

FoodNet Active Manuscripts

Status	#	Lead	Coauthors	Title	Journal	Updated	Comment
9							
	121	Samuel, Michael C.	Vugia, Duc J., Koehler, Kathleen M., Marcus, Ruthanne, Deneen, Valerie C., Damaske, Barbara, Shiferaw, Beletshachew, Hadler, James L., Henao, Olga L., Angulo, Fredrick J.	Consumption of Risky Foods Among Adults at High Risk for Severe Foodborne Diseases: Room Safety for Improved Targeted Prevention Messages	Journal of Food Safety	10/5/2007	Published May 2007; Waiting for permission
7							
	600	Clarkson, Lydia S.	Tobin-D'Angelo, Melissa, Shuler, Carrie, Hanna, Samir S., Benson, James A., Voetsch, Andrew C.	Sporadic Salmonella enterica serotype Javiana Infections in Georgia and Tennessee: An Emerging Zoonotic Disease?	EID	12/18/2007	Manuscript was cleared on 12/17; Submitted to EID
	22	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	CID	10/12/2007	Manuscript submitted to CID- under review
	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	Foodborne Pathogens and Disease	9/24/2007	Submitted to Foodborne Pathogens and Disease
	642	Marcus, Ruthanne		New Information about Pediatric Foodborne Infections-the view from FoodNet	Current Opinion in Pediatrics	11/6/2007	
	394	Nelson, Jennifer M.	Nadle, Joelle, Daniels, Allison, Clogher, Paula, Gillespie, Jennifer, Furuno, Jon P., Plantenga, Melissa, Bernarczyk, Robert, Ingram, Amanda	FoodNet Survey of Food Use and Practices in Long-Term Care Facilities	Journal of Food Protection	9/24/2007	Accepted at Journal of Food Protection
	325	Shiferaw, Beletshachew	Cieslak, Paul R.	Comparison of Three Surveillance Systems for Hemolytic Uremic Syndrome in Oregon		9/25/2007	Submitted to Journal of Public Health
	459	Voetsch, Andrew C.	Poole, Charles, Hedberg, Craig W., Ryder, Robert W., Weber, David J., Angulo, Fredrick J.	The effect of alternative control selection in the FoodNet case-control study of sporadic Salmonella serotype Enteritidis using other serotypes as a comparison group		11/6/2007	Declined at AJE, will submit to Epi and Infection

Status	#	Lead	Coauthors	Title	Journal	Updated	Comment
6							
	103	Ailes, Elizabeth	Demma, Linda, Hurd, Sharon, Hatch, Julie, Jones, Timothy F., Vugia, Duc J., Cronquist, Alicia B., Tobin-D'Angelo, Melissa, Larson, Kirsten, Laine, Ellen, Edge, Karen, Zansky, Shelley M., Scallan, Elaine,	Continued Decline in the Incidence of Campylobacter Infections, FoodNet 1996-2006		11/5/2007	Manuscript has been cleared.
	124	Dunne, Eileen F.	Griffin, Patricia M., Henao, Olga L., 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, Snider, Cynthia J.	Pediatric Hemolytic Uremic Syndrome in the United States, 1997-2002: A Study of 379 Cases		9/24/2007	Updating analysis based on clearance comments
	508	Haley, Clinton C.	Hedberg, Katrina, Cieslak, Paul R., Scallan, Elaine, Ong, Kanyin Liane, Marcus, Ruthanne, Shin, Sam, Cronquist, Alicia B., Gillespie, Jennifer, Jones, Timothy F., Shiferaw, Beletshachew, Fuller, Candace, Edge, Karen, Anderson, Bridget J., Ryan, Patricia A., Mintz, Eric D.	Sporadic Shigellosis: Population-Based Risk Factors Revealed, FoodNet, 2005		9/24/2007	Incorporating comments from Division Statistician
	606	Jones, Timothy F.	Ingram, Amanda, Cieslak, Paul R., Vugia, Duc J., Tobin-D'Angelo, Melissa, Hurd, Sharon, Angulo, Fredrick J., FoodNet Salmonella Working Group	Salmonellosis Outcomes Differ Substantially by Serotype	New England Journal of Medicine	9/25/2007	Manuscript cleared. Will be submitted to NEJM.
	624	Shiferaw, Beletshachew	Griffin, Kristin, Chapin, William, Finnegan, Colleen, Ho, Hon, Cieslak, Paul R.	Use of Hospital Discharge Data to assess the incidence of Guillain-Barre Syndrome	CID	9/26/2007	Manuscript will be submitted to CID
5							
	657	Pires, Sara	Evers, Eric, van Pelt, Wilfrid, Scallan, Elaine, Angulo, Fredrick J., Havelaar, Arie, Hald, Tine	Concepts and Definitions on Human Illness Attribution: Results from a discussion between experts	EID	12/27/2007	Submitted to CDC clearance on 12/21/2007
4							

Status	#	Lead	Coauthors	Title	Journal	Updated	Comment
	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		11/28/2007	Co-author comments being incorporated by first author
	491	Guo, Chuanfa	Hartnett, Emma, Harman, Jane, Ong, Kanyin Liane, Naugle, Alecia L., Bennett, Patricia, Hoekstra, Robert M., Cieslak, Paul R., Holt, Kristen G., Schlosser, Wayne D., Rose, Bonnie E., Schroeder, Carl M., Scallan, Elaine, Angulo, Fredrick J.	Human Infections from Salmonella in Meat, Poultry, and Eggs, United States, 1998 - 2003: Estimates from a Bayesian Model		9/24/2007	
	432	Maldonado, George		Blending Project		10/30/2007	Manuscript being revised by lead author.
	607	Nelson, Jennifer M.	Jones, Timothy F., Scallan, Elaine	Antimotility and Antimicrobial Use in Persons with Shiga toxin-producing E. coli O157 Infection in FoodNet Sites		9/24/2007	
	341	Rosenblum, Ida E.	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, 2001-2006		12/18/2007	Updating with more current data
	659	Weis, Erica	Mohle-Boetani, Janet C., Henao, Olga L., Scallan, Elaine, Cloger, Paula, Fuller, Candace, Gillespie, Jennifer, Jones, Timothy F., Marcus, Ruthanne, Shiferaw, Beletshachew, Vugia, Duc J.	Decline in Risky Food Consumption in the Foodborne Diseases Active Surveillance Network (FoodNet) Population: 1998 to 2002 Decline in Risky Food Consumption in the Foodborne Diseases Active Surveillance Network (FoodNet) Population: 1998 to 2002		1/3/2008	
	661	Henao, Olga L.	Hoekstra, Robert M., Tong, Xin, Scallan, Elaine	Monitoring Trends in the Incidence of Foodborne Diseases, Foodborne Diseases Active Surveillance Network (FoodNet) 1996-2007		1/3/2008	
	331	Long, Cherie	Hayes, Tameka, Vugia, Duc J., Ryan, Patricia A., Scheftel, Joni, Shiferaw, Beletshachew, Jones, Timothy F., Demma, Linda, EIP FoodNet Working Group	Yersenia pseudotuberculosis infections in FoodNet, 1996-2005		6/29/2007	

