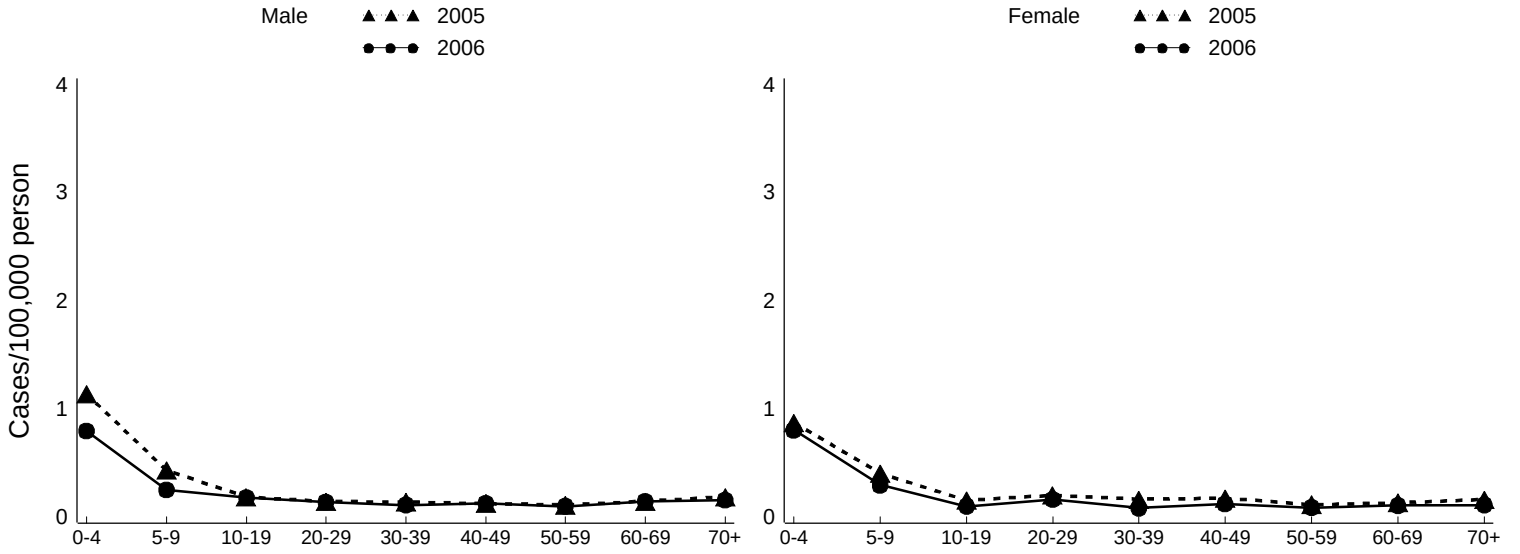


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	53	1.65	69	2.15	63	1.97
CO	58	2.24	83	3.21	62	2.55
CT	62	1.77	82	2.34	74	2.13
GA	153	1.69	203	2.24	212	2.42
MD	0	0.00	94	1.68	106	2.02
MN	127	2.47	86	1.68	113	2.25
NM	27	1.40	43	2.23	42	2.17
NY	99	2.30	81	1.88	70	2.08
OR	62	1.70	67	1.84	63	1.76
TN	82	1.38	125	2.10	111	2.52
ALL	723	1.84	933	2.08	916	2.20

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

Calendar year through September: Rates for 2005 and 2006 by age group and sex



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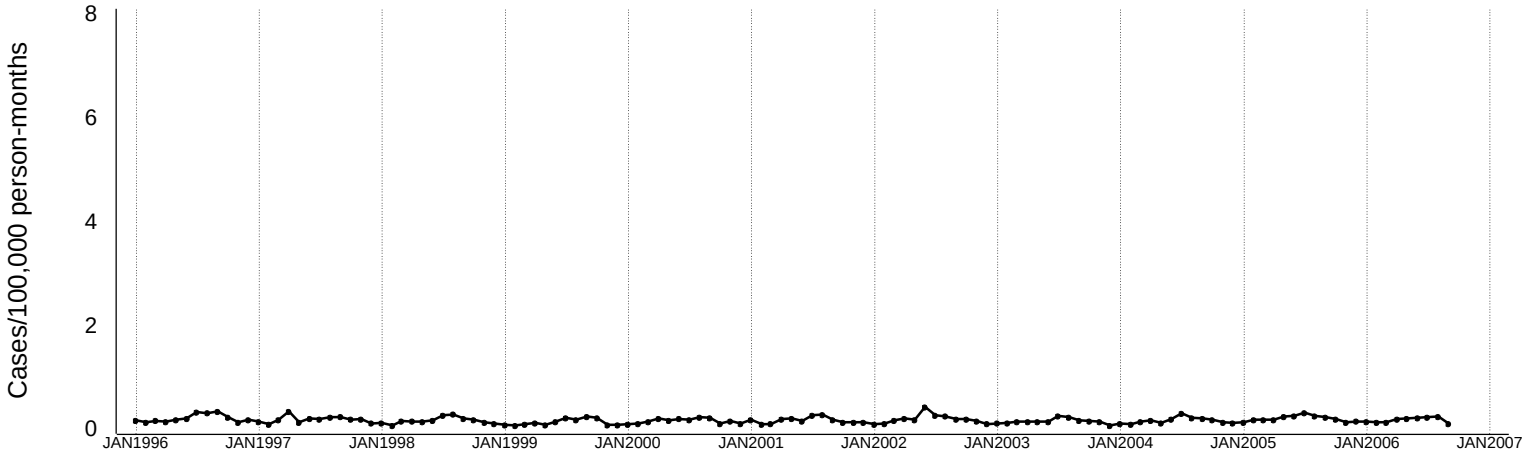
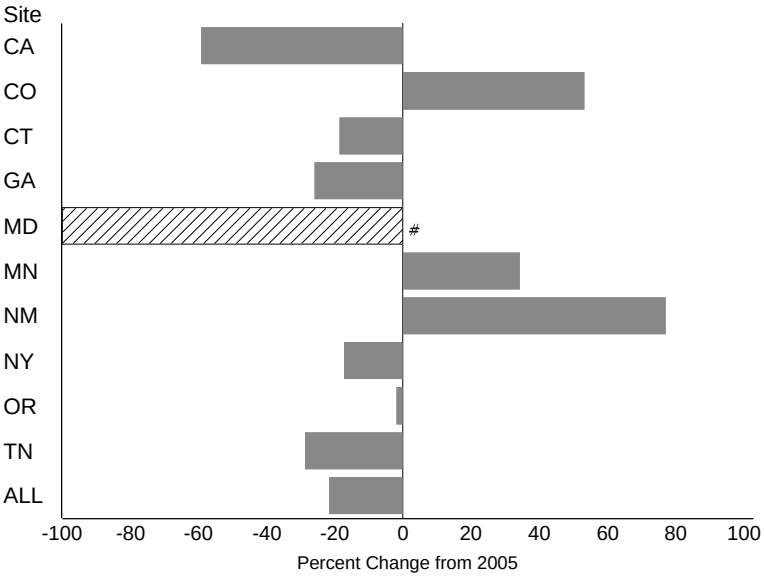
Salmonella Enteritidis

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

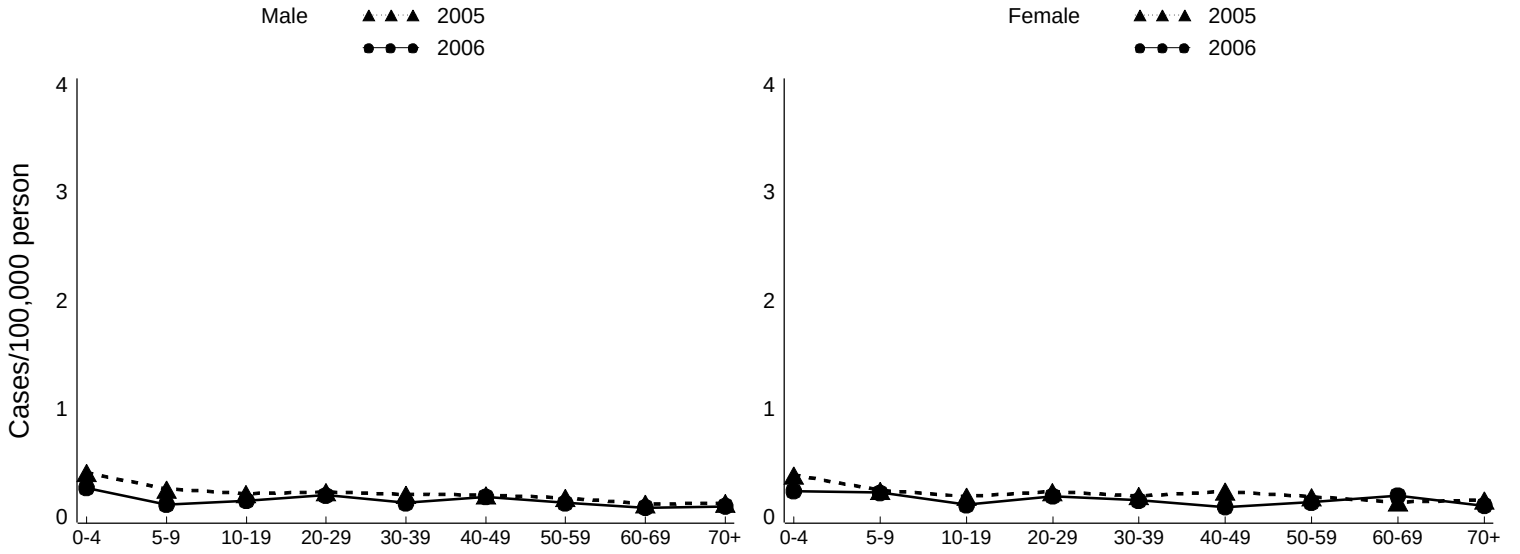


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	41	1.279	100	3.119	64	1.981
CO	49	1.894	32	1.237	40	1.628
CT	88	2.507	108	3.077	85	2.433
GA	86	0.948	116	1.279	80	0.908
MD	0	0.000	186	3.321	166	3.146
MN	130	2.533	97	1.890	89	1.768
NM	23	1.193	13	0.674	13	0.679
NY	68	1.578	82	1.903	71	2.019
OR	57	1.565	58	1.593	45	1.260
TN	65	1.090	91	1.526	47	0.971
ALL	607	1.543	883	1.964	700	1.694

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

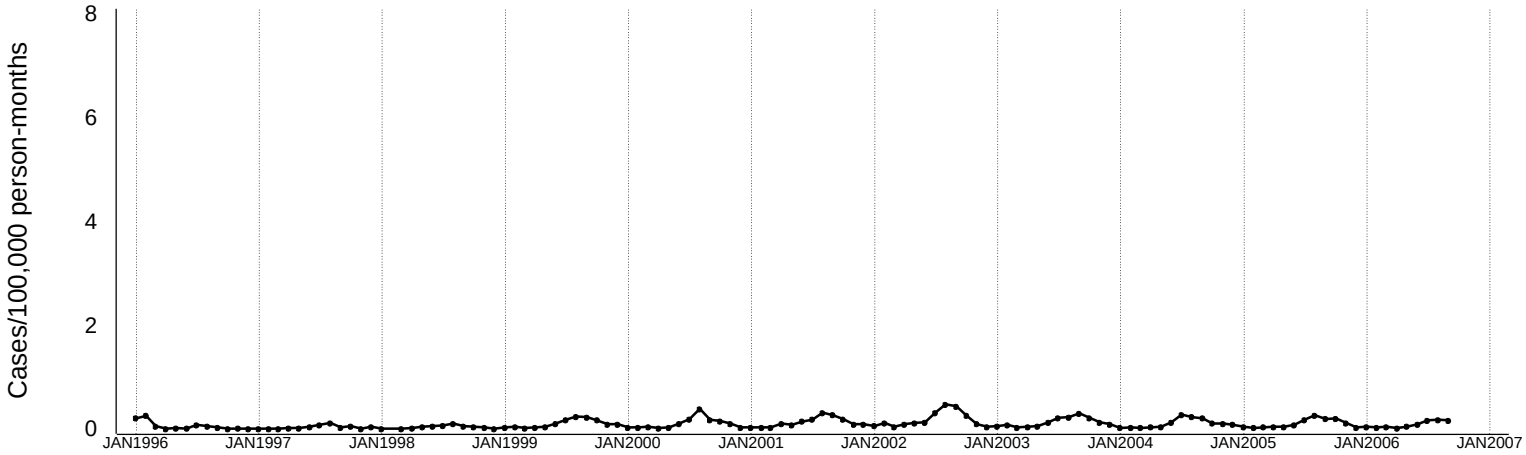
Calendar year through September: Rates for 2005 and 2006 by age group and sex



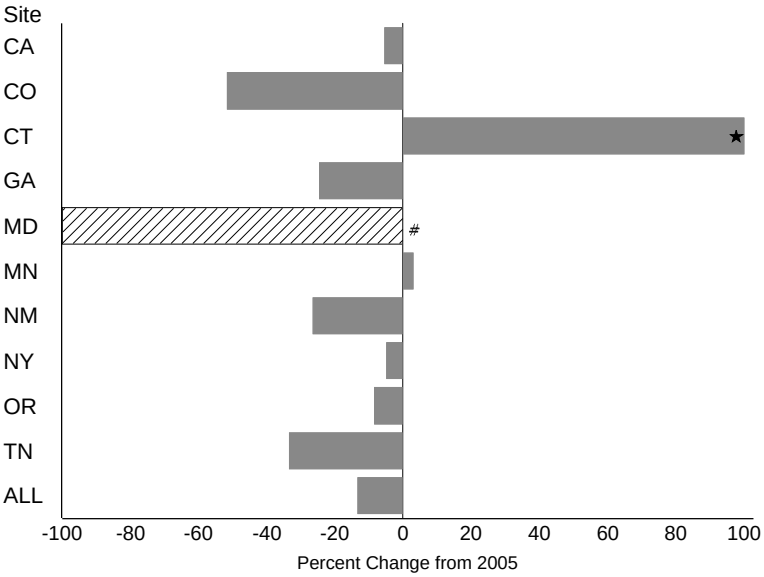
Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

Salmonella Newport

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

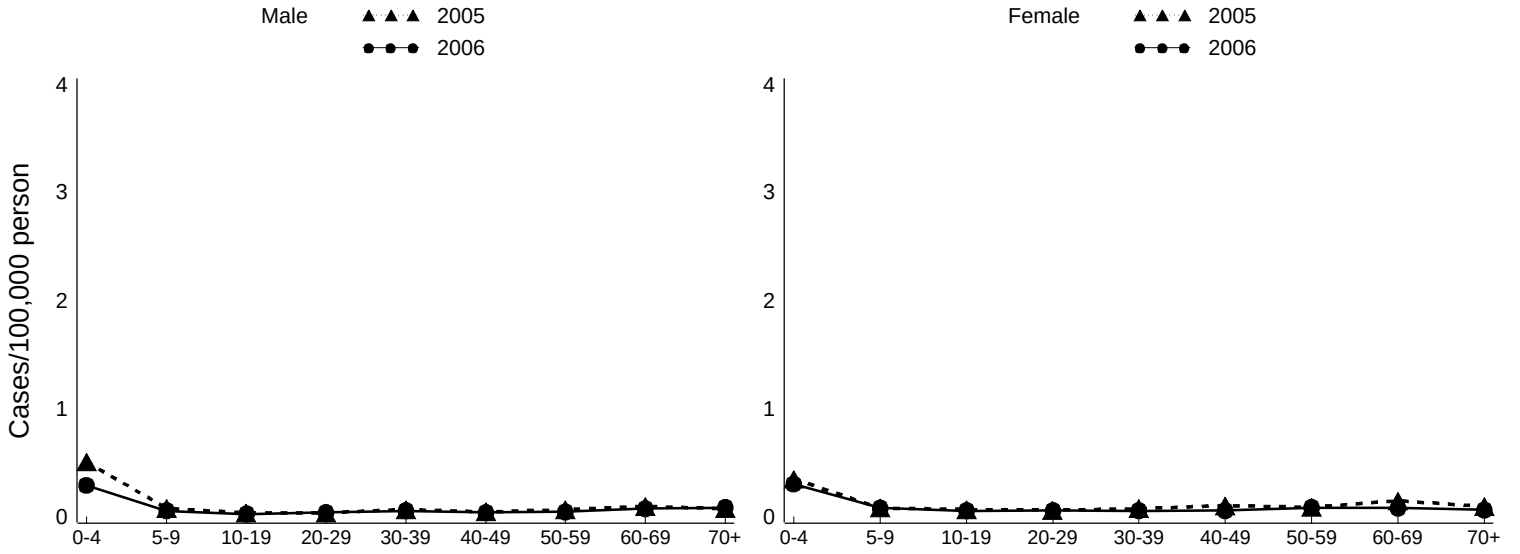


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	18	0.561	19	0.593	23	0.710
CO	16	0.619	33	1.276	21	0.832
CT	36	1.026	13	0.370	27	0.774
GA	133	1.466	176	1.940	220	2.522
MD	0	0.000	40	0.714	44	0.827
MN	36	0.701	35	0.682	37	0.728
NM	14	0.726	19	0.985	21	1.097
NY	20	0.464	21	0.487	38	1.092
OR	11	0.302	12	0.330	19	0.546
TN	32	0.537	48	0.805	54	1.325
ALL	316	0.803	416	0.925	504	1.221