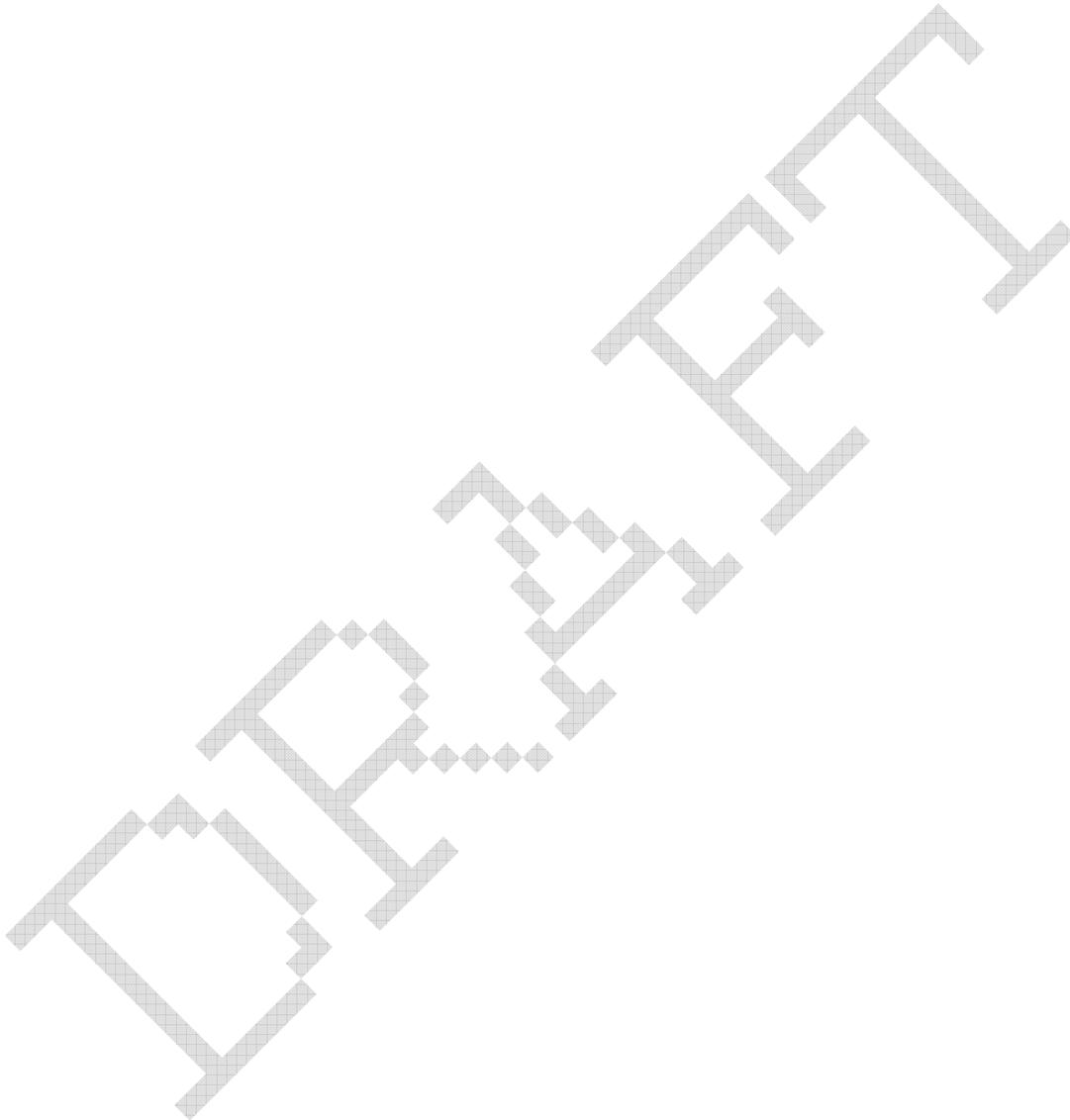
3

Status	#	Lead	Coauthors	Title	Journal	Updated	Comment
	2						
	663	Barton-Behravesh, Casey	Henao, Olga L., Long, Cherie, Vugia, Duc J., Marcus, Ruthanne, Thomas, Stephanie M., Swanson, Stephen J., Anderson, Kevin L., Jones, Timothy F., Scallan, Elaine	Deaths due to Bacterial Pathogens Commonly Transmitted Through Food in the Foodborne Diseases Active Surveillance Network (FoodNet), 1996-2005		1/3/2008	
	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.,	Campylobacter species in FoodNet and NARMS 1997-2004: is the incidence of Campylobacter coli infection increasing?	CID	11/28/2007	Incorp. Clearance comments; waiting for NARMS data
	462	Gould, Hannah	Demma, Linda, Hoekstra, Robert M., Angulo, Fredrick J., Cloger, Paula	Higher Incidence of Escherichia coli O157:H7 Infection in Rural Counties and Possible Association with Animal Contact		11/1/2007	
	565	Henao, Olga L.	Moyer, Laura B., Hoefler, Dina, Holman, Robert, Jones, Timothy F., Marcus, Ruthanne, Medus, Carlota, Ryan, Patricia A., Tobin-D'Angelo, Melissa	Hospitalizations Due to Infections of Selected Foodborne Pathogens; NIS, NHDS, and FoodNet, 1998-2004		7/31/2007	
	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		6/29/2007	
	386	Hurd, Sharon	Demma, Linda, Tong, Xin, Cronquist, Alicia B., Segler, Suzanne D., Kielbauch, Julie, Swanson Laine, Ellen, Smith, Glenda, Hatch, Julie, Hanna, Samir S., Fitzgerald, Collette, EIP FoodNet Working Group, Shin, Sam	Clinical Laboratory Practices for the Identification of Campylobacter in FoodNet Sites: Do Differences Explain Variation in Incidence Rates?		6/29/2007	
	26	McDonald, Laura	Majowicz, Shannon E., Hall, Gillian, Scallan, Elaine, Kirk, Martyn D., Sockett, Paul, Angulo, Fredrick J.	Factors Associated With Respiratory Symptoms in Cases of Gastroenteritis	International Journal of Epidemiology	9/24/2007	On hold
	662	Ong, Kanyin Liane	Scallan, Elaine, Apostol, Mirasol, Hayes, Tameka, Mickelson, Stephanie, Scheftel, Joni, Shiferaw, Beletshachew, Boothe, Effie	Hemolytic Uremic Syndrome Surveillance: Use of Hospital Discharge Data to Supplement Case Finding		1/3/2008	

Status	#	Lead	Coauthors	Title	Journal	Updated	Comment
	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		9/25/2007	
	660	Teates, Kathryn	Henao, Olga L.	High Incidence of Laboratory-Confirmed Listeria Infections in Persons ≥65 Years of Age, Foodborne Diseases Active Surveillance Network (FoodNet), United States, 1996-2006		1/3/2008	
1	605	McMillian, Marcy	Jones, Timothy F., Lynch, Michael, Iwamoto, Martha	Incidence and Trends in Foodborne Pathogens in FoodNet and non-FoodNet sites		12/18/2007	
	604	Shiferaw, Beletshachew		Are there gender differences in food consumption?		9/7/2007	
0	575	Boore, Amy		The changing epidemiology of the most frequently reported Salmonella serotypes in the United States, 1996-2006		12/6/2007	
	586	Viray, Melissa		Evaluation of a Surveillance System for Hemolytic Uremic Syndrome by the Foodborne Diseases Active Surveillance Network (FoodNet)		12/6/2007	EIS domestic project proposal to be supervised by Henao

**CDC's Emerging Infections Program (EIP)
CDC/USDA/FDA Foodborne Diseases Active Surveillance Network (FoodNet)
Protocol Development and Publication Policy**

This FoodNet protocol development and publication policy applies to all protocols, manuscripts, abstracts, or external releases of scientific data in which FoodNet collaborates or which are supported, in whole or in part, through CDC's EIP.



**CDC's Emerging Infections Program (EIP)
CDC/USDA/FDA Foodborne Diseases Active Surveillance Network (FoodNet)
Protocol Development and Publication Policy**

I. Guiding Principles

- A. FoodNet data are gathered with public dollars and are intended for the benefit of the public. The primary consideration regarding publication is to make the data available expeditiously to those who might find them useful.
- B. Meaningful participation in special studies is only one of the many demands on the time of FoodNet epidemiologists. It is preferable that each epidemiologist be relatively intensively involved in fewer studies than less involved in a larger number of studies.

II. Publications Committee

A. Membership

- 1. The FoodNet Publications Committee will consist of five members, including the FoodNet Chief (permanent member), principal investigators from three sites (rotating members) and one additional representative from CDC, USDA or FDA (rotating member).
- 2. All members (with the exception of the FoodNet Chief) will serve a one-year term. Representatives will be volunteers from either the sites or the Federal partners. Members will be appointed by the FoodNet Chief.

B. Function

- 1. The primary function of the Publications Committee is to resolve differences of opinion regarding working group participation and authorship.
- 2. The Publications Committee will also be responsible for updating the FoodNet Protocol Development and Publications Policy on an, as needed, basis.

III. New Studies:

- A. Proposals for new studies may be initiated by individuals at CDC, any of the FoodNet sites, USDA, or FDA. All proposals must be reviewed by the FoodNet Steering Committee and a vote taken to accept the proposal.
 - 1. To be voted on, proposals must be made available to the FoodNet Steering Committee at least one week prior to the Steering Committee call (usually the second Thursday of the month) or annual Vision Meeting.

**CDC's Emerging Infections Program (EIP)
 CDC/USDA/FDA Foodborne Diseases Active Surveillance Network (FoodNet)
 Protocol Development and Publication Policy**

2. Proposals should be presented verbally to the FoodNet Steering Committee at which time the proposal will be accepted or rejected by a majority vote.
3. Leadership of any given project is open to discussion by the FoodNet Steering Committee.

B. The FoodNet Steering Committee will designate a "Study Working Group" for each new study, consisting of at least one representative from each site that is participating in the study and additional representatives from sites and partners, as appropriate.

1. The Study Working Group should and will be responsible for the development and implementation of the study (including the study protocol and study instruments).
 - a) The Study Working Group is not responsible for analysis of study results; an Analytical Working Group will be convened for this purpose. Participants in the Study Working Group may or may not be the same persons who elect to participate in the Analytical Working Group.
 - b) Participation in the Study Working Group does not imply authorship on publications arising from study results.
2. The person who presented the proposal to the FoodNet Steering Committee will usually be a member of the Study Working Group and, with CDC-FoodNet administrative support, will arrange the first meeting or conference call.
3. The Study Working Group will determine the Working Group Leader. This decision will no be made no later than the end of the first meeting or conference call of the Study Working Group The Study Working Group Leader will be considered the principal investigator.
4. The Study Working Group Leader, with CDC-FoodNet administrative support, must be willing and able to lead the development of the study, and schedule and conduct meetings or conference calls.
 - a) If the Study Working Group Leader is unable to continue in a Leadership role or if another team member emerges as the Leader, a Leadership change may occur if endorsed by the Study Working Group. If there is disagreement within the Working Group about such a change, the matter will be resolved by the FoodNet Publications Committee. Other changes in Study Working Group personnel will be handled by the Study Working Group with the Publications Committee resolving any disagreements.

**CDC's Emerging Infections Program (EIP)
 CDC/USDA/FDA Foodborne Diseases Active Surveillance Network (FoodNet)
 Protocol Development and Publication Policy**

5. The final study protocol and questionnaire will be made available to each site, CDC, FDA, and USDA for comment before submission to IRB.

- a) Each site must reply to an email initiated by CDC-FoodNet stating that they have reviewed and agree on the content of the protocol.

IV. Analysis of aggregate FoodNet data:

A. CDC, FoodNet sites, USDA, and FDA are encouraged to review aggregate data (defined as data from ≥ 2 sites) frequently and discuss interesting findings with the FoodNet Steering Committee. The FoodNet Steering Committee will ensure that aggregate data are analyzed and published in a timely and equitable manner, and will ensure high scientific standards.

B. Proposals for analyses of existing data for an abstract, manuscript, dissertation, or external release of scientific data may be initiated by individuals at CDC, any of the sites, USDA, or FDA. All proposals must be reviewed by the FoodNet Steering Committee and a vote taken to accept the proposal.

- 1. To be voted on, proposals must be made available to the FoodNet Steering Committee at least one week prior to the Steering Committee call (usually the second Thursday of the month) or annual Vision Meeting. The proposal should clearly indicate the intended use of the analysis (i.e. conference abstract, published manuscript, student dissertation, or other as specified).

- 2. The proposal should be presented verbally to the FoodNet Steering Committee at which time the proposal will be accepted or rejected by a majority vote. The proposal will be approved only for its intended use (i.e. conference abstract, published manuscript, student dissertation, or other as specified).

- a) A new proposal is required for each new analysis. For example, if data from an abstract are analyzed further for a manuscript, a new proposal must be submitted to the FoodNet Steering Committee.

- 3. When accepted, a data request form must be completed and submitted to CDC-FoodNet. The appropriate dataset will be provided to the requestor following the signing of a data release agreement which will be kept on file at CDC.

- 4. Leadership of any given project is open to discussion by the FoodNet Steering Committee.

C. The FoodNet Steering Committee will designate an "Analytical Working Group" for the

**CDC's Emerging Infections Program (EIP)
 CDC/USDA/FDA Foodborne Diseases Active Surveillance Network (FoodNet)
 Protocol Development and Publication Policy**

analysis of any FoodNet data (surveillance or special studies) from ≥ 2 sites that will be presented as an abstract at a scientific conference or a manuscript for publication. Analytical Working Group members will be nominated following the approval of the proposal by the FoodNet Steering Committee; the working group does not require representation by all sites or partners.

1. This Working Group will help guide the analysis and presentation of findings.
2. The person who presents the proposal to the FoodNet Steering Committee will be a member of the Analytical Working Group and, with CDC-FoodNet administrative support, will arrange the first meeting or conference call.
3. The Analytical Working Group will determine the Working Group Leader. This decision will be made no later than the end of the first meeting or conference call of the Analytical Working Group. The Analytical Working Group Leader will be considered the principal investigator.
4. The Analytical Working Group Leader, with CDC-FoodNet administrative support, must be willing and able to lead the data analysis and write-up.
 - a) If the original Analytical Working Group Leader is unable to continue in a leadership role, or if another team member emerges as the leader (for example, by undertaking most of the analysis), a leadership change may occur.
 - b) If such a change is endorsed by the Analytical Working Group, the change may proceed.
 - c) If there is disagreement within the Analytical Working Group about such a change, the matter will be resolved by the FoodNet Publications Committee. Other changes in Working Group personnel will be handled by the Working Group with the Publications Committee resolving any disagreements.
5. The Analytical Working Group that is formed for analysis of an abstract may be different than the group created for analysis of a subsequent manuscript.
6. For the analysis of a recently completed study, the principle investigator of the Study Working Group will have the right of first refusal to lead the Analytical Working Group for that study. The Study Working Group members responsible for the development and implementation of a study protocol may or may not serve on the Analytical Working Group, as appropriate.
 - a) After data collection is complete and data analysis is due to begin, the

**CDC's Emerging Infections Program (EIP)
 CDC/USDA/FDA Foodborne Diseases Active Surveillance Network (FoodNet)
 Protocol Development and Publication Policy**

FoodNet Steering Committee should be informed and nominations for membership in the Analytical Working Group made.

b) The Analytical Working Group responsible for data analysis may be a subset of the Study Working Group responsible for study implementation and does not require representation from all sites.

V. Reviews of previously published FoodNet data:

- A. The FoodNet Steering Committee should be informed of any abstracts, manuscripts, or other summaries of previously published FoodNet data.
- B. Authorship from each site is not required; however, a draft of any review manuscript should be circulated to the FoodNet Principal Investigators in each site prior to submission. Any additional authors must fulfill the Uniform Requirement criteria for authorship.

VI. Analysis of existing data for student projects (Thesis and/or Dissertations)

- A. A proposal for analysis of existing FoodNet data for a student thesis or dissertation must be presented to the FoodNet Steering Committee and a vote taken to accept the proposal.
 - 1. To be voted on, proposals must be made available to the FoodNet Steering Committee at least one week prior to the Steering Committee call (usually the second Thursday of the month) or annual Vision Meeting. The proposal should clearly indicate the intended use of the analysis (i.e. student thesis or dissertation).
 - 2. The proposal should be presented verbally to the FoodNet Steering Committee at which time the proposal will be accepted or rejected by a majority vote. The proposal will be approved only for its intended use.
- B. When accepted, a data request form must be completed and submitted to CDC-FoodNet. The appropriate dataset will be provided to the requestor following the signing of a data release agreement which will be kept on file at CDC.
- C. An analytical working group for analysis data does not need to be created; however, requestors should feel free to use FoodNet as a forum to share ideas or solicit input.
- D. Requestor should be willing to provide an update on the status of the project and/or key findings from analysis to FoodNet, if requested.

VII. Analysis of data from a single FoodNet site:

CDC's Emerging Infections Program (EIP)
CDC/USDA/FDA Foodborne Diseases Active Surveillance Network (FoodNet)
Protocol Development and Publication Policy

- A. Sites are encouraged to review and analyze their data (including data from site-specific projects or one site's data from a multi-site project) frequently and to discuss interesting findings with the FoodNet Steering Committee.
- B. FoodNet Steering Committee approval is not required for a site (or a site and CDC) to initiate an analysis for an abstract, manuscript, or other external release of scientific data that is based on site-generated data; however, sites are strongly encouraged to inform the FoodNet Steering Committee of such investigations.
- C. Analysis of site-specific data for student projects does not require approval from the FoodNet Steering Committee.

VIII. Authorship:

- A. All authors of manuscripts must adhere to the criteria outlined in the Uniform Requirement of Manuscripts Submitted to Biomedical Journals, last updated October 2007 (<http://www.icmje.org/>). The following points pertaining to qualification for authorship are taken from Section II.A.1 "Byline Authors":
 - 1. An author is defined as someone who "has made a substantive intellectual contribution to a published study". This section further explains that authorship credit should be made on meeting ALL three of the following criteria:
 - a) Substantial contributions to concept and design or acquisition of data or analysis and interpretation of data,
 - b) Drafting the article or revising it critically for important intellectual content,
 - c) Final approval of version to be published
 - 2. For publications that are prepared based on the work of a large multi-center group (such as FoodNet), the group should identify individuals to take direct responsibility for the manuscript and each individual should fully meet the criteria outlined above.
 - 3. Acquisition of funding, collection of data or direct supervision of the research group, alone, does not justify authorship.
 - 4. All persons designated as authors should qualify for authorship, and all those qualified should be listed.
 - 5. Each author should have participated sufficiently in the work to take public

**CDC's Emerging Infections Program (EIP)
CDC/USDA/FDA Foodborne Diseases Active Surveillance Network (FoodNet)
Protocol Development and Publication Policy**

responsibility for appropriate portions of the content.

B. All authors of abstracts and manuscripts must be actively involved in the Analytical Working Group. "Active involvement" includes participation in conference calls, providing guidance on analysis questions, providing written comments on the abstract or publication, and/or writing portions of the abstract or publication.

1. Participation in data collection alone is not enough to qualify for authorship.
2. Authorship on an abstract does not automatically imply authorship on a resulting manuscript.
3. Abstracts and manuscripts need not have an author from all sites.
4. All co-authors on abstracts must provide written comments to the Lead Author.

C. The Analytical Working Group will be the nucleus of the author list. The Analytical Working Group leader will have the right of first refusal to be the lead author or presenter of the project findings.

1. The Lead Author, in consultation with the senior author, will determine if suggested authors have met the criteria for authorship. If persons do not meet the criteria but have contributed to the publication, they should be included in the acknowledgements. The FoodNet Publications Committee will resolve any differences of opinion.
2. The Lead Author, in consultation with the senior author, will determine the order of authorship. The FoodNet Publications Committee will resolve any differences of opinion in this listing.