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

Calendar year through September: Rates for 2005 and 2006 by age group and sex



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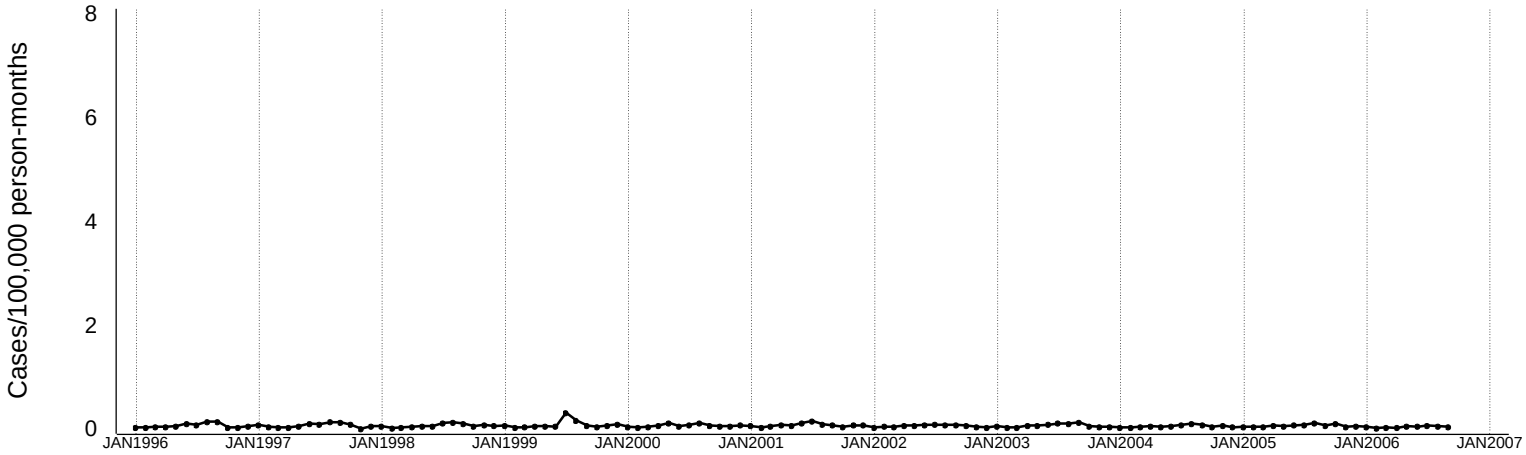
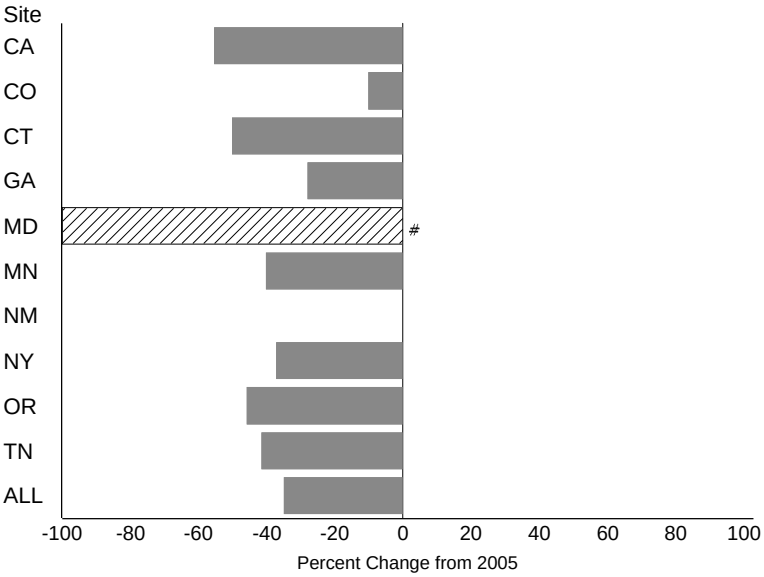
Salmonella Heidelberg

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

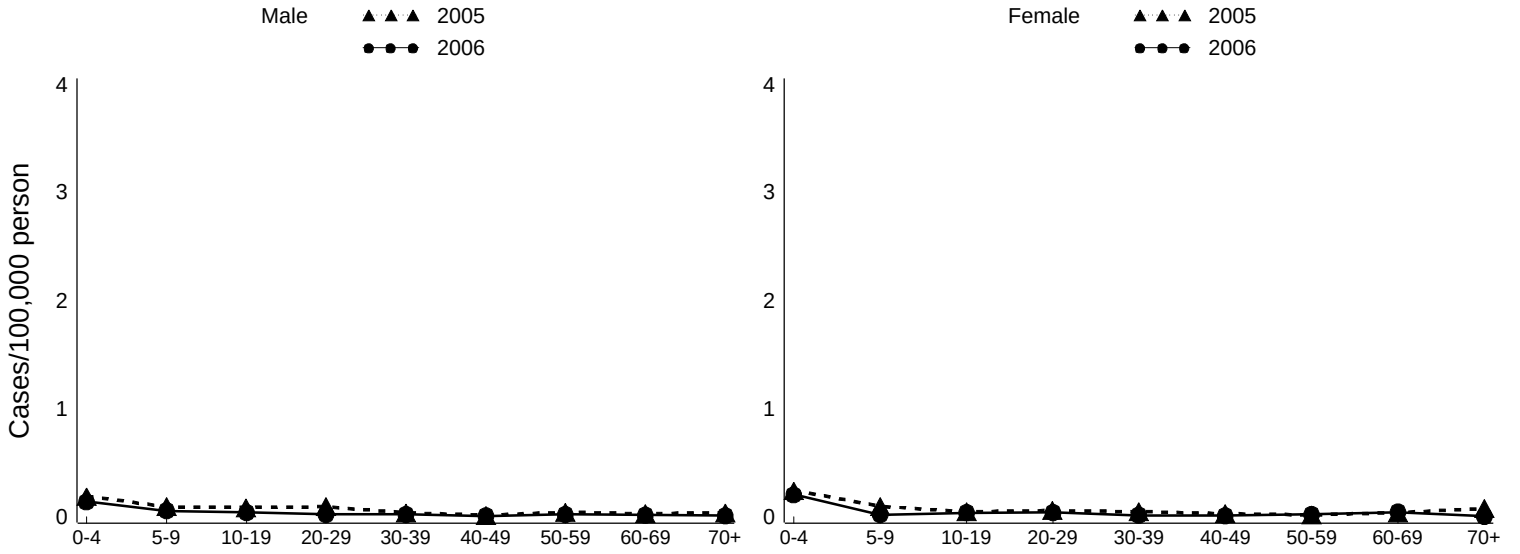


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	17	0.530	38	1.185	38	1.184
CO	9	0.348	10	0.387	14	0.572
CT	12	0.342	24	0.684	17	0.494
GA	39	0.430	54	0.595	55	0.627
MD	0	0.000	16	0.286	24	0.459
MN	15	0.292	25	0.487	34	0.673
NM	4	0.207	4	0.207	5	0.261
NY	22	0.511	35	0.812	28	0.816
OR	19	0.522	35	0.961	24	0.672
TN	17	0.285	29	0.486	22	0.485
ALL	154	0.391	270	0.601	261	0.636

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

Calendar year through September: Rates for 2005 and 2006 by age group and sex



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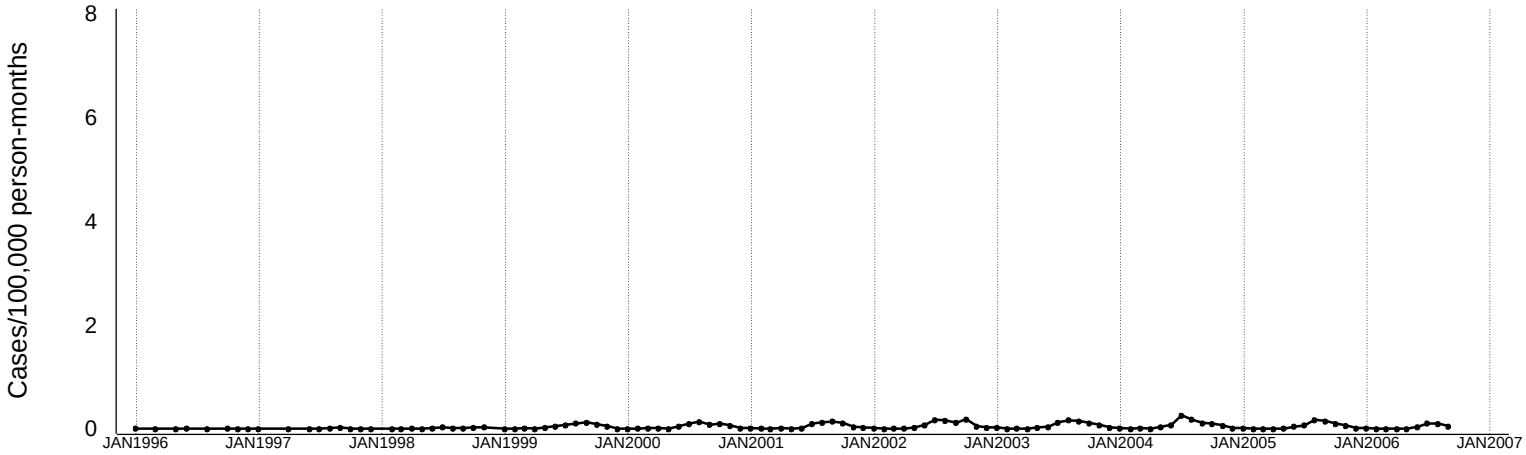
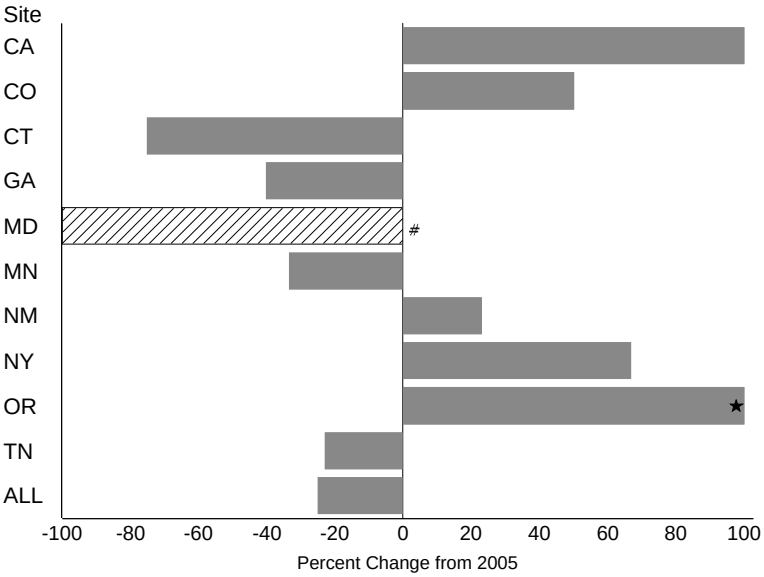
Salmonella Javiana

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

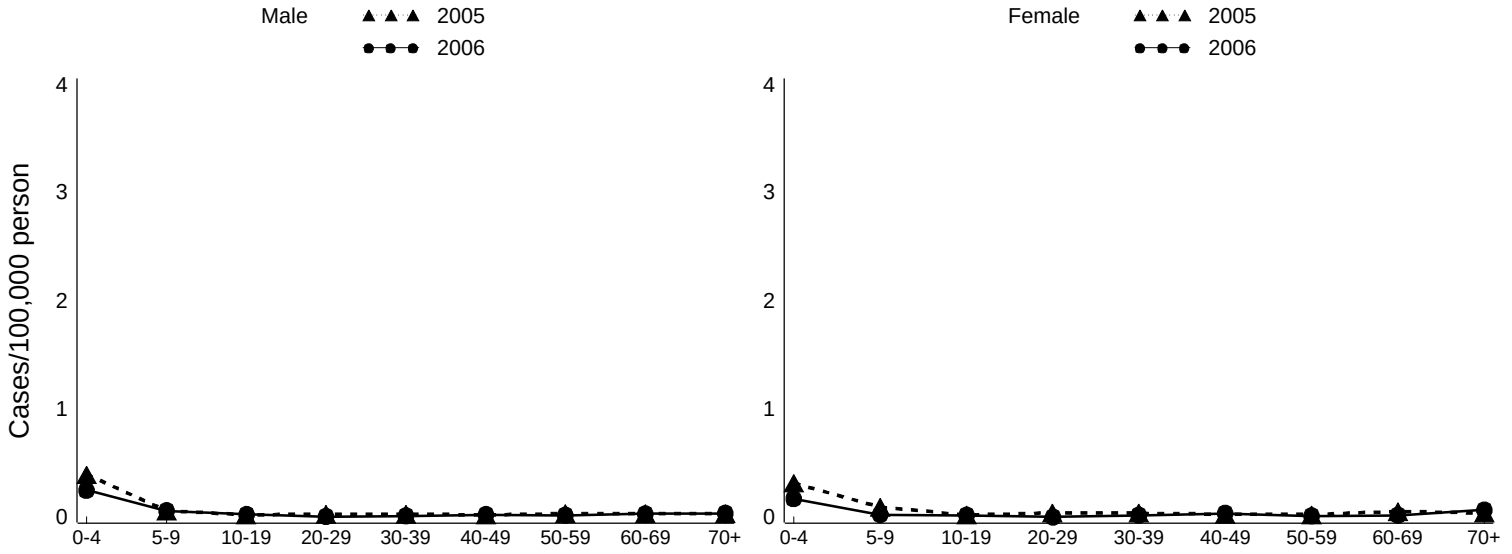


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	**Cases**	**Rate^**	**Cases**	**Rate^**	**Cases**	**Rate^**
CA	4	0.125	2	0.062	3	0.081
CO	3	0.116	2	0.077	3	0.103
CT	1	0.028	4	0.114	5	0.155
GA	96	1.058	160	1.764	164	1.870
MD	0	0.000	18	0.321	29	0.522
MN	2	0.039	3	0.058	5	0.107
NM	16	0.830	13	0.674	14	0.731
NY	10	0.232	6	0.139	5	0.122
OR	3	0.082	1	0.027	2	0.068
TN	17	0.285	22	0.369	23	0.556
ALL	152	0.386	231	0.514	253	0.594

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

Calendar year through September: Rates for 2005 and 2006 by age group and sex



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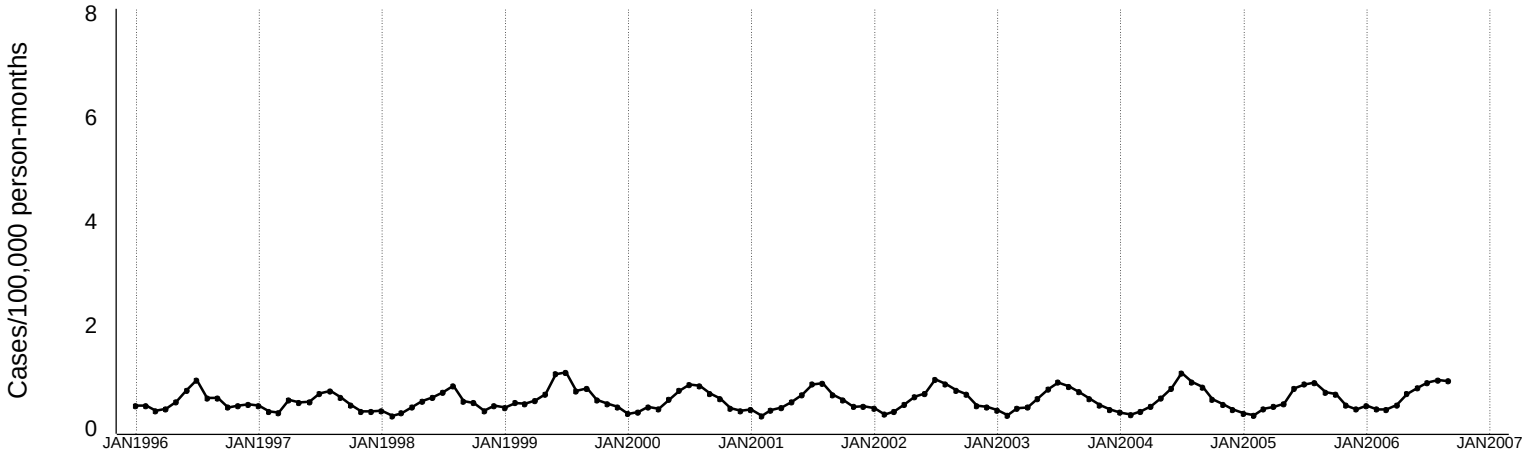
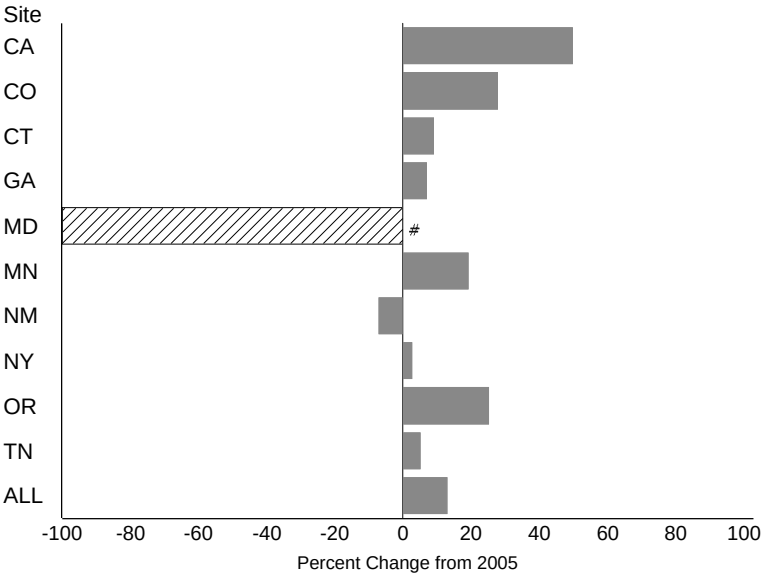
Salmonella, all others