D. If the original Analytical Working Group Leader is unable to complete the analysis and write-up (for example, if the leader leaves their current position) and a leadership change occurs, the new lead will have the right of first refusal to be the lead author or presenter of the project findings.

1. The placement of the original lead on the authorship list will be determined by the current lead, in consultation with the senior author. The FoodNet Publications Committee will resolve any differences of opinion in this listing.

E. "Emerging Infections Program FoodNet Working Group" will be included as the last entry on the authorship line in all publications and an asterisk or footnote will refer to a listing of

**CDC's Emerging Infections Program (EIP)
CDC/USDA/FDA Foodborne Diseases Active Surveillance Network (FoodNet)
Protocol Development and Publication Policy**

names.

F. Every publication in which FoodNet collaborates or which is supported wholly or in part through FoodNet must bear the following acknowledgment and disclaimer: "This publication was supported by the Emerging Infections Program from the Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC".

G. All manuscripts or abstracts that include a CDC author will follow CDC clearance guidelines, which include that all authors have time to review and comment on manuscripts and abstracts before they are put into clearance.

H. Publications arising from student thesis or dissertations do not require FoodNet authorship; however, FoodNet authors may be included at the discretion of the first author if he/she deems that the individual has made a substantial contribution to the manuscript and meets all of the criteria for authorship.

IX. Timelines:

A. Timelines for the development of major publications will be drafted. These timelines should include deadlines for analysis, abstract submission for a national meeting, outline of paper, first draft, draft acceptable for clearance, and final paper for submission. If deadlines are not met, the FoodNet Publications Committee can open the paper to leadership by other investigators.

B. If the original Analytical Working Group leader leaves their current position, they may only remain the Analytical Working Group Lead (and Lead Author) only if a draft of the manuscript has been distributed to other Analytical Team members before leaving their position.

C. In cases where the Analytical Working Group leader retains lead authorship after leaving their FoodNet position, a manuscript should be submitted to CDC clearance no longer than six months after leaving their position. Exceptions to this rule will only be made in extenuating circumstances where the completion of the next draft of the manuscript is out of the control of the lead authors and will be subject to the discretion of the FoodNet Chief. If a manuscript is not submitted to CDC clearance within six months of the lead author leaving their position, the Analytical Working Group should nominate a new lead.

Trends Packet

Packet contents:

FoodNet Active Surveillance Summary Tables

Number and incidence, by year and pathogen, FoodNet 1996-2007

Number and incidence, by site and pathogen, for FoodNet 2007

Number of outbreaks, by pathogen and year, FoodNet 2004-2007

Relative rates and percent change, by pathogen, FoodNet 2007

Graphs of relative rates

Number and incidence of *Salmonella* infections, by serotype, for FoodNet 2006 & 2007

Relative rates and percent change for *Salmonella* infections, by serotype, FoodNet 2007

Graphs of relative rates

Number and incidence, by age group and pathogen, for FoodNet 2007

Relative rates of select pathogens, by age group and pathogen, FoodNet 2007

Graphs of relative rates

FoodNet data thru November
(data transmitted 12/14/2007)

Pathogen	2006		2007		2007 vs 2006 p-value	5 year Mean	
	count	rate	count	rate		count	Rate
<i>Campylobacter</i>	5434	11.94	5232	11.50		5177	12.06
<i>Listeria</i>	133	0.29	107	0.24		119	0.28
<i>Salmonella</i> , all serotypes	6206	13.64	5988	13.16	0.0484	5993	13.98
<i>S. Typhimurium</i>	1111	2.44	854	1.88	0.0000	1081	2.53
<i>S. Enteritidis</i>	1015	2.23	910	2.00	0.0167	889	2.07
<i>S. Newport</i>	511	1.12	518	1.14		614	1.45
<i>S. Heidelberg</i>	227	0.50	213	0.47		291	0.68
<i>S. Javiana</i>	298	0.65	259	0.57		337	0.79
<i>Salmonella</i> , all others	3044	6.69	3234	7.11	0.0165	2781	6.47
<i>Shigella</i> , all species	2544	5.59	2472	5.43		2638	6.26
<i>Shigella sonnei</i>	2016	4.43	1975	4.34		2099	5.00
<i>Shigella flexneri</i>	373	0.82	309	0.68	0.0143	352	0.82
<i>Shigella</i> , all others	155	0.34	188	0.41	0.0000	187	0.44
STEC O157	553	1.22	502	1.10		487	1.15
STEC non-O157	201	0.44	190	0.42		101	0.23
<i>Vibrio</i> , all species	155	0.34	101	0.22	0.0007	120	0.28
<i>Vibrio parahaemolyticus</i>	96	0.21	58	0.13	0.0022	61	0.14
<i>Vibrio vulnificus</i>	18	0.04	12	0.03		16	0.04
<i>Vibrio</i> , all others	41	0.09	31	0.07		43	0.10
<i>Yersinia</i>	147	0.32	146	0.32		142	0.33
<i>Cryptosporidium</i>	840	1.85	1119	2.46	0.0000	733	1.68
<i>Cyclospora</i>	41	0.09	12	0.03	0.0001	35	0.08

FoodNet data thru November
(data transmitted 12/14/2007)

Top 20 <i>Salmonella</i> Serotypes (ranked by 2006 year end counts)	2006			2007			2007 vs 2006 p-value
	Rank	# (%)	Rate	Rank	# (%)	Rate	
<i>S. Typhimurium</i>	<i>1</i>	1111 (17.90)	2.44	<i>2</i>	854 (14.26)	1.88	0.0000
<i>S. Enteritidis</i>	<i>2</i>	1015 (16.36)	2.23	<i>1</i>	910 (15.20)	2.00	0.0167
<i>S. Newport</i>	<i>3</i>	511 (8.23)	1.12	<i>3</i>	518 (8.65)	1.14	
<i>S. Javiana</i>	<i>4</i>	298 (4.80)	0.65	<i>4</i>	259 (4.33)	0.57	
<i>S. I 4,[5],12:i:-</i>	<i>5</i>	273 (4.40)	0.60	<i>5</i>	282 (4.71)	0.62	
<i>S. Montevideo</i>	<i>6</i>	239 (3.85)	0.53	<i>7</i>	190 (3.17)	0.42	0.0180
<i>S. Heidelberg</i>	<i>7</i>	227 (3.66)	0.50	<i>6</i>	213 (3.56)	0.47	
<i>S. Muenchen</i>	<i>8</i>	144 (2.32)	0.32	<i>8</i>	161 (2.69)	0.35	
<i>S. Mississippi</i>	<i>9</i>	134 (2.16)	0.29	<i>20</i>	32 (0.53)	0.07	0.0000
<i>S. Saintpaul</i>	<i>10</i>	111 (1.79)	0.24	<i>11</i>	83 (1.39)	0.18	0.0447
<i>S. Oranienburg</i>	<i>11</i>	99 (1.60)	0.22	<i>10</i>	84 (1.40)	0.18	
<i>S. Infantis</i>	<i>12</i>	89 (1.43)	0.20	<i>14</i>	68 (1.14)	0.15	
<i>S. Braenderup</i>	<i>14</i>	82 (1.32)	0.18	<i>12</i>	78 (1.30)	0.17	
<i>S. Paratyphi B var L(+) Tartrate+</i>	<i>13</i>	83 (1.34)	0.18	<i>16</i>	51 (0.85)	0.11	0.0057
<i>S. Agona</i>	<i>16</i>	65 (1.05)	0.14	<i>13</i>	75 (1.25)	0.16	
<i>S. Thompson</i>	<i>15</i>	74 (1.19)	0.16	<i>15</i>	57 (0.95)	0.13	
<i>S. Tennessee</i>	<i>20</i>	39 (0.63)	0.09	<i>9</i>	134 (2.24)	0.29	0.0000
<i>S. Hadar</i>	<i>17</i>	53 (0.85)	0.12	<i>18*</i>	35 (0.58)	0.08	0.0324
<i>S. Bareilly</i>	<i>18*</i>	50 (0.81)	0.11	<i>17</i>	42 (0.70)	0.09	
<i>S. Anatum</i>	<i>18*</i>	50 (0.81)	0.11	<i>18*</i>	35 (0.58)	0.08	

Overall Summary	2006		2007	
	# (%)	Rate	# (%)	Rate
Total number of <i>Samonella</i> cases	6206	13.64	5988	13.16
Fully Serotyped	5706 (91.94)		5148 (85.97)	
Partially Serotyped	152 (2.45)		83 (1.39)	
Rough/Nonmotil	30 (0.48)		24 (0.40)	
Not Serotyped (missing or unknown)	318 (5.12)		733 (12.24)	

Number of bacterial and parasitic infections, by year and pathogen, Foodborne Diseases Active Surveillance Network, United States

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Bacterial												
<i>Campylobacter</i>	3367	3960	4022	3832	4710	4751	5064	5272	5686	5690	5770	5281
<i>Listeria</i>	65	76	113	118	105	94	98	139	119	136	139	107
<i>Salmonella</i>	2064	2186	2820	4155	4315	5240	6149	6038	6498	6505	6689	6032
<i>Shigella</i>	1269	1269	1480	966	2350	2219	4113	3039	2248	2095	2765	2494
STEC O157	374	337	491	502	623	542	641	444	402	473	590	505
STEC non-O157	0	0	0	0	36	61	35	47	110	128	212	190
<i>Vibrio</i>	21	52	50	48	54	79	104	110	123	121	156	102
<i>Yersinia</i>	147	139	181	162	133	144	169	162	176	163	163	146
Parasitic												
<i>Cryptosporidium</i>	-	452	566	441	536	575	531	481	637	1326	879	1123
<i>Cyclospora</i>	-	49	9	16	22	32	42	15	15	65	43	12
Total	7307	8520	9732	10240	12884	13737	16946	15747	16014	16702	17406	15992

Incidence of bacterial and parasitic infections, by year and pathogen, Foodborne Diseases Active Surveillance Network, United States

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	National Health Objective*
Bacterial													
<i>Campylobacter</i>	23.59	24.55	19.42	14.82	15.37	13.61	13.34	12.58	12.77	12.65	12.68	11.61	12.30
<i>Listeria</i>	0.46	0.47	0.55	0.46	0.34	0.27	0.26	0.33	0.27	0.30	0.31	0.24	0.25
<i>Salmonella</i>	14.46	13.55	13.61	16.07	14.08	15.01	16.20	14.41	14.60	14.47	14.70	13.26	6.80
<i>Shigella</i>	8.89	7.87	7.14	3.74	7.67	6.36	10.84	7.25	5.05	4.66	6.08	5.48	NA
STEC O157	2.62	2.09	2.37	1.94	2.03	1.55	1.69	1.06	0.90	1.05	1.30	1.11	1.00
STEC non-O157	0.00	0.00	0.00	0.00	0.12	0.17	0.09	0.11	0.25	0.28	0.47	0.42	NA
<i>Vibrio</i>	0.15	0.32	0.24	0.19	0.18	0.23	0.27	0.26	0.28	0.27	0.34	0.22	NA
<i>Yersinia</i>	1.03	0.86	0.87	0.63	0.43	0.41	0.45	0.39	0.40	0.36	0.36	0.32	NA
Parasitic													
<i>Cryptosporidium</i>	-	2.90	2.26	1.46	1.57	1.50	1.32	1.09	1.43	2.95	1.93	2.47	NA
<i>Cyclospora</i>	-	0.31	0.04	0.05	0.06	0.08	0.10	0.03	0.03	0.14	0.09	0.03	NA

*Healthy People 2010 objectives for incidence of *Campylobacter*, *Salmonella*, Shiga toxin-producing *Escherichia coli* O157 for year 2010 and for incidence of *Listeria* infections for year 2005.

Number of bacterial and parasitic infections in 2007, by site and pathogen, Foodborne Diseases Active Surveillance Network, United States

	CA	CO	CT	GA	MD	MN	NM	NY	OR	TN	Overall 2007
Bacterial											
<i>Campylobacter</i>	848	397	467	621	244	863	309	475	648	409	5281
<i>Listeria</i>	7	9	12	27	10	7	3	10	8	14	107
<i>Salmonella</i>	418	304	413	1831	566	678	248	491	302	781	6032
<i>Shigella</i>	158	78	44	1452	66	230	90	37	60	279	2494
STEC O157	36	29	42	42	14	159	9	55	69	50	505
STEC non-O157	5	60	24	24	5	29	21	10	5	7	190
<i>Vibrio</i>	12	3	16	22	20	8	0	9	8	4	102
<i>Yersinia</i>	15	4	17	39	5	19	4	13	19	11	146
Parasitic											
<i>Cryptosporidium</i>	35	102	40	206	16	287	108	87	124	118	1123
<i>Cyclospora</i>	1	0	3	3	0	0	2	2	0	1	12
Total	1535	986	1078	4267	946	2280	794	1189	1243	1674	15992

Incidence of bacterial and parasitic infections in 2007, by site and pathogen, Foodborne Diseases Active Surveillance Network, United States

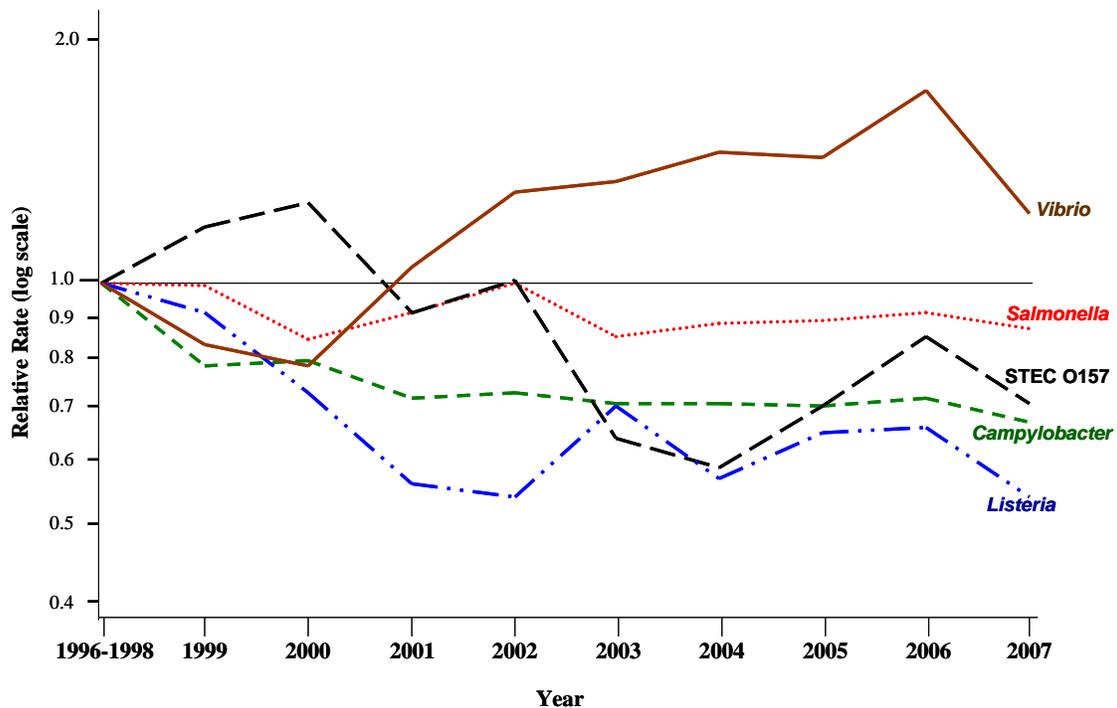
	CA	CO	CT	GA	MD	MN	NM	NY	OR	TN	Overall 2007	National Health Objective*
Bacterial												
<i>Campylobacter</i>	26.29	15.06	13.32	6.63	4.34	16.70	15.81	11.07	17.51	6.77	11.61	12.30
<i>Listeria</i>	0.22	0.34	0.34	0.29	0.18	0.14	0.15	0.23	0.22	0.23	0.24	0.25
<i>Salmonella</i>	12.96	11.53	11.78	19.55	10.08	13.12	12.69	11.44	8.16	12.93	13.26	6.80
<i>Shigella</i>	4.90	2.96	1.26	15.51	1.18	4.45	4.60	0.86	1.62	4.62	5.48	NA
STEC O157	1.12	1.10	1.20	0.45	0.25	3.08	0.46	1.28	1.86	0.83	1.11	1.00
STEC non-O157	0.16	2.28	0.68	0.26	0.09	0.56	1.07	0.23	0.14	0.12	0.42	NA
<i>Vibrio</i>	0.37	0.11	0.46	0.23	0.36	0.15	0.00	0.21	0.22	0.07	0.22	NA
<i>Yersinia</i>	0.47	0.15	0.49	0.42	0.09	0.37	0.20	0.30	0.51	0.18	0.32	NA
Parasitic												
<i>Cryptosporidium</i>	1.09	3.87	1.14	2.20	0.28	5.55	5.53	2.03	3.35	1.95	2.47	NA
<i>Cyclospora</i>	0.03	0.00	0.09	0.03	0.00	0.00	0.10	0.05	0.00	0.02	0.03	NA

*Healthy People 2010 objectives for incidence of *Campylobacter*, *Salmonella*, Shiga toxin-producing *Escherichia coli* O157 for year 2010 and for incidence of *Listeria* infections for year 2005.