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

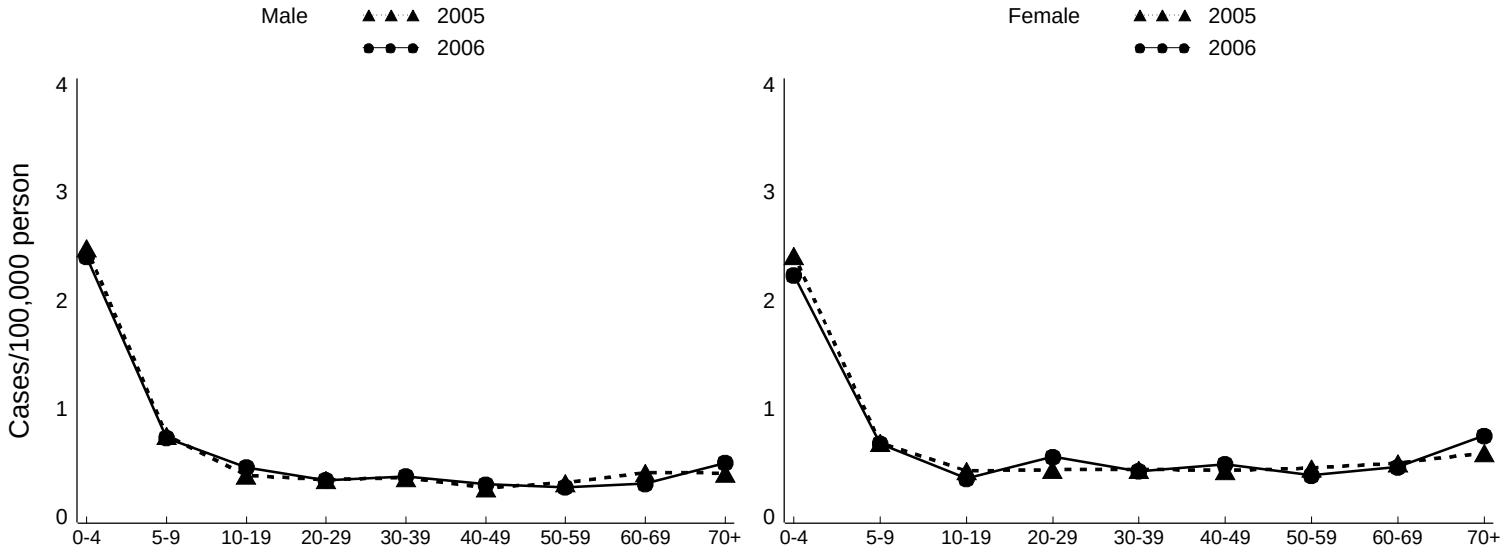


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	217	6.77	145	4.52	187	5.83
CO	143	5.53	112	4.33	102	4.17
CT	182	5.18	167	4.76	153	4.40
GA	709	7.81	664	7.32	664	7.59
MD	0	0.00	273	4.87	263	4.98
MN	250	4.87	210	4.09	201	3.98
NM	107	5.55	115	5.96	118	6.13
NY	166	3.85	162	3.76	140	3.91
OR	150	4.12	120	3.30	125	3.51
TN	356	5.97	339	5.69	269	5.83
ALL	2280	5.79	2307	5.13	2223	5.26

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

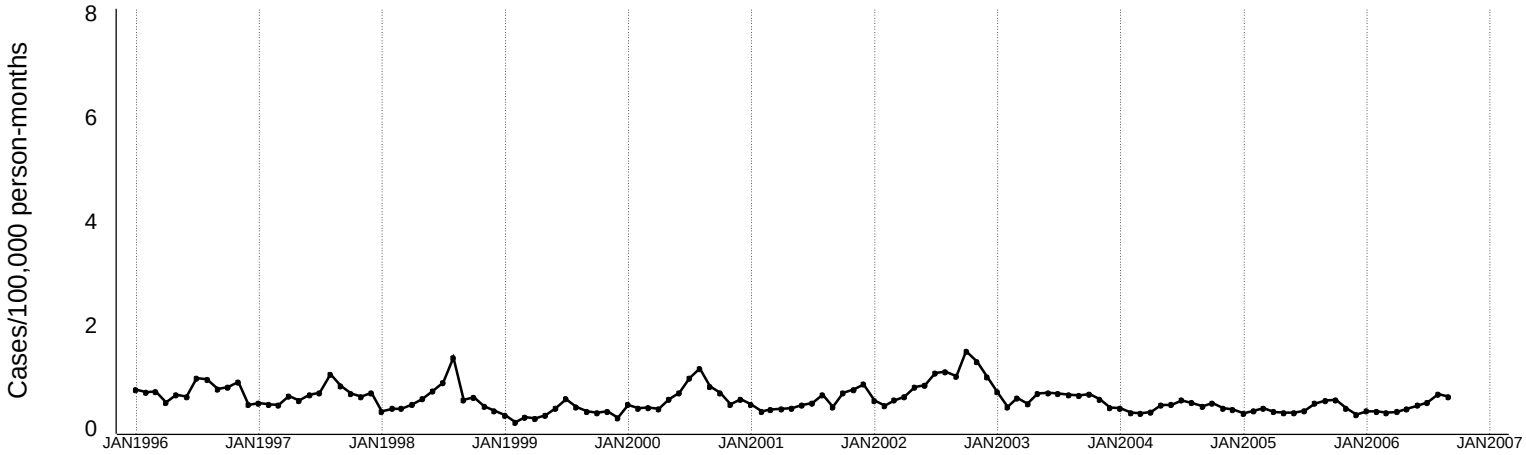
Calendar year through September: Rates for 2005 and 2006 by age group and sex



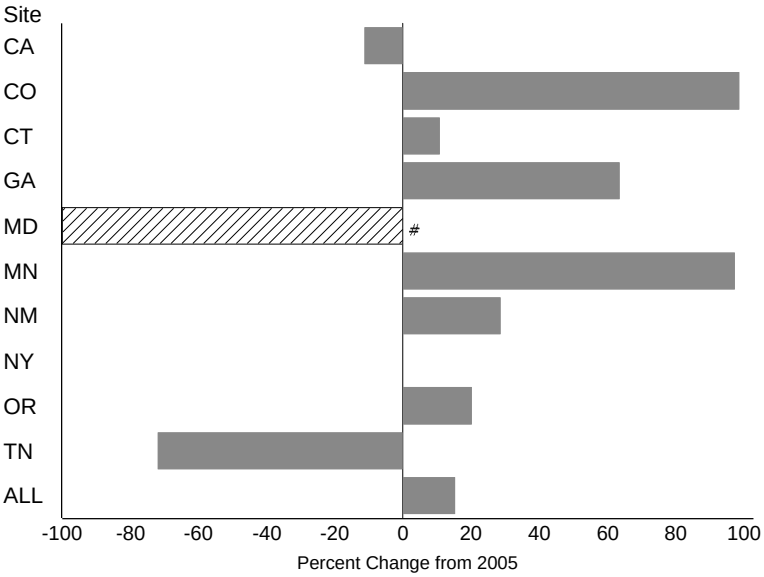
Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

Shigella, all species

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

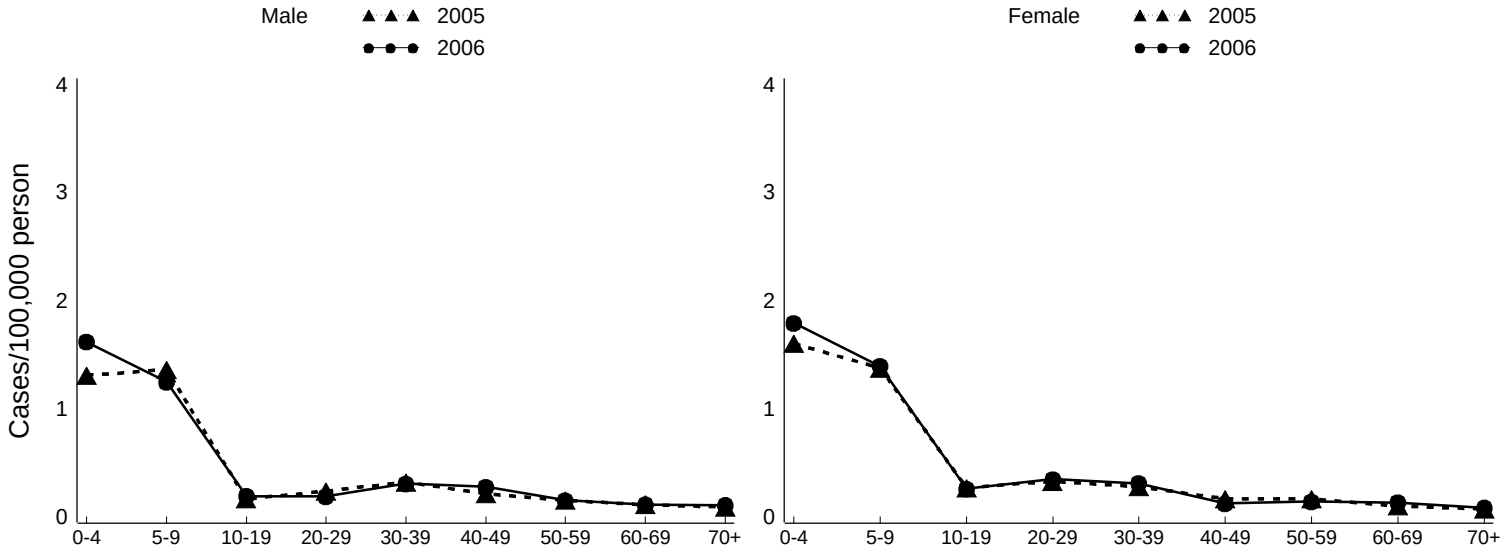


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	190	5.93	214	6.67	255	7.93
CO	125	4.83	63	2.44	101	4.15
CT	52	1.48	47	1.34	53	1.53
GA	676	7.45	414	4.56	628	7.19
MD	0	0.00	67	1.20	307	5.72
MN	138	2.69	70	1.36	152	3.02
NM	113	5.86	88	4.56	97	5.07
NY	43	1.00	43	1.00	81	2.06
OR	78	2.14	65	1.79	68	1.91
TN	131	2.20	464	7.78	244	4.60
ALL	1546	3.93	1535	3.41	1986	4.77

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

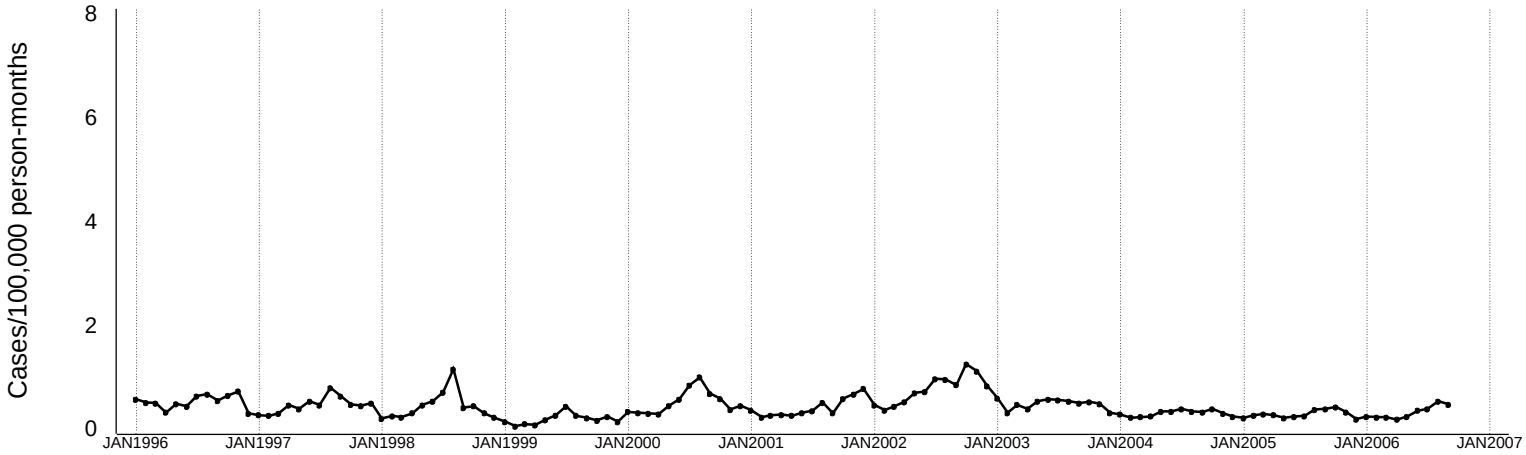
Calendar year through September: Rates for 2005 and 2006 by age group and sex



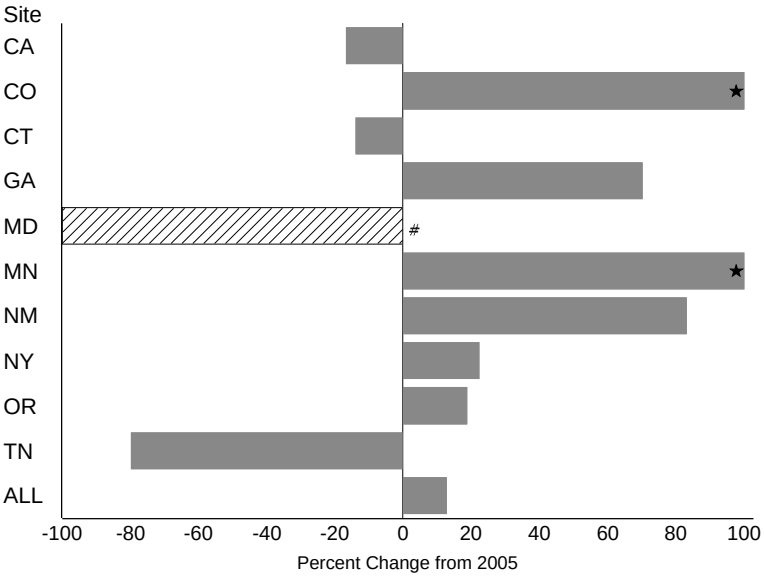
Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

Shigella sonnei

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

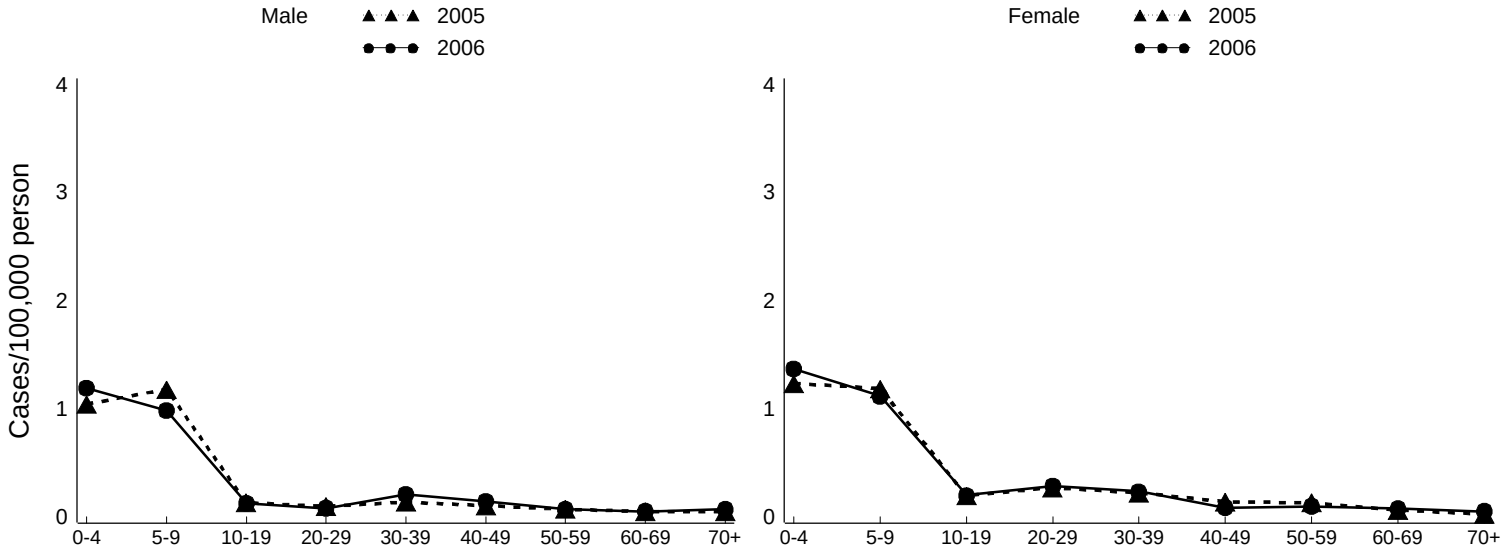


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	111	3.462	133	4.148	158	4.911
CO	89	3.441	35	1.353	69	2.853
CT	25	0.712	29	0.826	36	1.024
GA	522	5.754	307	3.384	509	5.828
MD	0	0.000	33	0.589	265	4.908
MN	111	2.163	49	0.955	125	2.487
NM	86	4.460	47	2.437	54	2.795
NY	33	0.766	27	0.627	71	1.767
OR	57	1.565	48	1.318	39	1.100
TN	87	1.459	429	7.194	210	3.888
ALL	1121	2.849	1137	2.530	1535	3.726

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

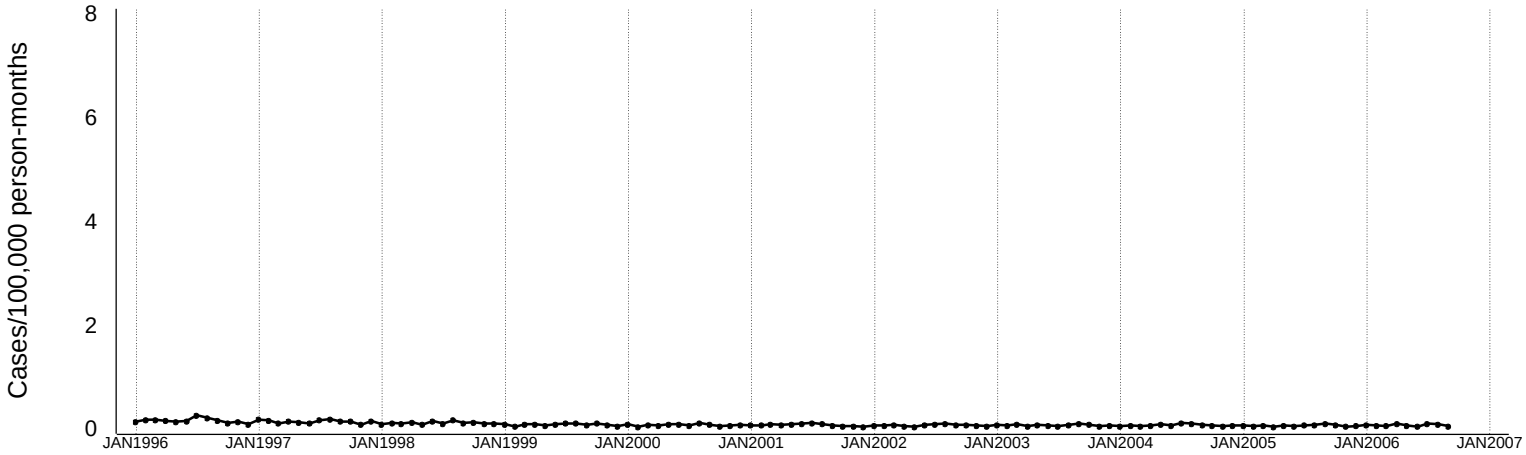
Calendar year through September: Rates for 2005 and 2006 by age group and sex