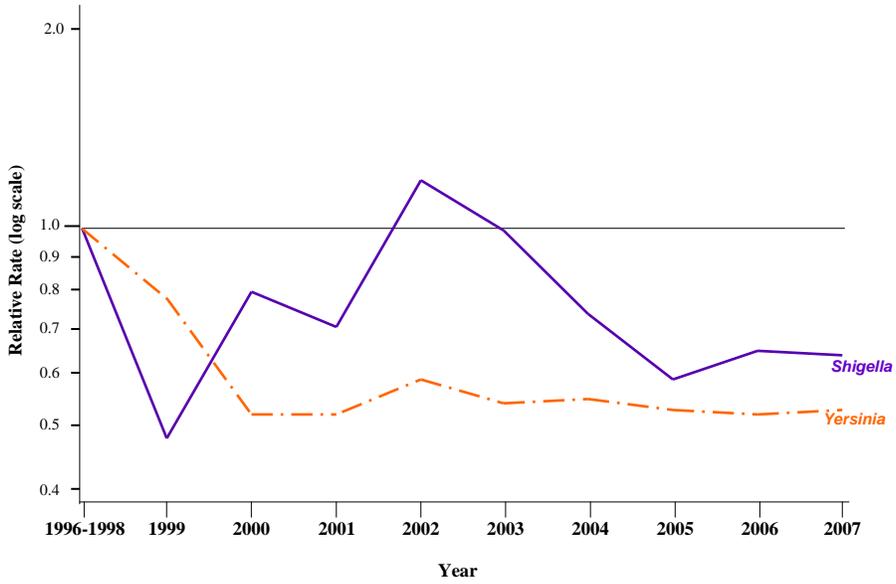
Relative Rates and Percent Change compared with 1996-1998 period for bacterial and parasitic infections, by pathogen, Foodborne Diseases Active Surveillance Network, United States, 2007*

	Relative Rate	Percent Change	95% CI
<i>Campylobacter</i>	0.67	33% decrease	36% to 29% decrease
<i>Listeria</i>	0.54	46% decrease	58% to 31% decrease
<i>Salmonella</i>	0.88	12% decrease	18% to 7% decrease
<i>Shigella</i>	0.64	36% decrease	45% to 25% decrease
STEC O157	0.71	29% decrease	40% to 15% decrease
<i>Vibrio</i>	1.22	22% increase	11% decrease to 68% increase
<i>Yersinia</i>	0.53	47% decrease	57% to 33% decrease
<i>Cryptosporidium</i>	1.28	28% increase	0% decrease to 65% increase

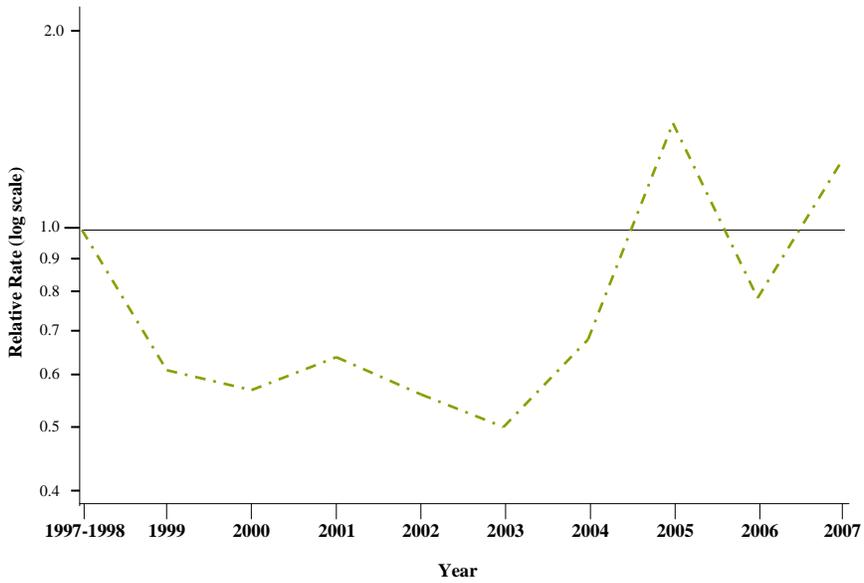
Relative rates compared with 1996—1998 baseline period of laboratory-diagnosed cases of infection with *Campylobacter*, STEC O157, *Listeria*, *Salmonella*, and *Vibrio*, by year



Relative rates compared with 1996—1998 baseline period of laboratory-diagnosed cases of infection with *Shigella* and *Yersinia*, by year



Relative rates compared with 1997—1998 baseline period of laboratory-diagnosed cases of infection with *Cryptosporidium*, by year



Number and incidence of top 10 Salmonella serotypes in 2006, Foodborne Diseases Active Surveillance Network, United States

#		Number	Incidence
1	S. Typhimurium	1187	2.61
2	S. Enteritidis	1112	2.44
3	S. Newport	553	1.22
4	S. Javiana	313	0.69
5	S. I 4,[5],12:i:-	296	0.65
6	S. Montevideo	249	0.55
7	S. Heidelberg	242	0.53
8	S. Muenchen	151	0.33
9	S. Mississippi	136	0.30
10	S. Saintpaul	120	0.26

Number and incidence of top 10 Salmonella serotypes in 2007, Foodborne Diseases Active Surveillance Network, United States

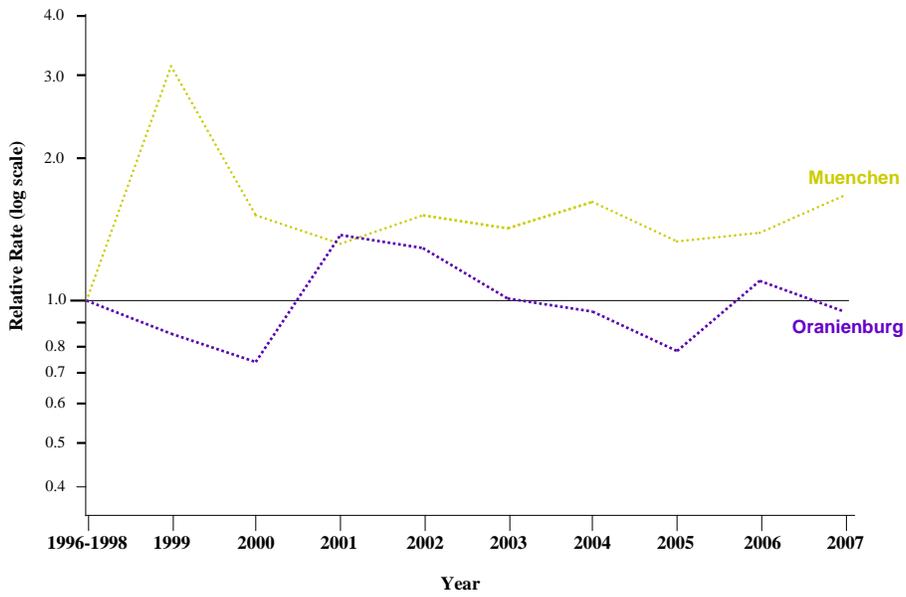
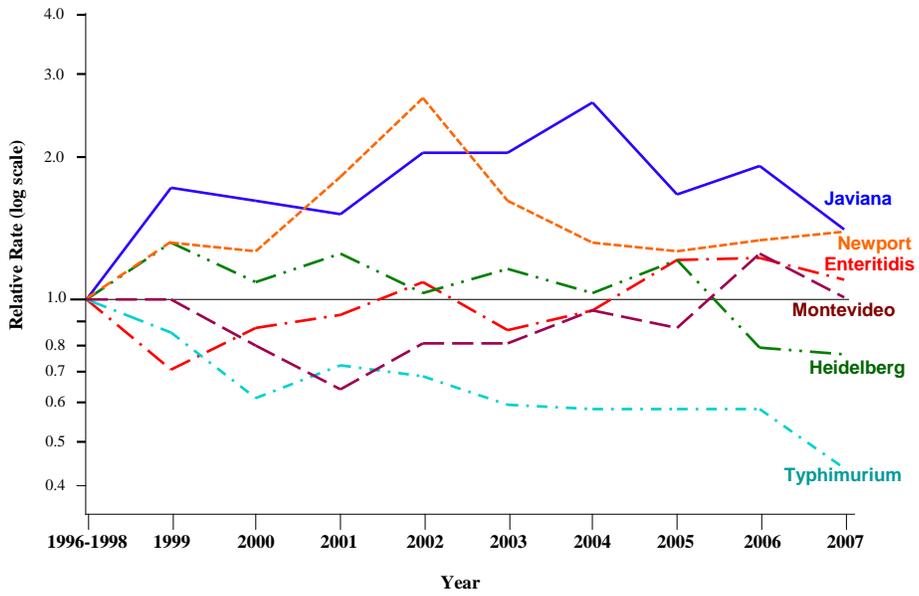
#		Number	Incidence
1	S. Enteritidis	912	2.00
2	S. Typhimurium	857	1.88
3	S. Newport	520	1.14
4	S. I 4,[5],12:i:-	282	0.62
5	S. Javiana	259	0.57
6	S. Heidelberg	213	0.47
7	S. Montevideo	190	0.42
8	S. Muenchen	162	0.36
9	S. Tennessee	134	0.29
10	S. Oranienburg	84	0.18

Relative Rates and Percent Change compared with 1996-1998 period for top 10 Salmonella serotypes, by serotype, Foodborne Diseases Active Surveillance Network, United States, 2007*

	Relative Rate	Percent Change	95% CI
S. Enteritidis	1.10	10% increase	4% decrease to 27% increase
S. Heidelberg	0.77	23% decrease	38% to 6% decrease
S. Javiana	1.38	38% increase	5% decrease to 99% increase
S. Montevideo	1.01	1.00% increase	24% decrease to 35% increase
S. Muenchen	1.68	68% increase	19% to 136% increase
S. Newport	1.40	40% increase	12% to 76% increase
S. Oranienburg	0.95	5% decrease	32% decrease to 32% increase
S. I 4,[5],12:i:-	29.07	2807% increase	1419% to 5464% increase
S. Tennessee	Model did not converge		
S. Typhimurium	0.44	56% decrease	60% to 50% decrease

*Estimates based on data from January to November 2007

Relative rates compared with 1996—1998 baseline period of laboratory-diagnosed cases of infection with the top 10 *Salmonella* serotypes, by year



**Number of bacterial and parasitic infections in 2007, by age group and pathogen,
Foodborne Diseases Active Surveillance Network, United States***

	0-3	4-11	12-19	20-49	50+	Total
Bacterial						
<i>Campylobacter</i>	577	474	386	2267	1562	5266
<i>Listeria</i>	15	0	2	18	72	107
<i>Salmonella</i>	1507	798	494	1773	1446	6018
<i>Shigella</i>	559	998	121	624	186	2488
STEC O157	85	105	102	116	97	505
STEC non-O157	31	33	24	70	31	189
<i>Vibrio</i>	2	8	4	46	41	101
<i>Yersinia</i>	51	13	5	29	48	146
Parasitic						
<i>Cryptosporidium</i>	157	212	117	464	171	1121
<i>Cyclospora</i>	0	0	1	6	5	12
Total	2984	2641	1256	5413	3659	15953

*39 records with missing age information

**Incidence of bacterial and parasitic infections in 2007, by age group and pathogen,
Foodborne Diseases Active Surveillance Network, United States**

	0-3	4-11	12-19	20-49	50+	National Health Objective*
Bacterial						
<i>Campylobacter</i>	23.74	9.96	7.59	11.50	11.55	12.30
<i>Listeria</i>	0.62	0.00	0.04	0.09	0.53	0.25
<i>Salmonella</i>	62.00	16.77	9.72	9.00	10.70	6.80
<i>Shigella</i>	23.00	20.97	2.38	3.17	1.38	NA
STEC O157	3.50	2.21	2.01	0.59	0.72	1.00
STEC non-O157	1.28	0.69	0.47	0.36	0.23	NA
<i>Vibrio</i>	0.08	0.17	0.08	0.23	0.30	NA
<i>Yersinia</i>	2.10	0.27	0.10	0.15	0.36	NA
Parasitic						
<i>Cryptosporidium</i>	6.46	4.46	2.30	2.35	1.26	NA
<i>Cyclospora</i>	0.00	0.00	0.02	0.03	0.04	NA

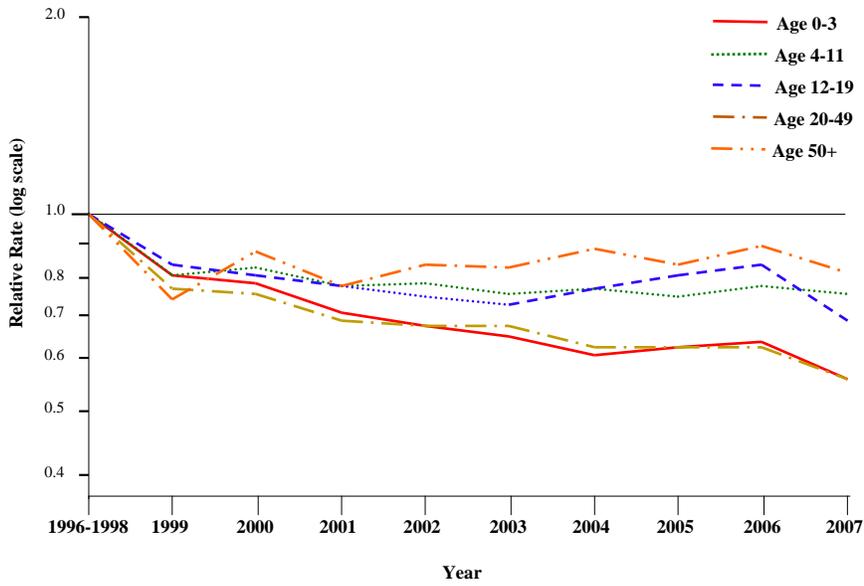
*Healthy People 2010 objectives for incidence of *Campylobacter*, *Salmonella*, Shiga toxin-producing *Escherichia coli* O157 for year 2010 and for incidence of *Listeria* infections for year 2005.

Relative Rates compared with 1996-1998 period for select bacterial infections, by age group and pathogen, Foodborne Diseases Active Surveillance Network, United States, 2007*

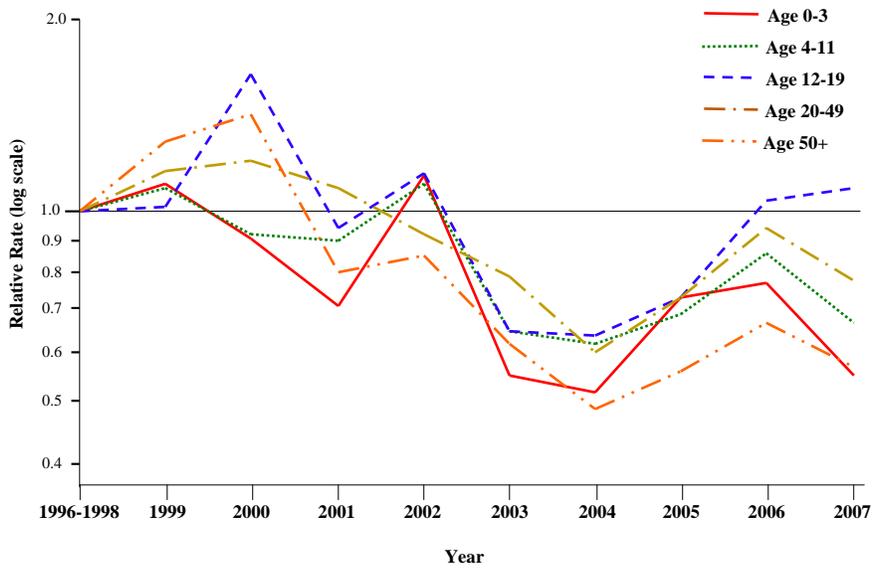
Isolate	age groups	1999	2000	2001	2002	2003	2004	2005	2006	2007
<i>Campylobacter</i>	0-3	0.81	0.79	0.71	0.68	0.65	0.61	0.63	0.64	0.56
	4-11	0.81	0.83	0.78	0.79	0.76	0.77	0.75	0.78	0.76
	12-19	0.84	0.81	0.78	0.75	0.73	0.77	0.81	0.84	0.69
	20-49	0.77	0.76	0.69	0.68	0.68	0.63	0.63	0.63	0.56
	50+	0.74	0.88	0.78	0.84	0.83	0.89	0.84	0.90	0.82
STEC O157	0-3	1.11	0.91	0.71	1.14	0.55	0.52	0.73	0.77	0.55
	4-11	1.09	0.92	0.90	1.11	0.65	0.62	0.69	0.86	0.67
	12-19	1.02	1.65	0.94	1.15	0.65	0.64	0.73	1.04	1.09
	20-49	1.16	1.20	1.09	0.92	0.79	0.60	0.73	0.94	0.78
	50+	1.29	1.42	0.80	0.85	0.62	0.49	0.56	0.67	0.57
<i>Salmonella</i>	0-3	1.01	0.79	0.87	0.99	0.82	0.76	0.74	0.74	0.71
	4-11	1.10	0.87	1.05	1.01	1.01	1.06	1.07	1.07	0.93
	12-19	0.94	0.87	1.00	1.04	0.96	0.98	1.00	1.01	0.96
	20-49	0.97	0.87	0.88	1.03	0.84	0.93	0.93	0.97	0.79
	50+	0.95	0.94	0.98	1.01	0.94	1.00	1.01	1.07	0.98
<i>Shigella</i>	0-3	0.50	0.65	0.64	1.29	0.92	0.69	0.39	0.58	0.53
	4-11	0.45	0.68	0.49	1.29	1.12	0.72	0.58	0.66	0.59
	12-19	0.41	0.71	0.72	1.25	0.95	0.59	0.63	0.71	0.64
	20-49	0.55	0.97	0.79	1.08	1.00	0.80	0.64	0.68	0.56
	50+	0.61	0.68	0.73	0.91	0.84	0.76	0.73	0.84	0.65
<i>Yersinia</i>	0-19	0.67	0.45	0.46	0.52	0.52	0.50	0.41	0.36	0.34
	20+	0.90	0.60	0.62	0.79	0.65	0.76	0.84	0.94	0.74