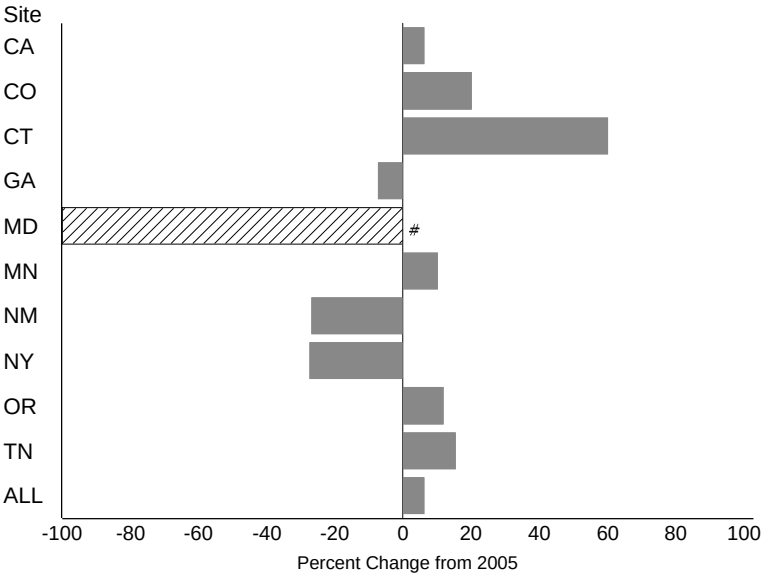
Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

Shigella flexneri

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

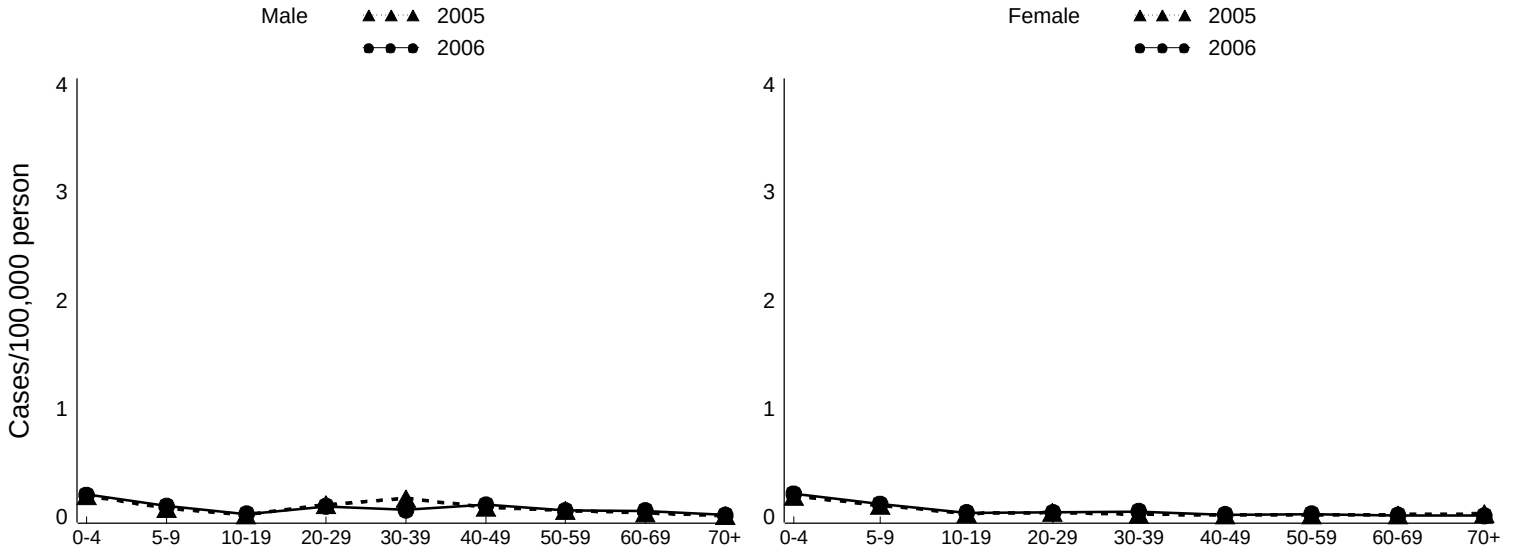


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	69	2.152	65	2.027	73	2.267
CO	30	1.160	25	0.967	25	1.026
CT	24	0.684	15	0.427	15	0.437
GA	52	0.573	56	0.617	59	0.677
MD	0	0.000	29	0.518	33	0.639
MN	22	0.429	20	0.390	22	0.439
NM	22	1.141	30	1.556	36	1.881
NY	8	0.186	11	0.255	8	0.240
OR	19	0.522	17	0.467	26	0.723
TN	15	0.252	13	0.218	12	0.268
ALL	261	0.663	281	0.625	309	0.708

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

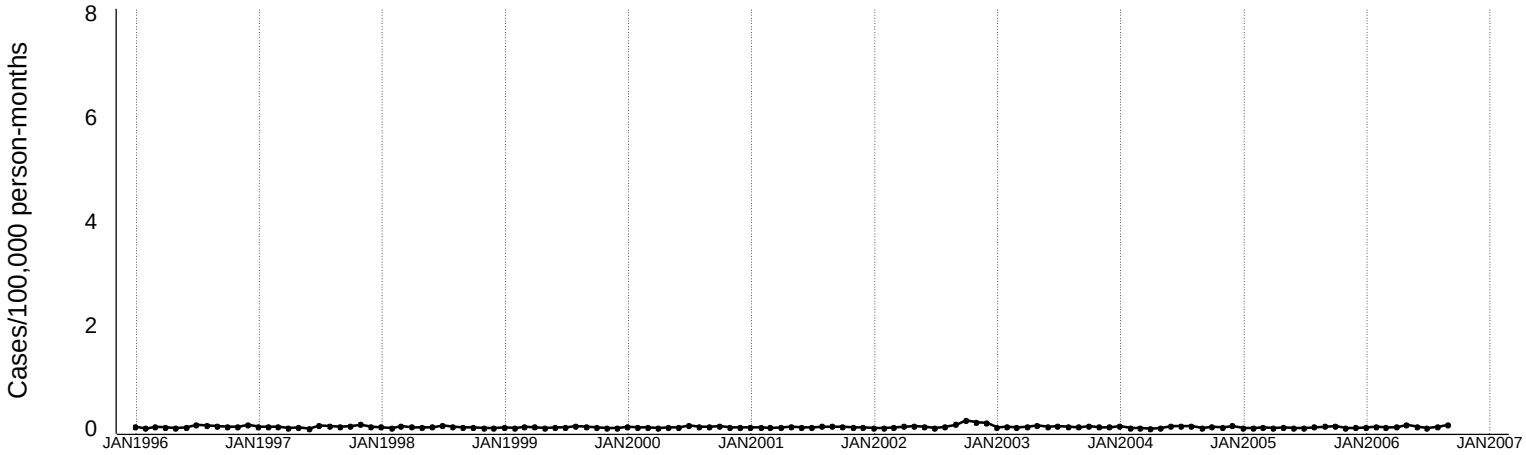
Calendar year through September: Rates for 2005 and 2006 by age group and sex



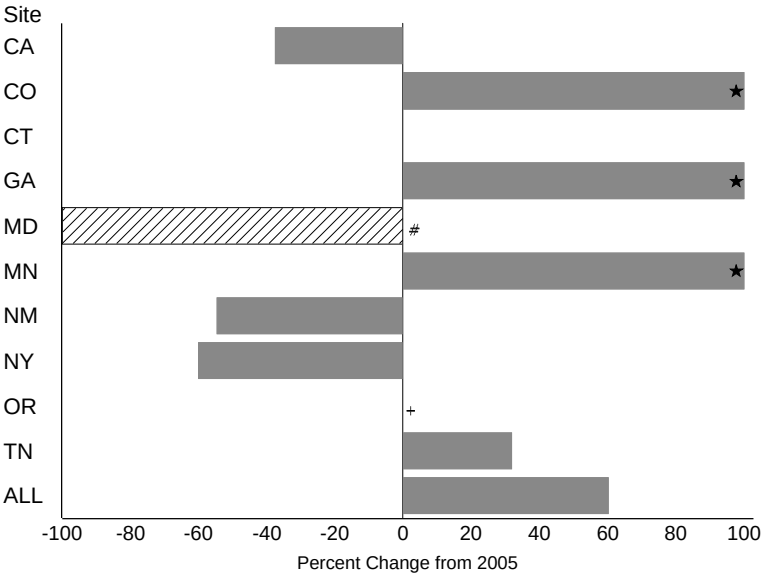
Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

Shigella, all others

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

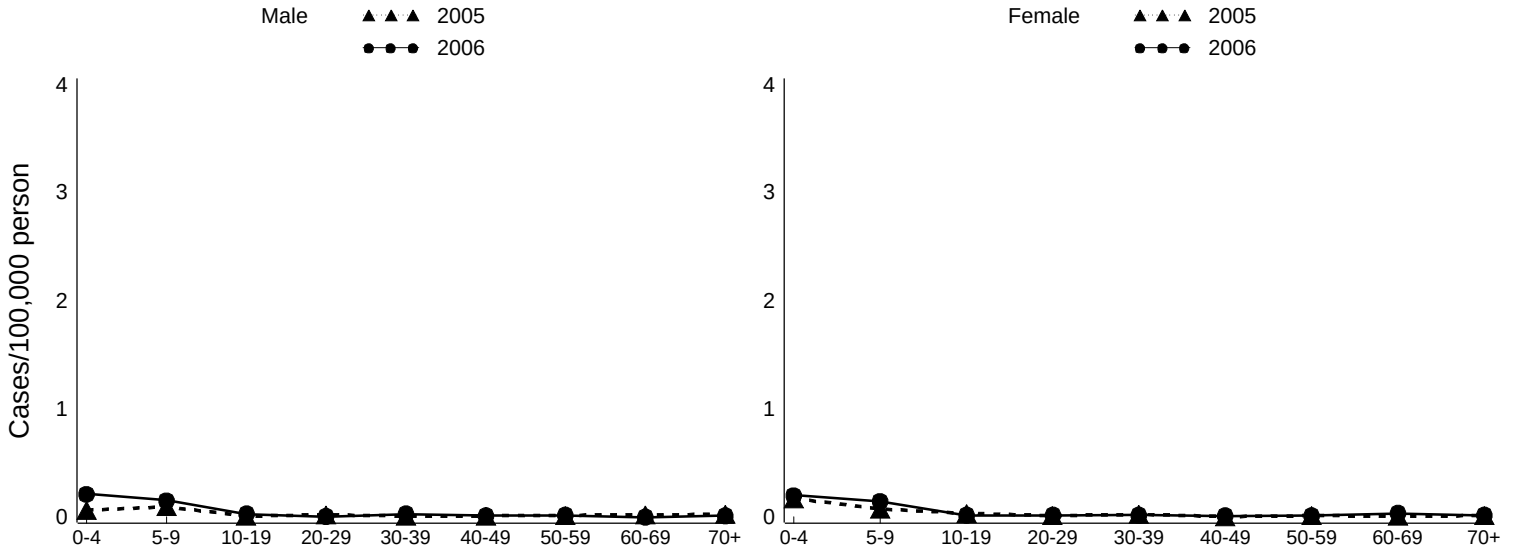


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	10	0.312	16	0.499	24	0.747
CO	6	0.232	3	0.116	6	0.268
CT	3	0.085	3	0.085	2	0.069
GA	102	1.124	51	0.562	60	0.684
MD	0	0.000	5	0.089	9	0.170
MN	5	0.097	1	0.019	5	0.091
NM	5	0.259	11	0.570	8	0.390
NY	2	0.046	5	0.116	2	0.058
OR	2	0.055	0	0.000	3	0.091
TN	29	0.486	22	0.369	22	0.449
ALL	164	0.417	117	0.260	141	0.337

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

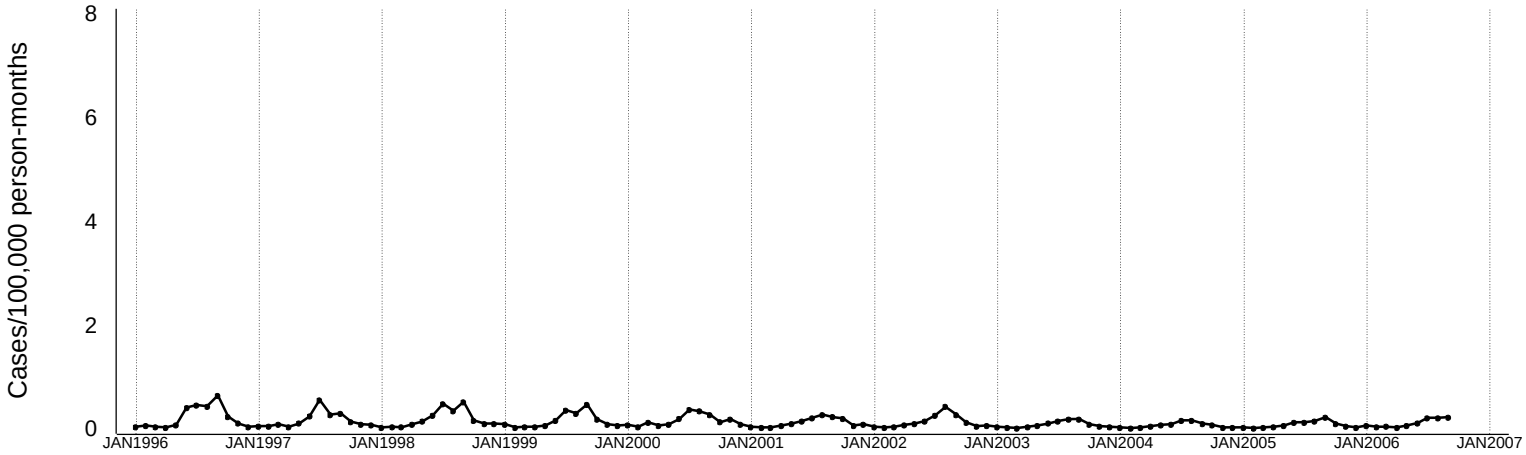
Calendar year through September: Rates for 2005 and 2006 by age group and sex



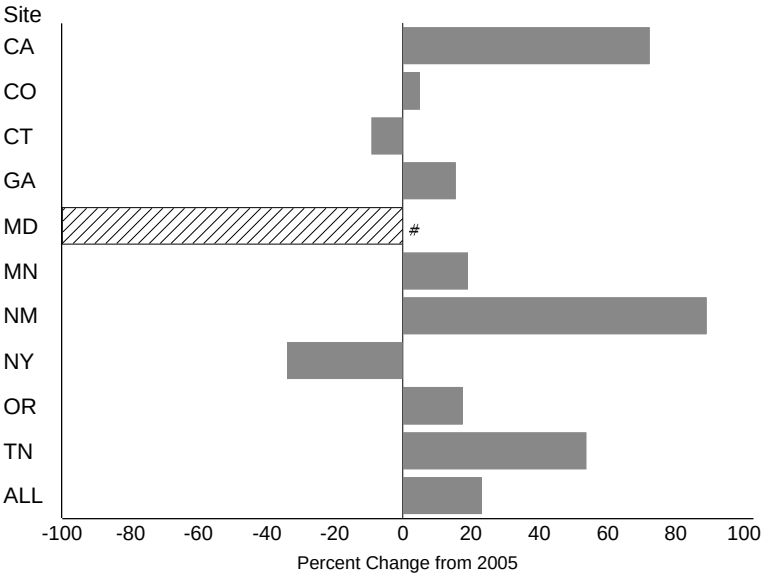
Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

STEC O157

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

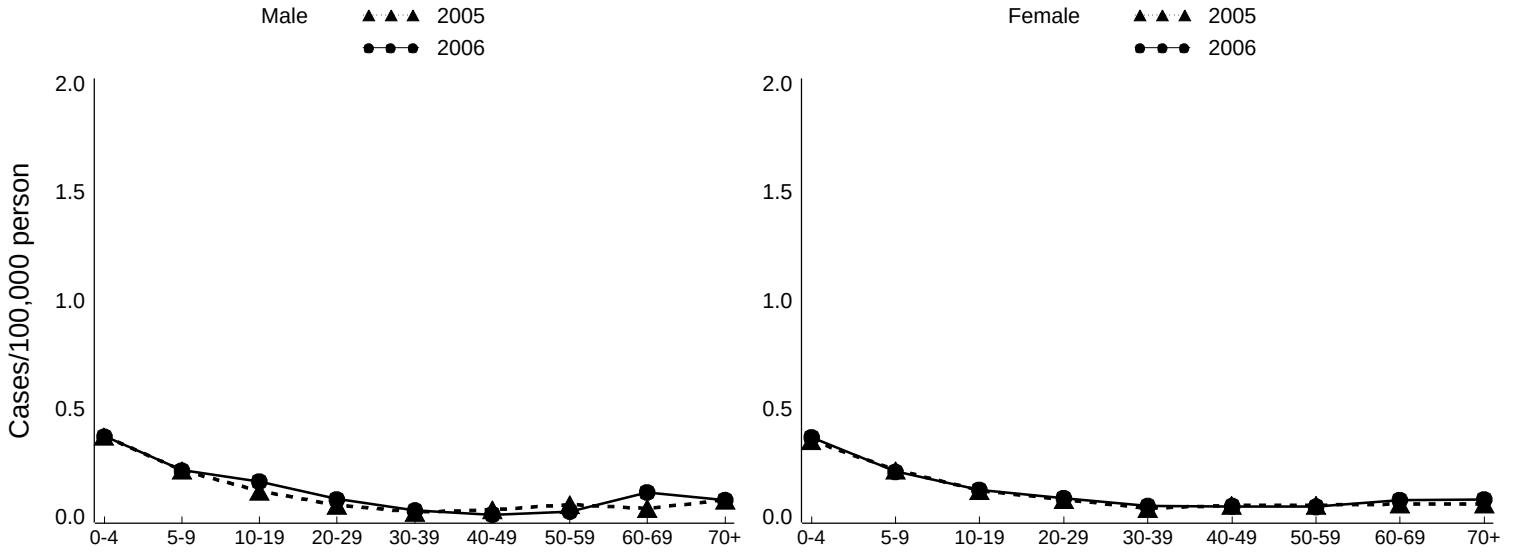


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	31	0.967	18	0.561	23	0.729
CO	22	0.851	21	0.812	31	1.289
CT	30	0.855	33	0.940	32	0.909
GA	30	0.331	26	0.287	24	0.280
MD	0	0.000	21	0.375	19	0.366
MN	113	2.202	95	1.851	122	2.425
NM	17	0.882	9	0.467	8	0.417
NY	43	0.998	65	1.509	44	1.224
OR	61	1.675	52	1.428	77	2.177
TN	63	1.057	41	0.688	30	0.670
ALL	410	1.042	381	0.848	411	1.015

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

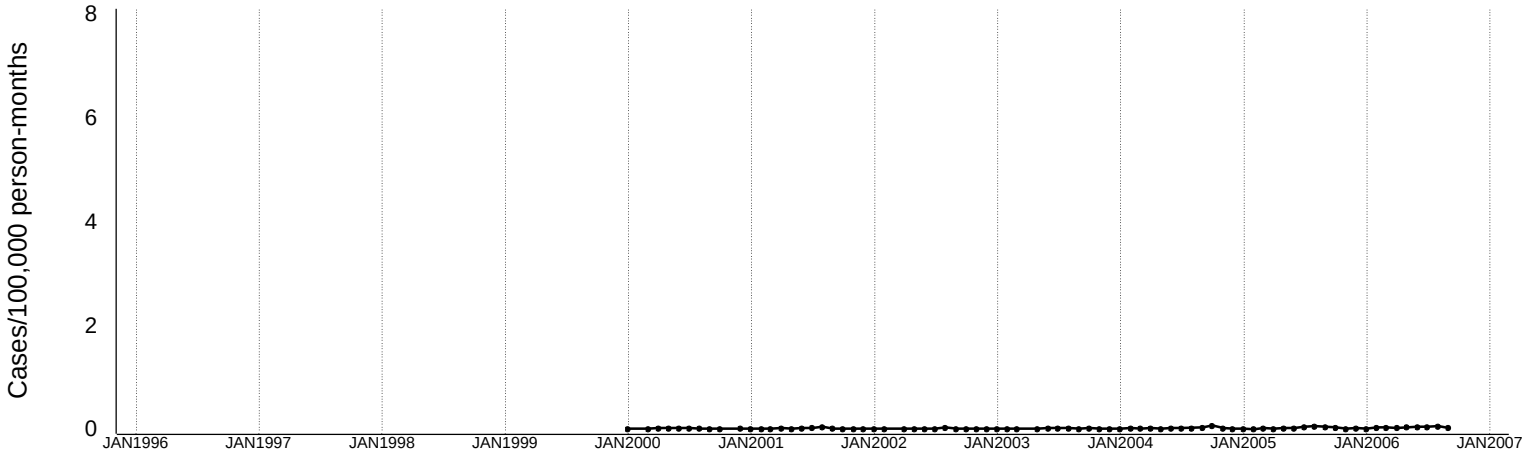
Calendar year through September: Rates for 2005 and 2006 by age group and sex



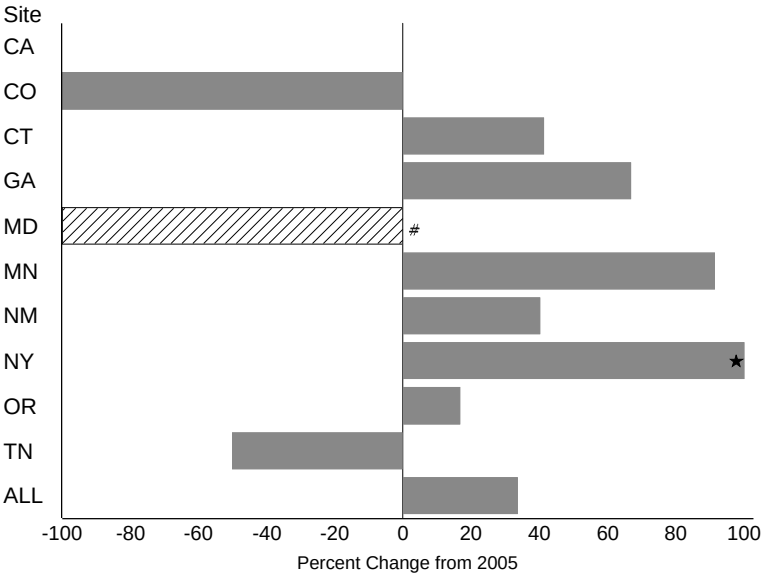
Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

STEC Non-O157

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

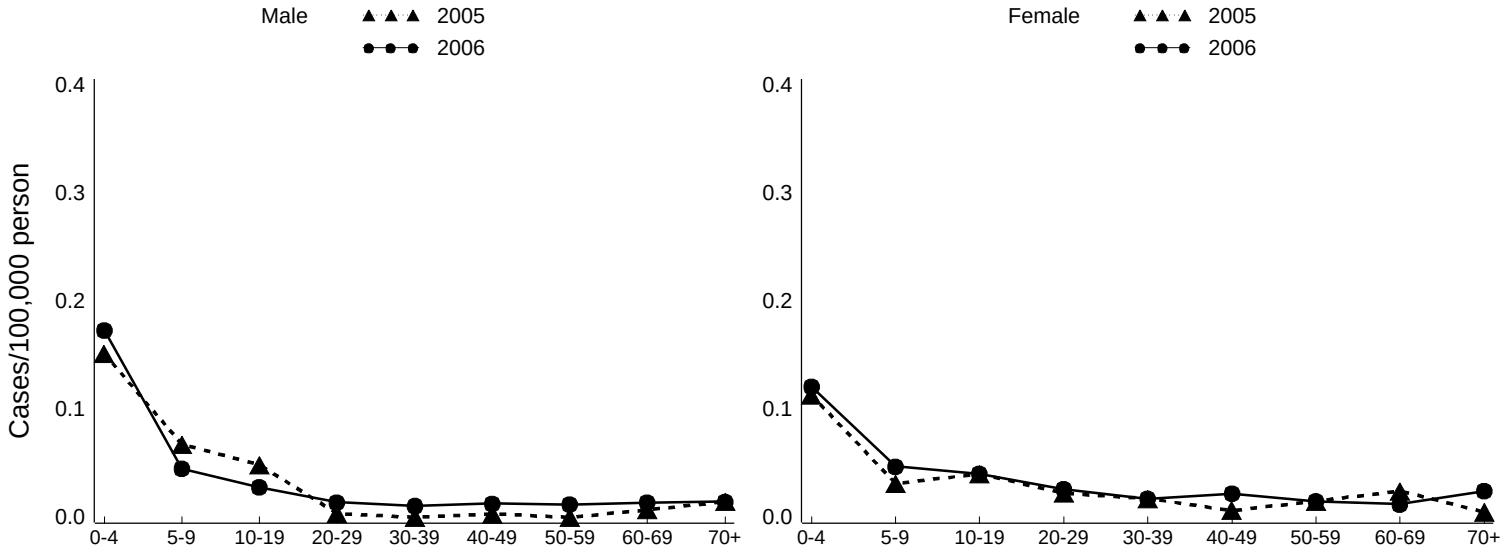


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	4	0.125	4	0.125	1	0.025
CO	0	0.000	2	0.077	2	0.076
CT	24	0.684	17	0.484	18	0.512
GA	10	0.110	6	0.066	4	0.043
MD	0	0.000	24	0.429	7	0.118
MN	44	0.857	23	0.448	15	0.300
NM	14	0.726	10	0.519	8	0.417
NY	14	0.325	7	0.162	4	0.093
OR	7	0.192	6	0.165	4	0.101
TN	1	0.017	2	0.034	1	0.017
ALL	118	0.300	101	0.225	63	0.139

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

Calendar year through September: Rates for 2005 and 2006 by age group and sex



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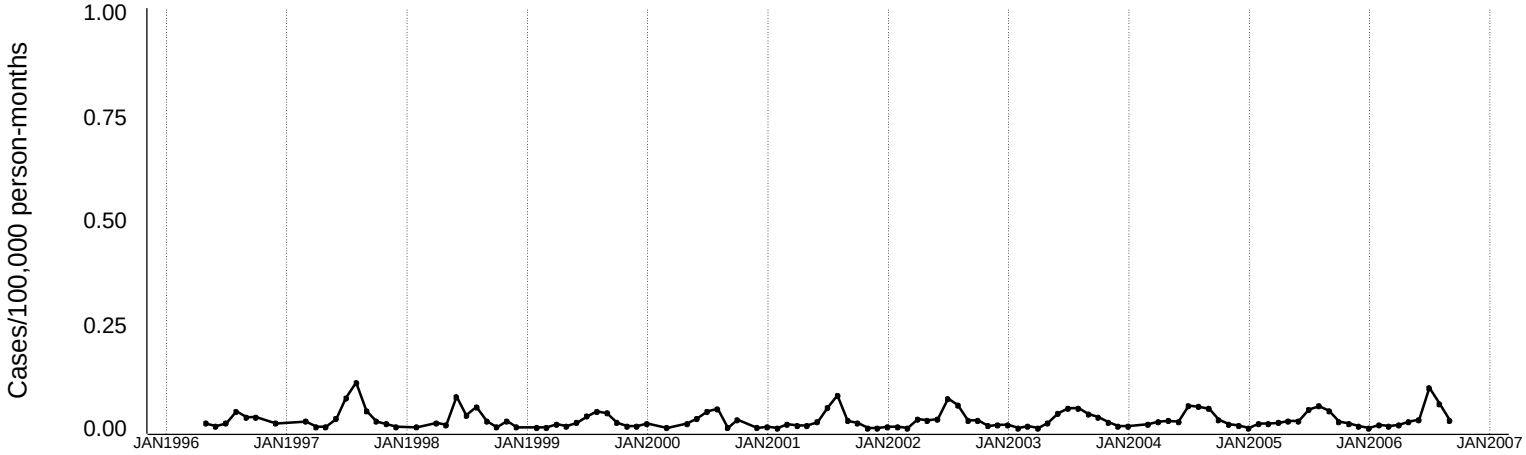
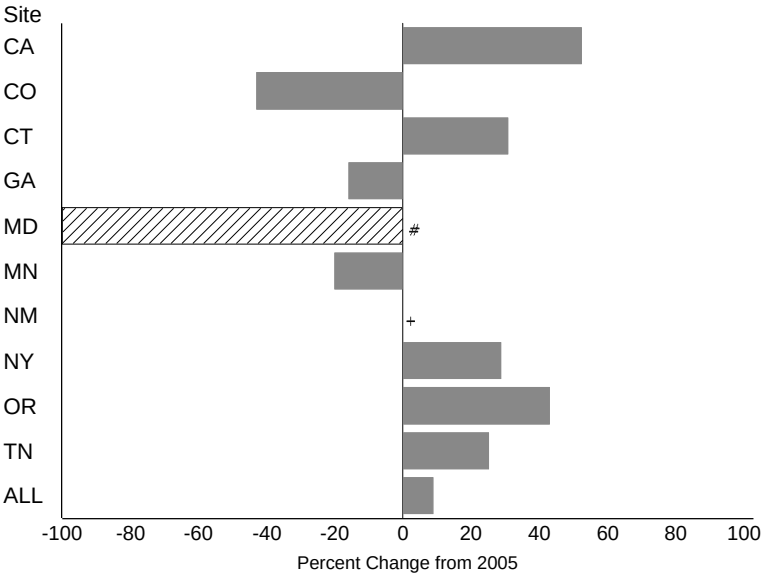
Vibrio, all species

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

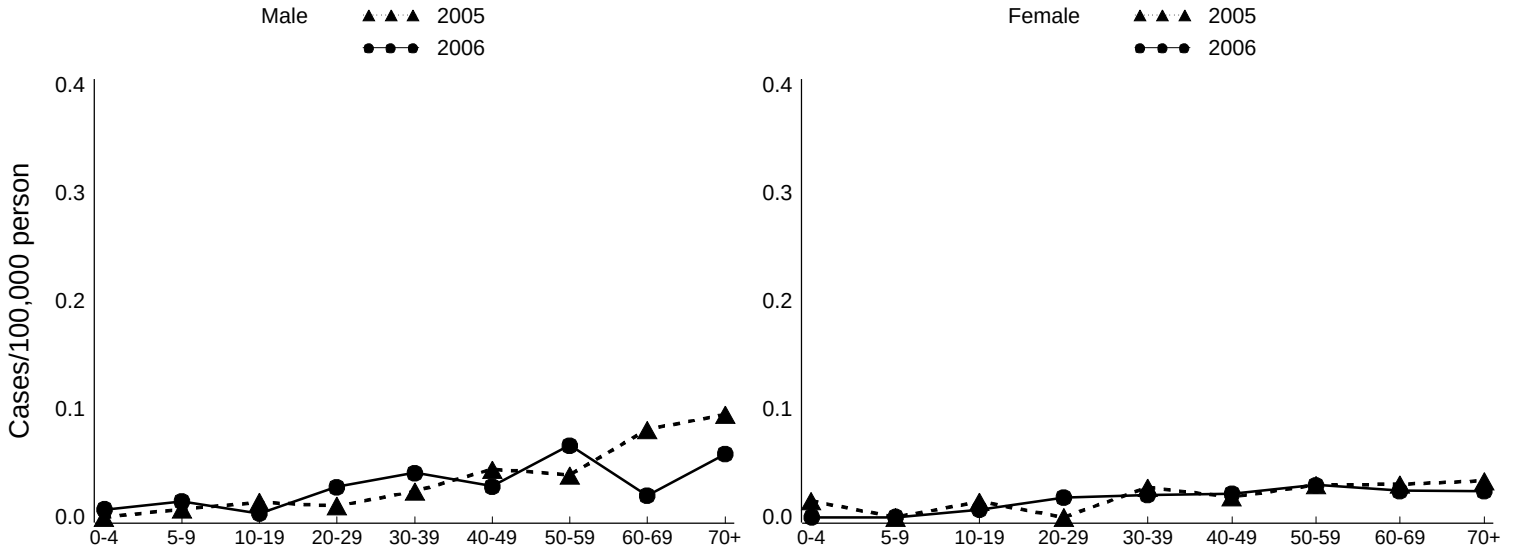


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	32	0.998	21	0.655	15	0.480
CO	4	0.155	7	0.271	4	0.172
CT	17	0.484	13	0.370	10	0.293
GA	16	0.176	19	0.209	20	0.229
MD	0	0.000	21	0.375	20	0.371
MN	4	0.078	5	0.097	4	0.075
NM	2	0.104	0	0.000	1	0.026
NY	9	0.209	7	0.162	4	0.110
OR	10	0.275	7	0.192	8	0.219
TN	5	0.084	4	0.067	6	0.134
ALL	99	0.252	104	0.231	92	0.223

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

Calendar year through September: Rates for 2005 and 2006 by age group and sex



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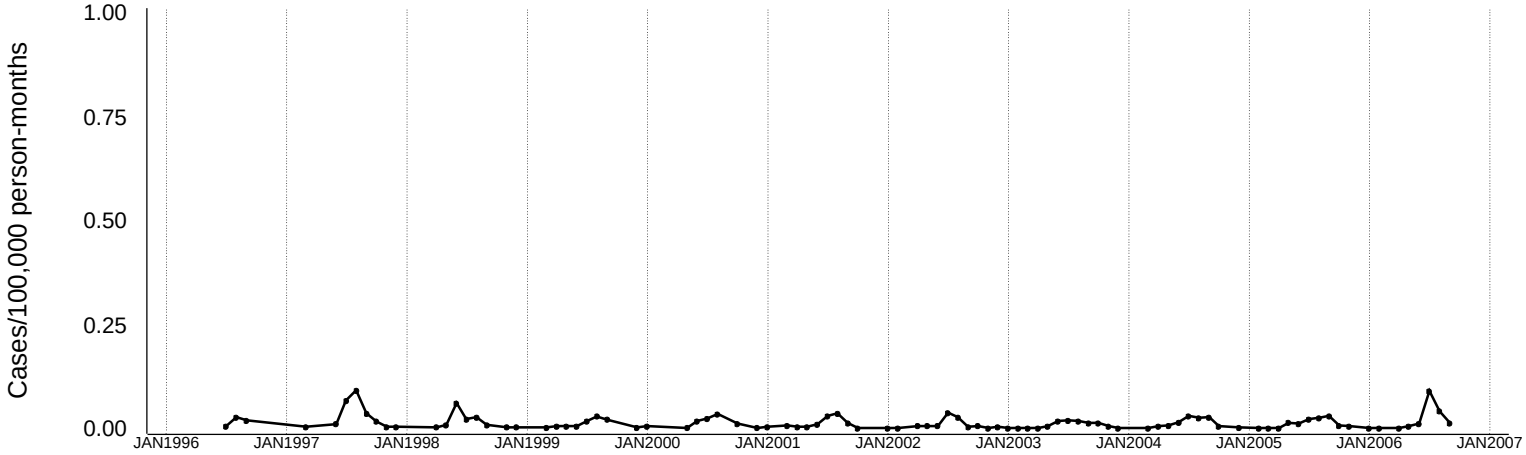
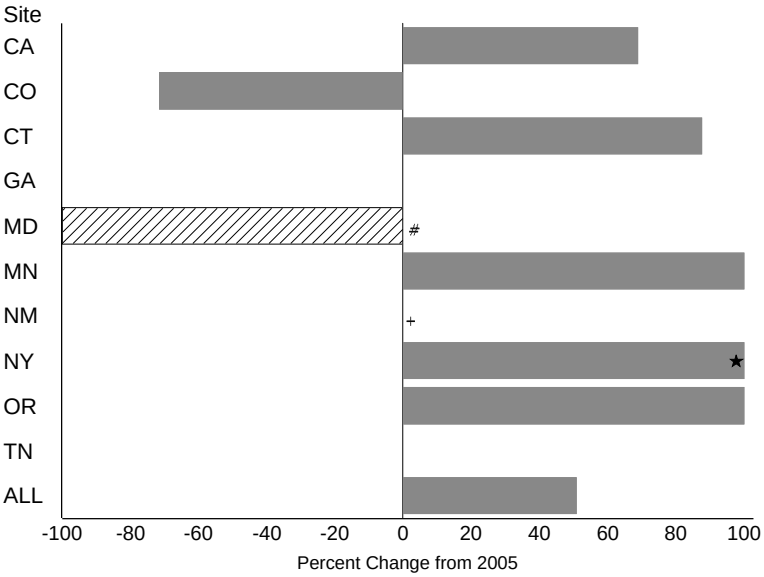
Vibrio parahaemolyticus

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

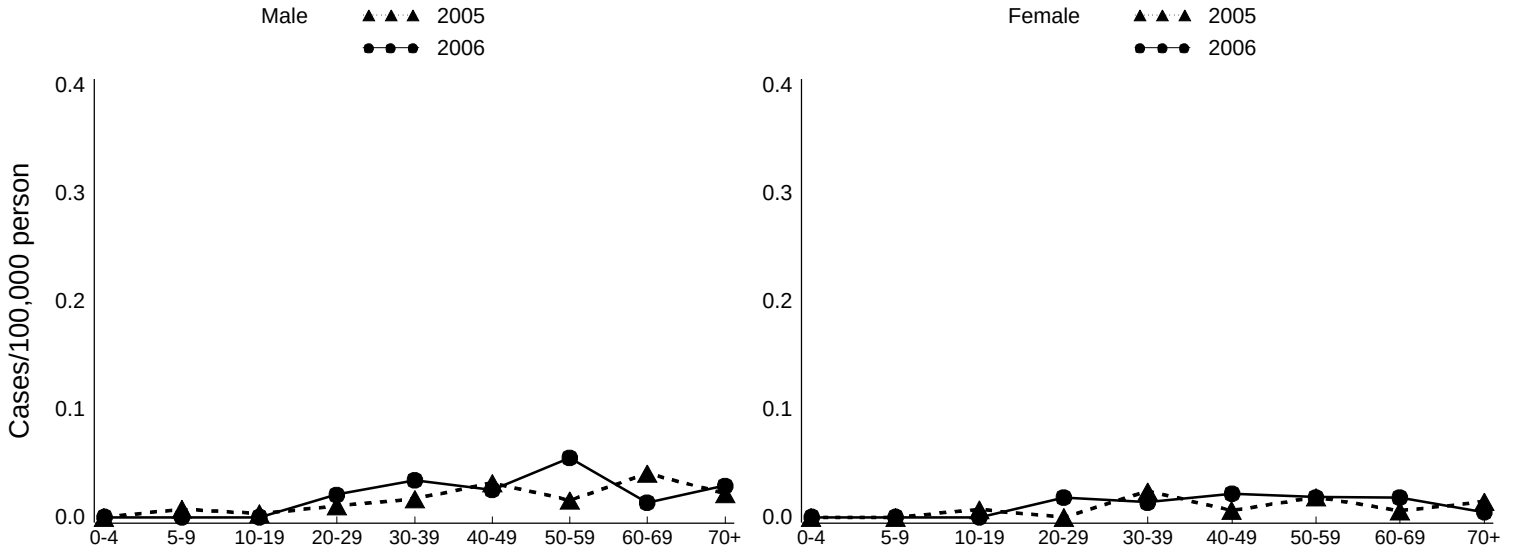


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	27	0.842	16	0.499	12	0.361
CO	2	0.077	7	0.271	3	0.131
CT	15	0.427	8	0.228	6	0.161
GA	5	0.055	5	0.055	5	0.055
MD	0	0.000	7	0.125	9	0.167
MN	2	0.039	1	0.019	1	0.028
NM	0	0.000	0	0.000	1	0.026
NY	8	0.186	3	0.070	2	0.041
OR	10	0.275	5	0.137	6	0.174
TN	1	0.017	1	0.017	2	0.038
ALL	70	0.178	53	0.118	46	0.111

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

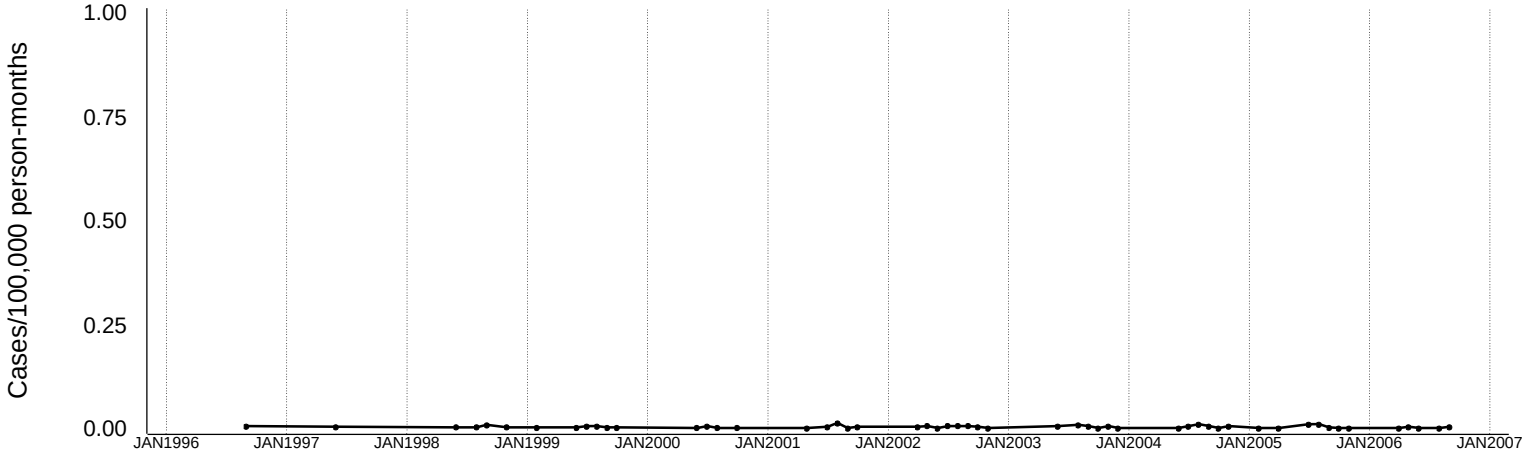
Calendar year through September: Rates for 2005 and 2006 by age group and sex



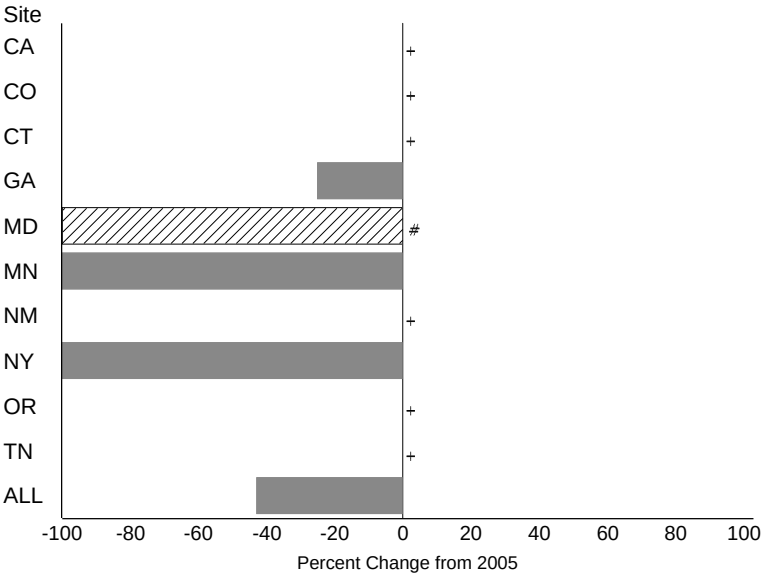
Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

Vibrio vulnificus

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

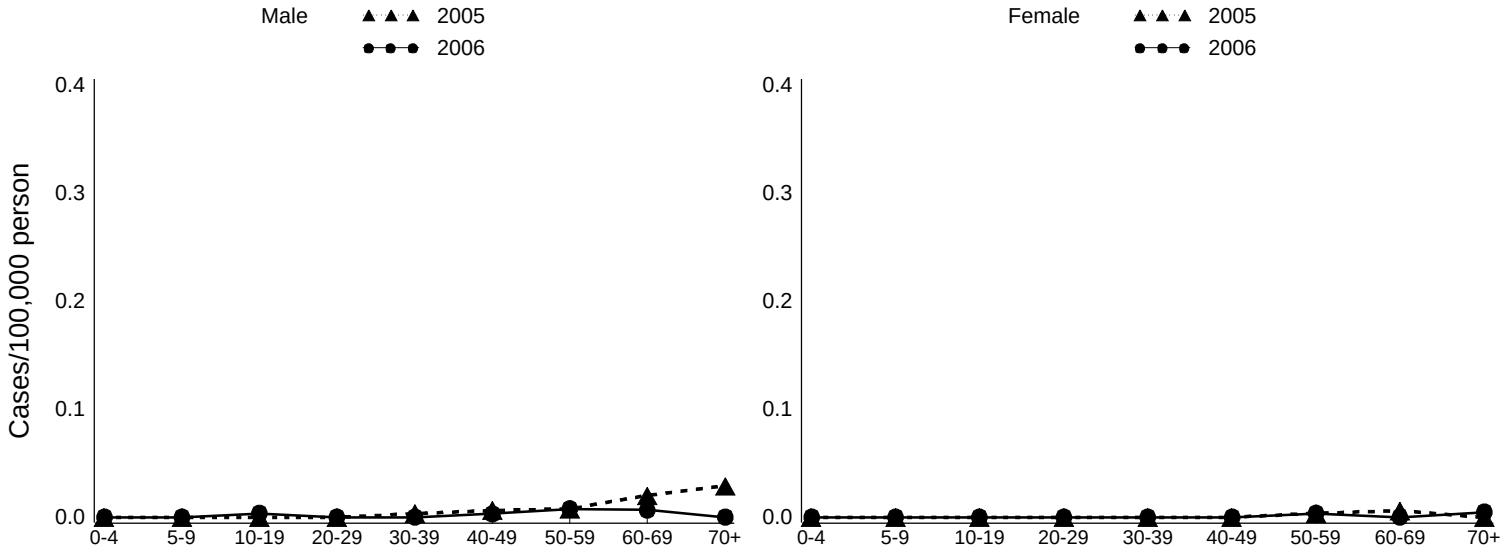


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	0	0.000	0	0.000	0	0.006
CO	0	0.000	0	0.000	0	0.008
CT	1	0.028	0	0.000	0	0.000
GA	3	0.033	4	0.044	4	0.050
MD	0	0.000	7	0.125	5	0.096
MN	0	0.000	1	0.019	0	0.004
NM	1	0.052	0	0.000	0	0.000
NY	0	0.000	2	0.046	0	0.009
OR	0	0.000	0	0.000	0	0.006
TN	2	0.034	0	0.000	1	0.038
ALL	7	0.018	14	0.031	12	0.029

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

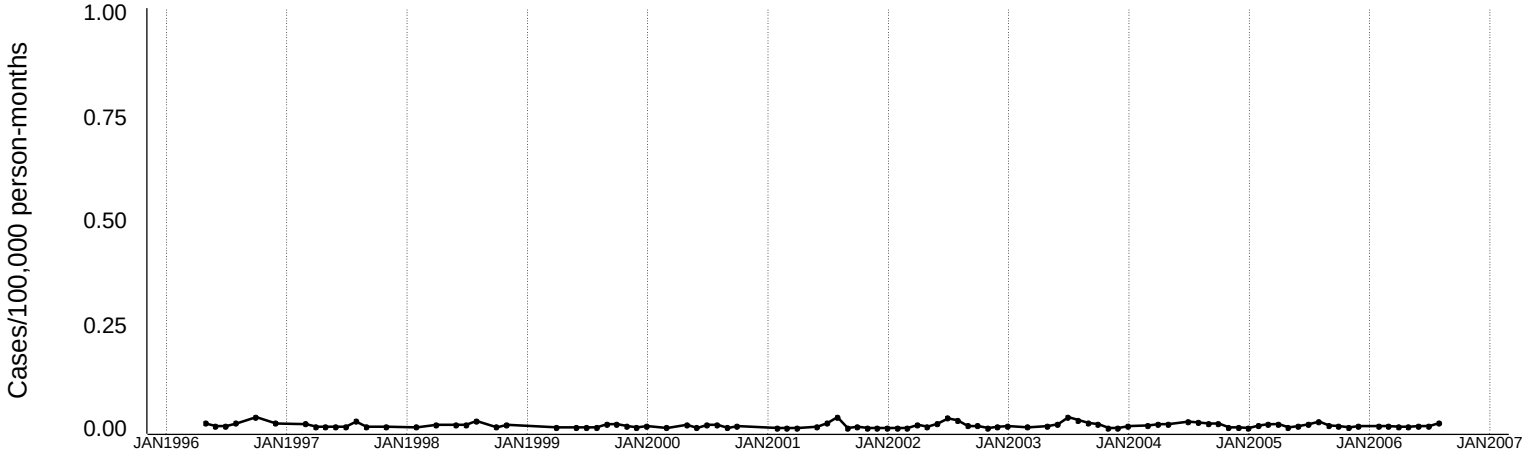
Calendar year through September: Rates for 2005 and 2006 by age group and sex



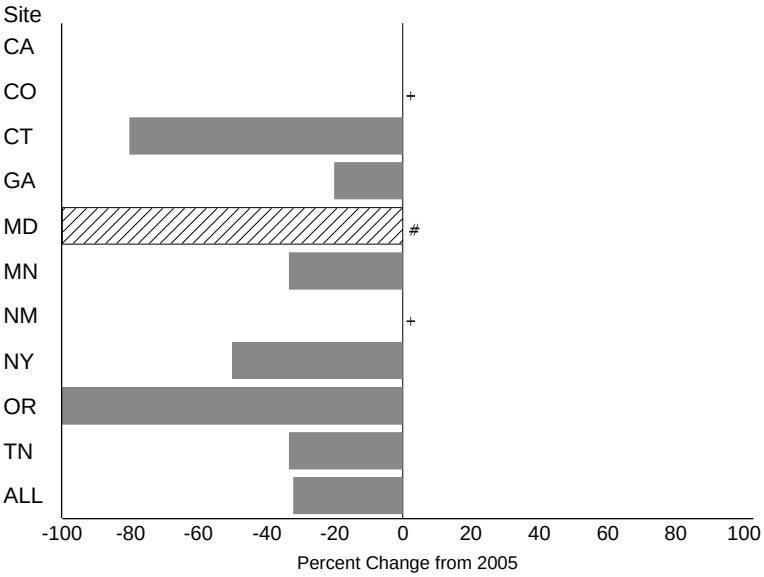
Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

Vibrio, all others

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

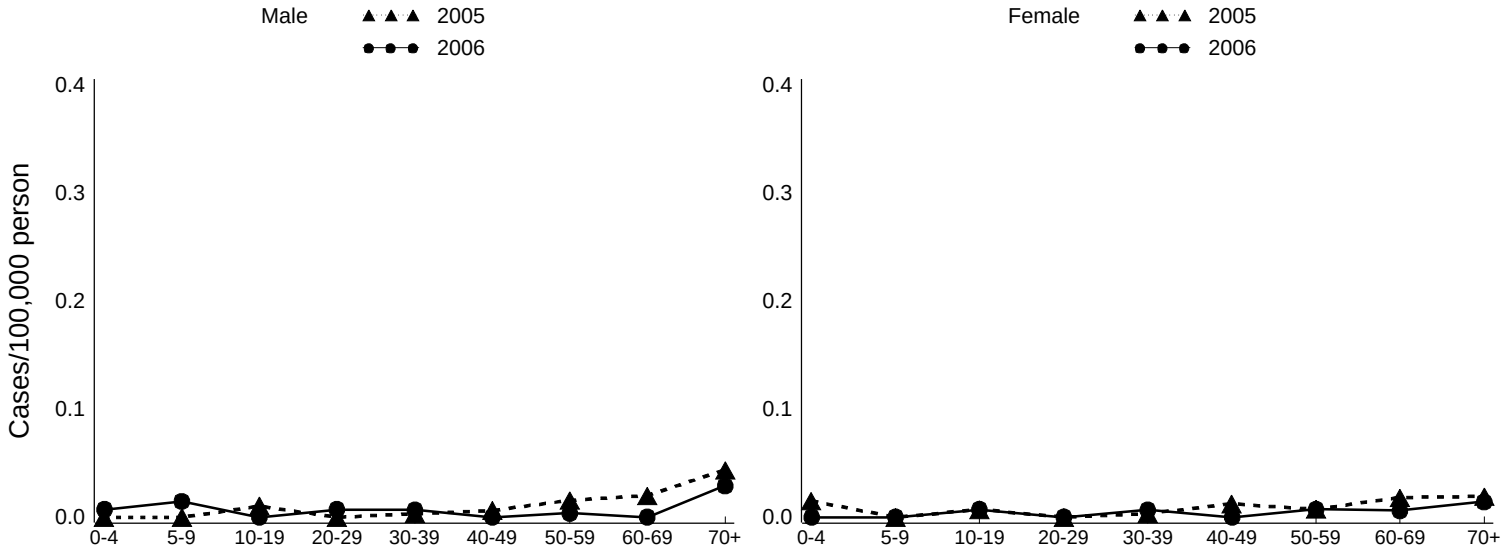


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	5	0.156	5	0.156	4	0.112
CO	2	0.077	0	0.000	1	0.033
CT	1	0.028	5	0.142	5	0.132
GA	8	0.088	10	0.110	11	0.124
MD	0	0.000	7	0.125	6	0.108
MN	2	0.039	3	0.058	2	0.043
NM	1	0.052	0	0.000	0	0.000
NY	1	0.023	2	0.046	2	0.060
OR	0	0.000	2	0.055	1	0.039
TN	2	0.034	3	0.050	3	0.058
ALL	22	0.056	37	0.082	34	0.083

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

Calendar year through September: Rates for 2005 and 2006 by age group and sex



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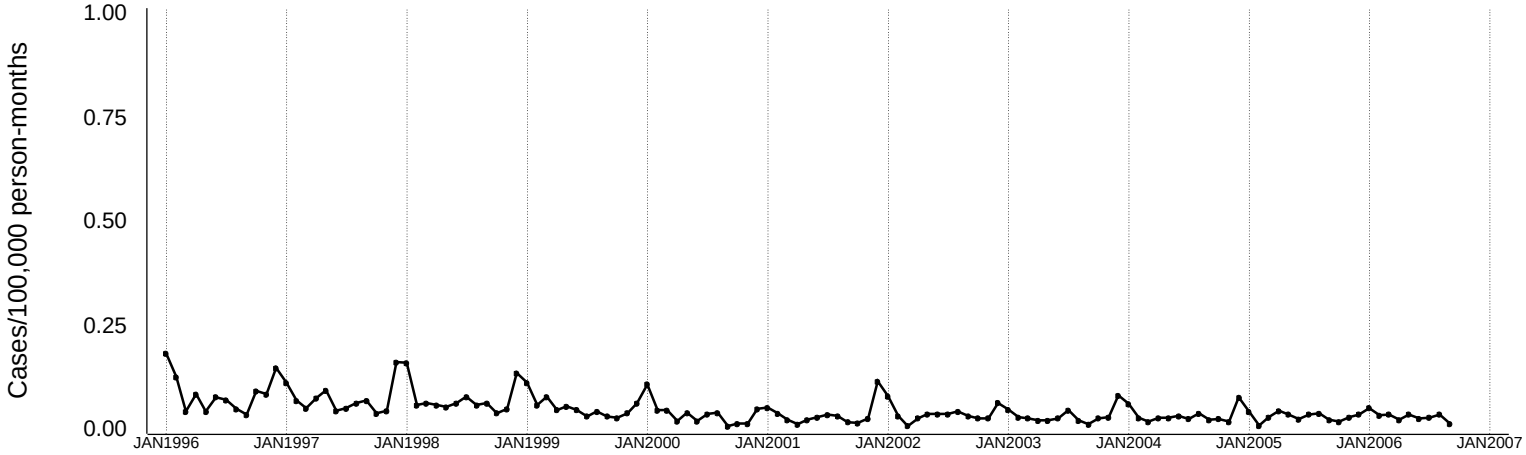
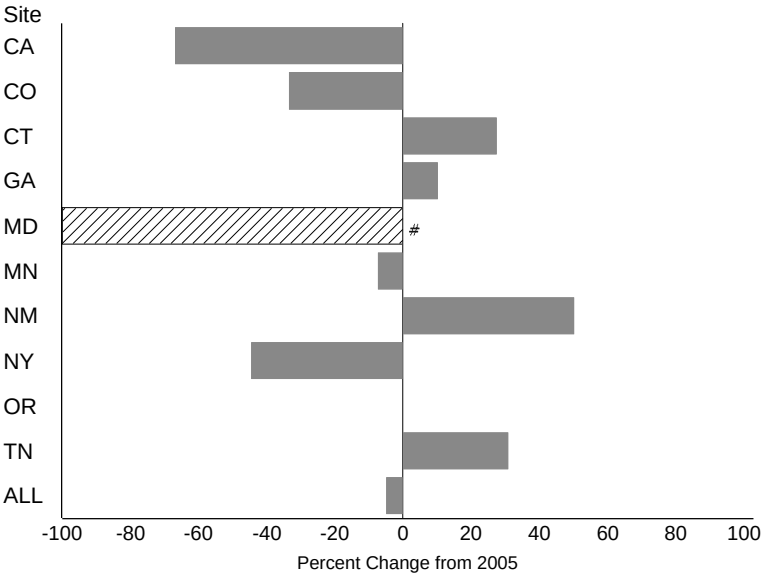
Yersinia

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

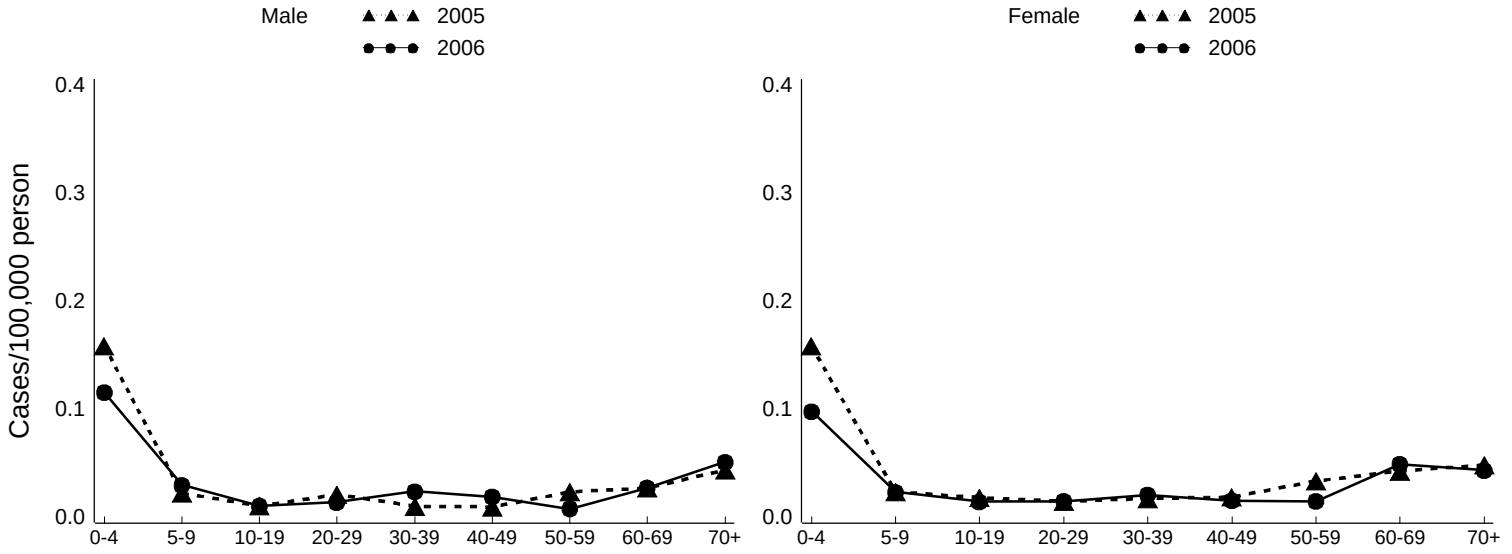


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	8	0.250	24	0.749	17	0.517
CO	4	0.155	6	0.232	6	0.241
CT	14	0.399	11	0.313	11	0.322
GA	22	0.242	20	0.220	24	0.272
MD	0	0.000	4	0.071	8	0.150
MN	13	0.253	14	0.273	14	0.281
NM	3	0.156	2	0.104	2	0.078
NY	10	0.232	18	0.418	11	0.298
OR	14	0.385	14	0.385	10	0.275
TN	17	0.285	13	0.218	13	0.289
ALL	105	0.267	126	0.280	115	0.279

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

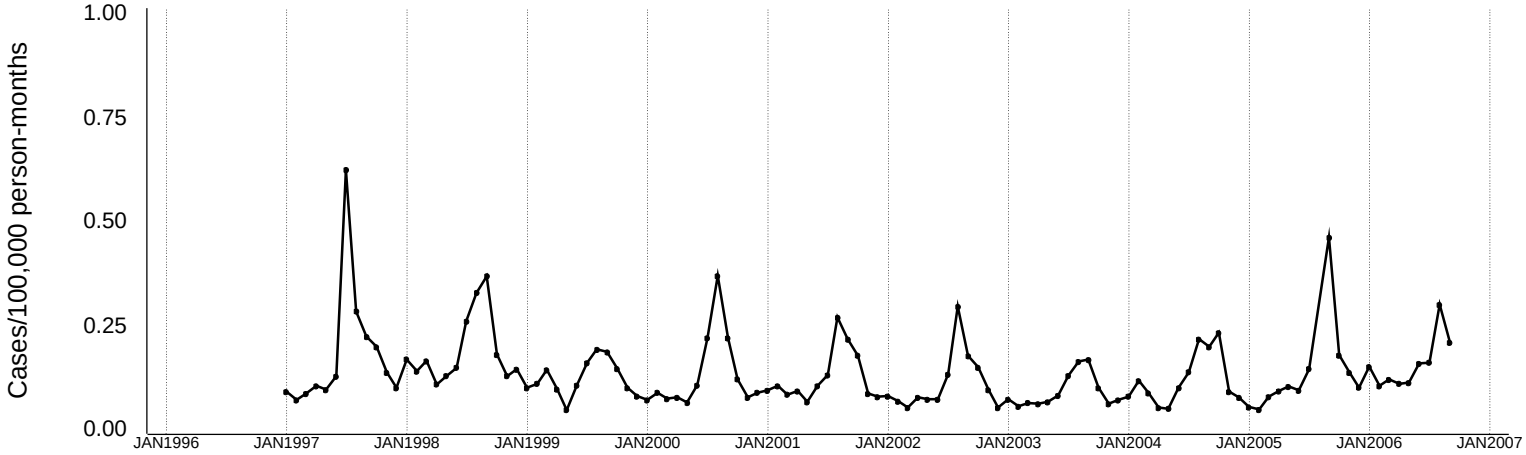
Calendar year through September: Rates for 2005 and 2006 by age group and sex



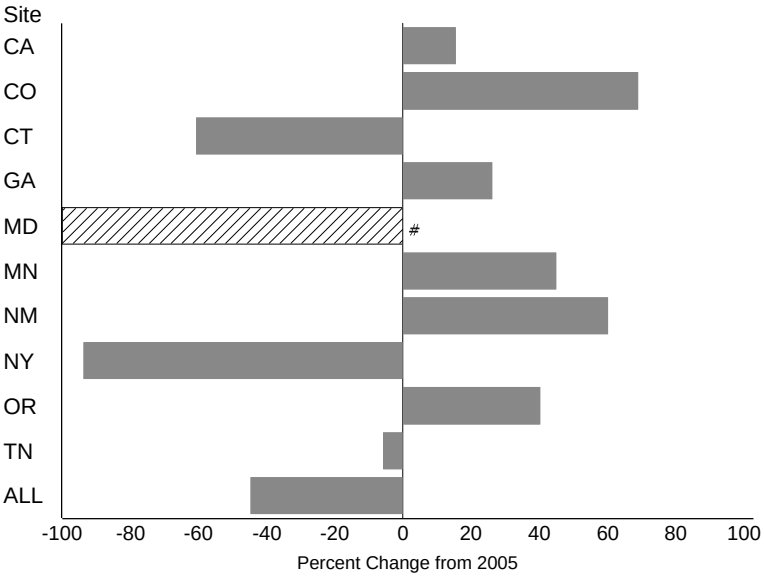
Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

Cryptosporidium

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

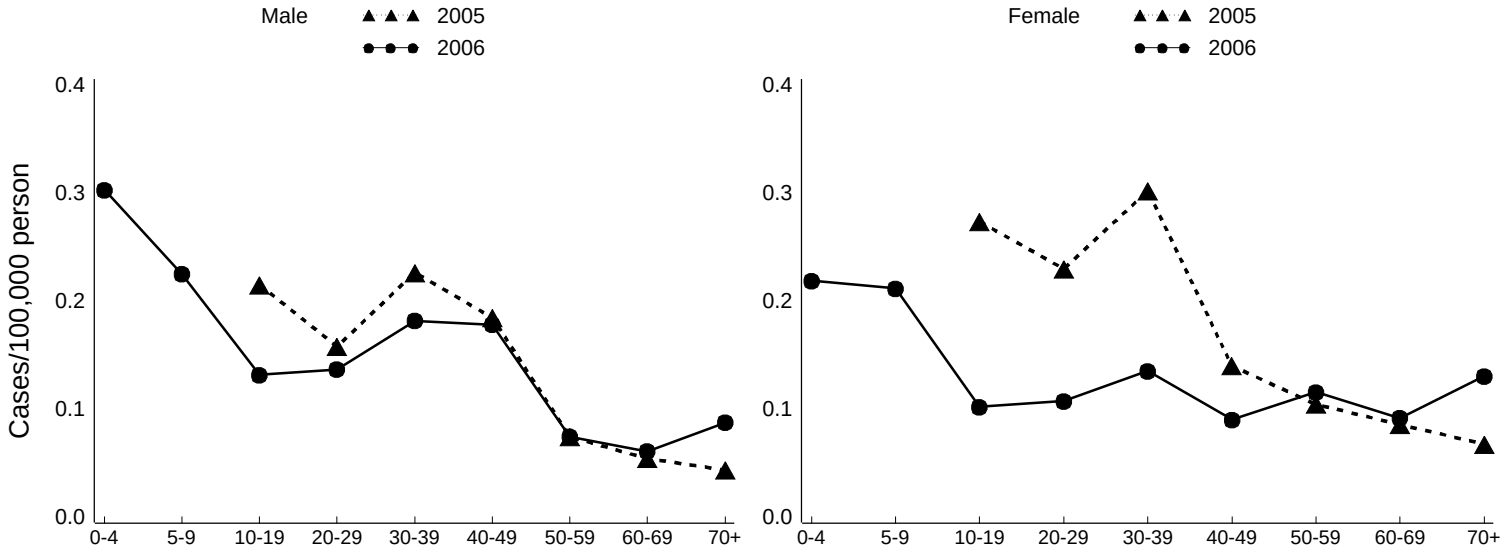


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	45	1.404	39	1.216	34	0.756
CO	27	1.044	16	0.619	14	0.584
CT	28	0.798	71	2.023	29	0.842
GA	136	1.499	108	1.190	108	1.234
MD	0	0.000	26	0.464	20	0.377
MN	168	3.273	116	2.260	137	2.704
NM	16	0.830	10	0.519	12	0.627
NY	44	1.021	679	15.76	159	3.795
OR	56	1.538	40	1.099	34	0.962
TN	33	0.553	35	0.587	27	0.562
ALL	553	1.405	1140	2.536	574	1.321

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

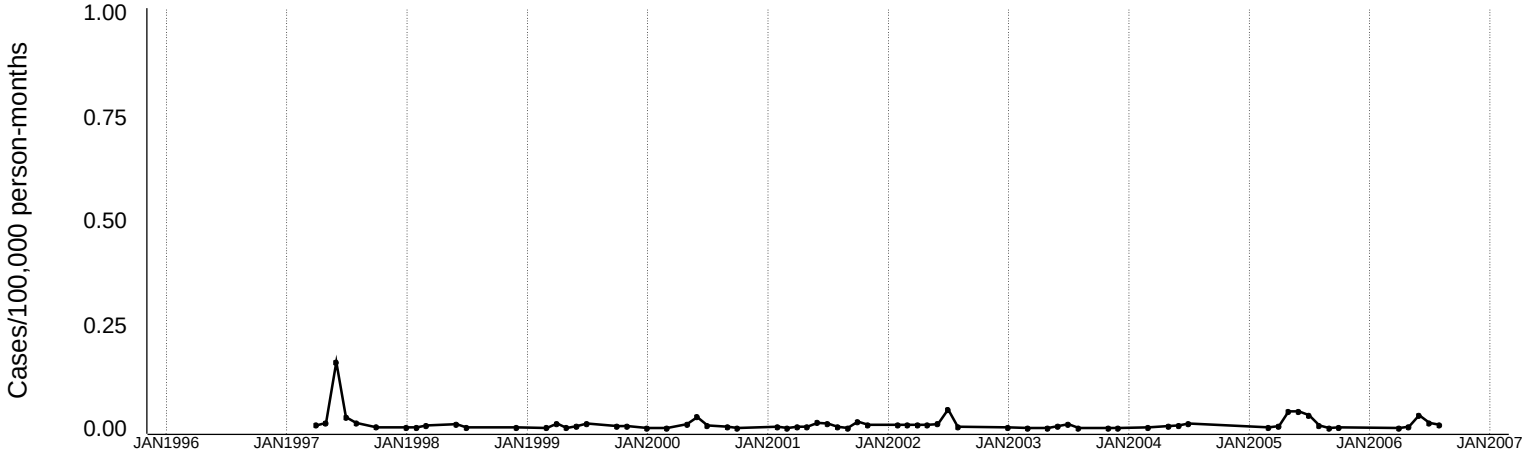
Calendar year through September: Rates for 2005 and 2006 by age group and sex



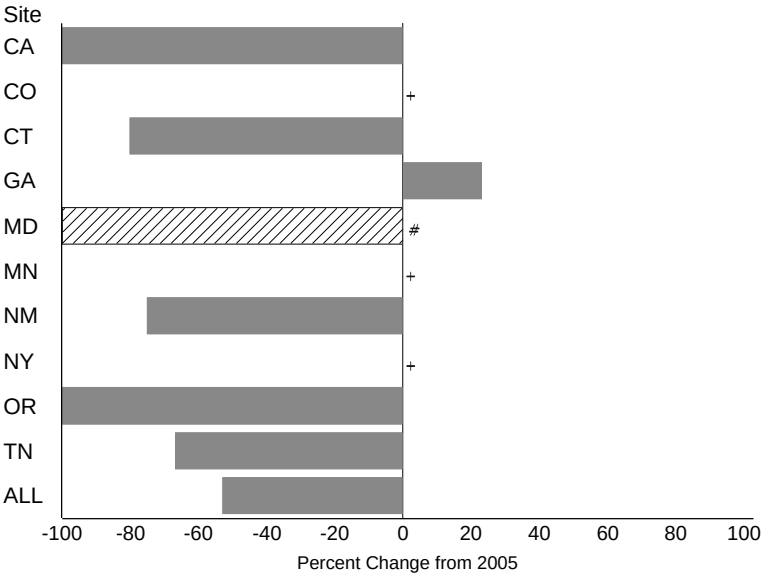
Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

Cyclospora

Incidence rate of culture-confirmed infections, FoodNet sites, January 1996-September 2006



Calendar year through September: Percent change in rates between 2005 and 2006 by site

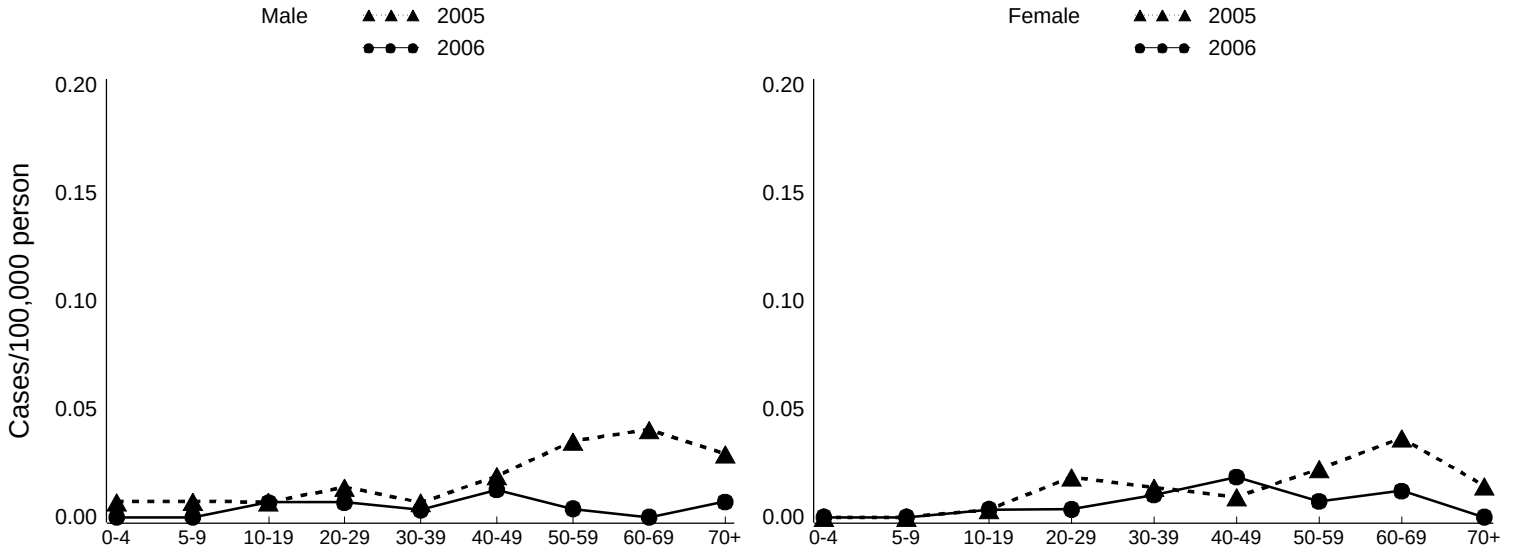


* Change exceeds 100%, +Percent increase cannot be calculated because 2005 rate is 0
\# Note: 2006 MD data entered but not available at CDC due to NEDSS PAM malfunction

	2006		2005		5 year mean*	
Site	Cases	Rate^	Cases	Rate^	Cases	Rate^
CA	0	0.000	1	0.031	1	0.017
CO	0	0.000	0	0.000	1	0.024
CT	7	0.199	35	0.997	11	0.320
GA	16	0.176	13	0.143	13	0.145
MD	0	0.000	3	0.054	1	0.025
MN	1	0.019	0	0.000	0	0.000
NM	1	0.052	4	0.207	2	0.104
NY	0	0.000	0	0.000	2	0.052
OR	0	0.000	4	0.110	1	0.022
TN	1	0.017	3	0.050	1	0.017
ALL	26	0.066	63	0.140	32	0.072

*year 2001-2005 except for NM (2004-2005)
^cases/100,000 person

Calendar year through September: Rates for 2005 and 2006 by age group and sex



Data source: Preliminary FoodNet data, subject to change, not for public distribution. Report date: 27-October-2006

Comparison of FoodNet 2005 and 2006 Incidence Rates without Maryland cases, data through September 2006

Pathogen	2005 count w/o MD	2006 count w/o MD	2005 rate w/o MD	2006 rate w/o MD	p-values	Comparison of 2006 rate to 2005 rate
Campylobacter	4210	3944	10.82	10.14	0.0032	Decrease
Listeria	93	91	0.24	0.23	0.8832	
Salmonella, all serotypes	4413	4232	11.34	10.88	0.5015	
S. Typhimurium	839	723	2.16	1.86	0.0033	Decrease
S. Enteritidis	697	607	1.79	1.56	0.0126	Decrease
S. Newport	376	316	0.97	0.81	0.0223	Decrease
S. Heidelberg	254	154	0.65	0.40	0.0000	Decrease
S. Javiana	213	152	0.55	0.39	0.0014	Decrease
Salmonella, all others	2034	2280	5.23	5.86	0.0002	Increase
Shigella, all species	1468	1546	3.77	3.97	0.1554	
Shigella sonnei	1104	1121	2.84	2.88	0.7344	
Shigella flexneri	252	261	0.65	0.67	0.7239	
Shigella, all others	112	164	0.29	0.42	0.0017	Increase
E. coli O157	360	410	0.93	1.05	0.0716	
STEC non-O157	77	118	0.20	0.30	0.0033	Increase
Vibrio, all	83	99	0.21	0.25	0.2661	
V. parahaemolyticus	46	70	0.12	0.18	0.0260	Increase
V. vulnificus	10	7	0.03	0.02	0.4806	
Vibrio, all others	30	22	0.08	0.06	0.2716	
Yersinia	122	105	0.31	0.27	0.2608	
Cryptosporidium	1114	553	2.86	1.42	1.0000	
Cyclospora	60	26	0.15	0.07	0.0002	Decrease

*cases/100,000 persons

Those highlighted show significant difference between 2005 and 2006 rates.

Table 1. Summary of Foodborne Outbreaks with ≥ 2 ill, by FoodNet Site, 2006
(Data accessed November 1, 2006 (eFORS 2) PRELIMINARY DATA)

State	Outbreaks reported	2005 population	Rate/1,000,000 population	Median Number Ill	Known Etiology* No. (%)	Etiology (confirmed and suspected)	Known Vehicle** No. (%)	Restaurant-associated*** No. (%)
CA	10	3,206,118	3.12	12	5 (50)	Norovirus (4), *Salmonella* (1)	0 (-)	6 (60)
CO	20	2,586,568	7.73	13	18 (90)	*Campylobacter* (3) ,Norovirus (12) *Salmonella* (1), Scrombroid (2)	9 (45)	11 (55)
CT	11	3,510,297	3.13	18	10 (88)	Norovirus (7), *C. perfringens* (1) *Salmonella* (1), *E.* coli (1)	7 (64)	7 (64)
GA	22	9,072,576	2.42	12	18 (81)	Norovirus (10) *Staph. aureus* (2) *Bacillus* (1), *C. perfringens* (1) *Salmonella* (2) *Cyclospora* (1) C. botulinum (1)	9 (41)	13 (59)
MD	12	5,600,388	2.14	25	7 (58)	Other viral (1), *Salmonella* (3),Norovirus (3)	2 (16)	4 (33)
MN	57	5,132,799	11.11	13	52 (91)	*C. perfringens* (4) Norovirus (31) Scrombroid (4), Salmonella (7) E. coli O157:H7 (2), *Cyclospora* (1) *Staph.* aureus(1) *Listeria* (1) *Shigella* (1)	24 (42)	44 (77)
NM	2	1,928,384	1.04	85	1 (50)	Norovirus (1)	0 (-)	0 (-)
NY	11	4,307,911	2.55	10	6 (55)	*Salmonella* (4), Norovirus(1), E. coli(1)	2 (18)	4 (36)
OR	20	3,641,056	5.49	14	17 (85)	Norovirus (10), *Shigella sonnei* (1) *Salmonella* (2), *Listeria* (1) *V. parahaemolyticus*(1) *Campylobacter* jejuni (1) ,*E. coli* (1)	9 (45)	9 (45)
TN	21	5,962,959	3.52	20	13 (62)	Norovirus (8), *Salmonella* 3) E. coli O157:H7 (1) *Staph.* aureus (1)	5 (24)	14 (67)
Total	**187**	**44,949,056**	4.16	**22**	**147 (79)**		**67 (34)**	**112 (60)**

*Known etiology- Confirmed and suspected etiologies
**Known vehicle- Any vehicle reported
***Restaurant-associated- Any outbreak where food item was prepared in a restaurant or deli

Table 2. Summary of Foodborne Outbreaks with ≥10 ill, by FoodNet Site, 2006

*** Data accessed November 1, 2006 (eFORS 2)**
*** Preliminary data**

State	Outbreaks reported	2005 population	Rate/1,000,000 population	Median Number Ill	Known Etiology* No. (%)	Known Vehicle** No. (%)	Restaurant-associated*** No. (%)
CA	4	3,206,118	1.25	22	2 (50)	0 (-)	1 (25)
CO	10	2,586,568	3.87	20	10 (100)	5 (50)	9 (90)
CT	8	3,510,297	2.28	23	7 (88)	5 (63)	5 (57)
GA	8	9,072,576	0.88	27	8 (100)	2 (25)	3 (38)
MD	4	5,600,388	0.71	63	4 (100)	0 (-)	1 (25)
MN	24	5,132,799	4.68	24	23 (96)	13 (54)	14 (58)
NM	1	1,928,384	0.52	164	1 (100)	0 (-)	0 (-)
NY	5	4,307,911	1.16	16	2 (40)	2 (40)	2 (40)
OR	12	3,641,056	3.30	20	11 (92)	6 (50)	6 (50)
TN	10	5,962,959	1.68	35	7 (70)	3 (30)	5 (50)
2006 Total	**86**	**44,949,056**	**1.91**	**41**	**75 (87)**	**36(42)**	**46 (53)**

*Known etiology- Confirmed and suspected etiologies
**Known vehicle- Any vehicle reported
***Restaurant-associated- Any outbreak where food item was prepared in a restaurant or deli

HUS Surveillance, 2006 Table A

Site	All cases (N=112)												In catchment (N=84)											
	<1 yo		1-4 yo		5-9 yo		10-14 yo		15-59 yo		60+ yo		<1 yo		1-4 yo		5-9 yo		10-14 yo		15-59 yo		60+ yo	
	No.	Deaths (%)	No.	Deaths (%)	No.	Deaths (%)	No.	Deaths (%)	No.	Deaths (%)	No.	Deaths (%)	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*
CA	0	--	14	1 (7)	5	0 (0)	1	0 (0)	0	--	0	--	0	0.0	5	3.0	2	1.0	0	0.0	0	0.0	0	0.0
CO	4	1(25)	10	0 (0)	1	0 (0)	1	0 (0)	0	--	0	--	0	0.0	5	3.2	0	0.0	0	0.0	0	0.0	0	0.0
CT	0	--	3	0 (0)	1	0 (0)	1	0 (0)	0	--	0	--	0	0.0	3	1.8	1	0.4	1	0.4	0	0.0	0	0.0
GA	1	0 (0)	4	0 (0)	1	0(0)	0	--	2	0 (0)	0	--	1	0.7	4	0.7	1	0.2	0	0.0	2	0.0	0	0.0
MD	0	--	2	0 (0)	0	--	0	--	0	--	0	--	0	0.0	2	0.7	0	0.0	0	0.0	0	0.0	0	0.0
MN	0	--	9	0(0)	3	0 (0)	0	--	1	0 (0)	2	1 (0)	0	0.0	9	3.4	3	0.9	0	0.0	1	0.0	2	0.2
NM	0	--	4	0 (0)	0	--	0	--	0	--	0	--	0	0.0	3	2.8	0	0.0	0	0.0	0	0.0	0	0.0
NY	0	--	0	--	1	0 (0)	0	--	1	1 (100)	0	--	0	0.0	0	0.0	1	0.4	0	0.0	1	0.0	0	0.0
OR	0	--	5	0 (0)	0	--	2	0 (0)	3	0 (0)	0	--	0	0.0	5	2.8	0	0.0	2	0.8	3	0.1	0	0.0
TN	2	0(0)	19	0(0)	4	0(0)	3	0 (0)	2	0 (0)	0	--	1	1.3	19	6.2	3	0.8	3	0.8	1	0.0	0	0.0
Total	**7**	1(14)	**70**	1 (1)	**16**	**0 (0)**	**8**	**0 (0)**	**9**	1 (11)	**2**	1 (50)	**2**	0.3	**55**	2.31	**11**	0.38	**6**	0.19	**8**	0.26	**2**	0.1

*per 100,000 persons

Results of microbiologic testing for STEC infection among HUS cases, 2006

	Site																							
	CA		CO		CT		GA		MD		MN		NM		NY		OR		TN		**TOTAL**	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Diarrhea in 3 weeks before HUS diag./ Total patients	14 / 20	(70)	9 / 16	(56)	5 / 5	(100)	8 / 8	(100)	2 / 2	(100)	14 / 15	(93)	3 / 4	(75)	0 / 2	(0)	10 / 10	(100)	28 / 30	(93)	**93** / **112**	(83)
Stool specimen obtained/ Patients with diarrhea	14 / 14	(100)	1 / 9	(11)	5 / 5	(100)	7 / 8	(88)	1 / 2	(50)	14 / 14	(100)	3 / 3	(100)	0 / 0	--	10 / 10	(100)	25 / 28	(89)	**80** / **93**	(86)
E. coli O157 Isolation																						
Stool cultured for E. coli O157/ Patients with stool specimens obtained	14 / 14	(100)	1 / 1	(100)	4 / 5	(80)	6 / 7	(86)	1 / 1	(100)	14 / 14	(100)	3 / 3	(100)	0 / 0	--	10 / 10	(100)	24 / 25	(96)	**77** / **80**	(96)
E. coli O157 isolated from stool/ Patients with stool cultured for O157	10 / 14	(71)	0 / 1	(0)	3 / 4	(75)	4 / 6	(67)	0 / 1	(0)	11 / 14	(79)	2 / 3	(67)	0 / 0	--	6 / 10	(60)	15 / 24	(63)	**51** / **77**	(66)
Shiga toxin + Questions																						
Stool tested for Shiga toxin/ Patients with stool specimen obtained	11 / 14	(79)	0 / 1	(0)	3 / 5	(60)	7 / 7	(100)	0 / 1	(0)	10 / 14	(71)	3 / 3	(100)	0 / 0	--	3 / 10	(30)	8 / 25	(32)	**45** / **80**	(56)
Stool Shiga toxin-positive/ Patients with stool tested for Shiga toxin	9 / 11	(82)	0 / 0	--	1 / 3	(33)	3 / 7	(43)	0 / 0	--	8 / 10	(80)	2 / 3	(67)	0 / 0	--	1 / 3	(33)	7 / 8	(88)	**31** / **45**	(69)
Non-O157 Isolation																						
Stool tested for non-O157 STEC/ Patients with stool tested for Shiga toxin	0 / 11	(0)	0 / 0	--	1 / 3	(33)	2 / 7	(29)	0 / 0	--	3 / 10	(30)	1 / 3	(33)	0 / 0	--	0 / 3	(0)	0 / 8	(0)	**7** / **45**	(16)
Non-O157* STEC isolated from stool/ Stool tested for non-O157 STEC	0 / 0	--	0 / 0	--	0 / 1	(0)	0 / 2	(0)	0 / 0	--	1 / 3	(33)	0 / 1	(0)	0 / 0	--	0 / 0	--	1 / 0	--	**2** / **7**	(29)
Serum																						
Serum Tested/ Serum Collected	1 / 2	(50)	0 / 0	--	0 / 2	(0)	0 / 1	(0)	0 / 0	--	4 / 5	(80)	0 / 1	(0)	0 / 0	--	2 / 5	(40)	13 / 13	(100)	**20** / **29**	(69)
O157/Tested	1 / 1	(100)	0 / 0	--	0 / 0	--	0 / 0	--	0 / 0	--	0 / 0	--	0 / 0	--	0 / 0	--	1 / 2	(50)	0 / 2	(0)	**2** / **5**	(40)
Non-O157**/Tested	0 / 1	(0)	0 / 0	--	0 / 0	--	0 / 0	--	0 / 0	--	0 / 0	--	0 / 0	--	0 / 0	--	0 / 0	--	0 / 2	(0)	**0** / **3**	(0)
Total Stool																						
O157, non-O157 STEC, Shiga toxin +/ Total stool specimens tested	10 / 14	(71)	0 / 1	(0)	3 / 5	(60)	4 / 7	(57)	0 / 1	(0)	12 / 14	(86)	2 / 3	(67)	0 / 0	--	6 / 10	(60)	17 / 25	(68)	**54** / **80**	(68)

Non-O157 identified:
*Culture: MN: O145, TN: Unksero
**Serum