*Estimates based on data from January to November 2007

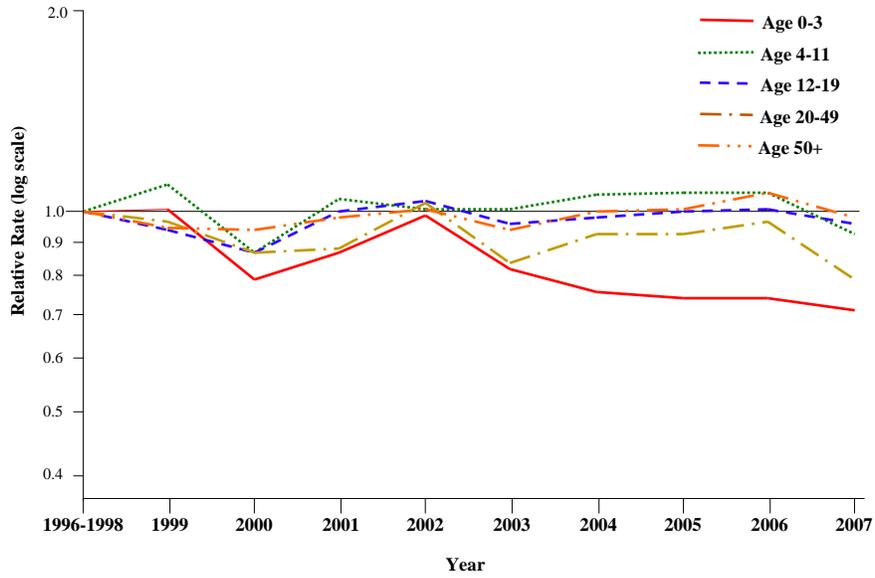
Relative rates compared with 1996—1998 baseline period of laboratory-diagnosed cases of infection with *Campylobacter*, by age group and year



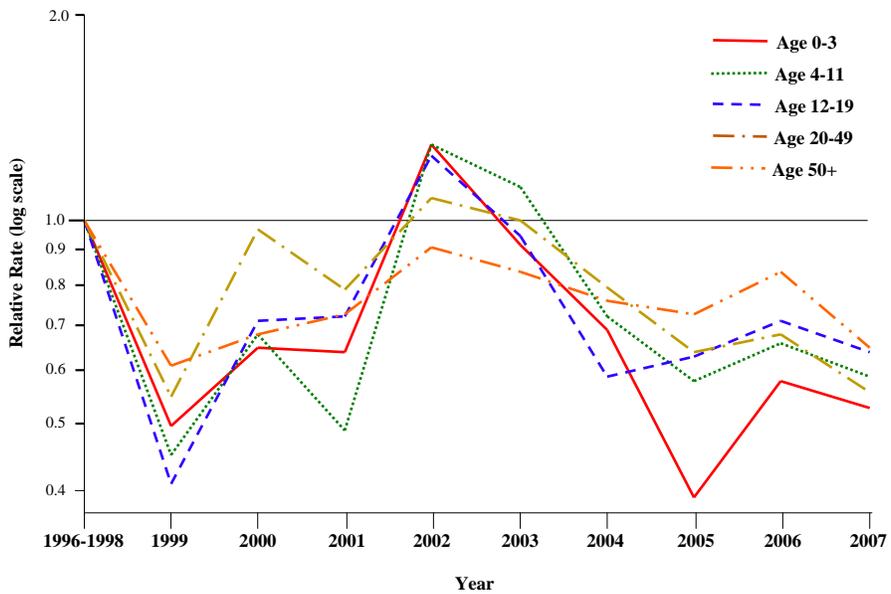
Relative rates compared with 1996—1998 baseline period of laboratory-diagnosed cases of infection with STEC O157, by age group and year



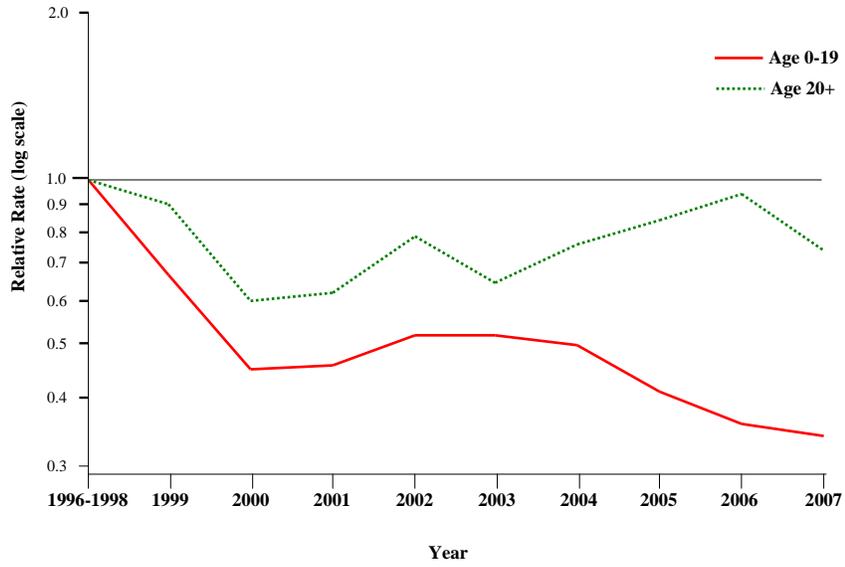
Relative rates compared with 1996—1998 baseline period of laboratory-diagnosed cases of infection with *Salmonella*, by age group and year



Relative rates compared with 1996—1998 baseline period of laboratory-diagnosed cases of infection with *Shigella*, by age group and year



Relative rates compared with 1996—1998 baseline period of laboratory-diagnosed cases of infection with *Yersinia*, by age group and year



12th December 2007

Dear State Laboratory Directors, Delegates, and Public Health Laboratorians:

It is with pleasure that the National *Campylobacter* and *Helicobacter* reference laboratory announces the introduction of a new quality assurance program specifically for *Campylobacter* spp. identification. We expect this QA panel to be comprised of six isolates of *Campylobacter* spp. Participating laboratories would be requested to identify the six isolates to the species level to the extent typically performed at their laboratory; i.e. participation in the QA program will not require the use of methods not typically employed by your laboratory or the purchase of additional reagents.

While participation in the program is highly encouraged, it is a voluntary program.

We plan to send out the test panel in October 2008, allowing three months for completion. Please contact Collette Fitzgerald (chf3@cdc.gov) to express your interest in the program and to identify the primary contact person for the QA/QC program from your lab.

We look forward to hearing from you

Best regards,

Collette

Collette Fitzgerald, PhD
National *Campylobacter* and *Helicobacter* Reference Laboratory
Enteric Diseases Laboratory Branch
Centers for Disease Control and Prevention
Phone: 404-639-0838
Fax: 404-639-3333
Email: chf3@cdc.gov

FoodNet Guidelines: Enhanced testing for outbreaks with undetermined etiology

I. BACKGROUND

Outbreaks of undetermined etiology offer unique opportunity to identify novel or emerging pathogens. Currently, all 50 states report foodborne outbreaks to the electronic Foodborne Outbreak Reporting System (eFORS) Sites participating in the Foodborne Diseases Active Surveillance Network report approximately 250 outbreaks to eFORS each year; of these 15% have an undetermined etiology following routine testing at the State Public Health Laboratory. In order to identify novel pathogens, the Minnesota SPHL will make enhanced laboratory testing of specimens in outbreaks of undetermined etiology available to FoodNet sites when the state PHL is unable to detect a pathogen following routine screening.

II. OBJECTIVE

1. FoodNet sites will send stool specimens from all eligible outbreaks with undetermined etiology to MN SPHL for enhanced screening to identify novel pathogens.

III. METHODS

FoodNet sites will submit stool specimens from eligible outbreaks of undetermined etiology to the MN SPHL for enhanced screening. This action will apply to any outbreak with illness onset date of January 1, 2007 or later, and will continue into the future for as long as funding for the project is made available.

A) ACTIONS TO BE TAKEN BY FOODNET SITES

- a. Specimen collection for all outbreaks: Since outbreaks are generally not determined to be of unknown etiology until after the opportunity for specimen collection has passed, specimens from ALL outbreaks (with the exception of

outbreaks identified on the basis of a specific agent cluster) should be collected and stored using recommendations outlined in the Foodborne/Diarrheal Outbreak Specimen Collection guidelines (appendix 1). Once the etiology is determined by the FoodNet site, specimens may be discarded.

- b. FoodNet sites should identify outbreaks meeting the following eligibility criteria:
 - i. Routine pathogen testing has been completed at the state PHL (see appendix 1 guidelines for recommended testing).
 - ii. The state PHL has ruled out other potential pathogens based on criteria described in Appendix 1: “Outbreaks by Distinguishing Features.”
 - iii. There are ≥ 2 appropriate specimens available for shipment to MDH.
 - iv. The specimens have been appropriately collected and stored (see Attachment 1 for collection and storage times and conditions). Ideally, specimens should be collected while cases are experiencing symptoms. The maximum interval between cessation of symptoms and specimen collection that normally will be accepted are: 1 day (outbreaks with incubation periods < 18 hours), 5 days (incubation period ≥ 18 hours; probable viral etiology as described in Attachment 1), or 7 days (incubation period ≥ 18 hours or incubation period unknown; probable bacterial or parasitic etiology or no etiology hypothesis).

If the outbreak meets the above criteria, the FoodNet site should:

- 1) Contact MN to discuss the outbreak and confirm shipment (see Communication plan)
- 2) MN will notify CDC of planned shipment by faxing in a copy of the ‘Outbreaks of undetermined etiology testing site specimen shipment form (Appendix 2)’ to

the FoodNet Team at CDC's Enteric Diseases and Epidemiology Branch (see Communication plan)

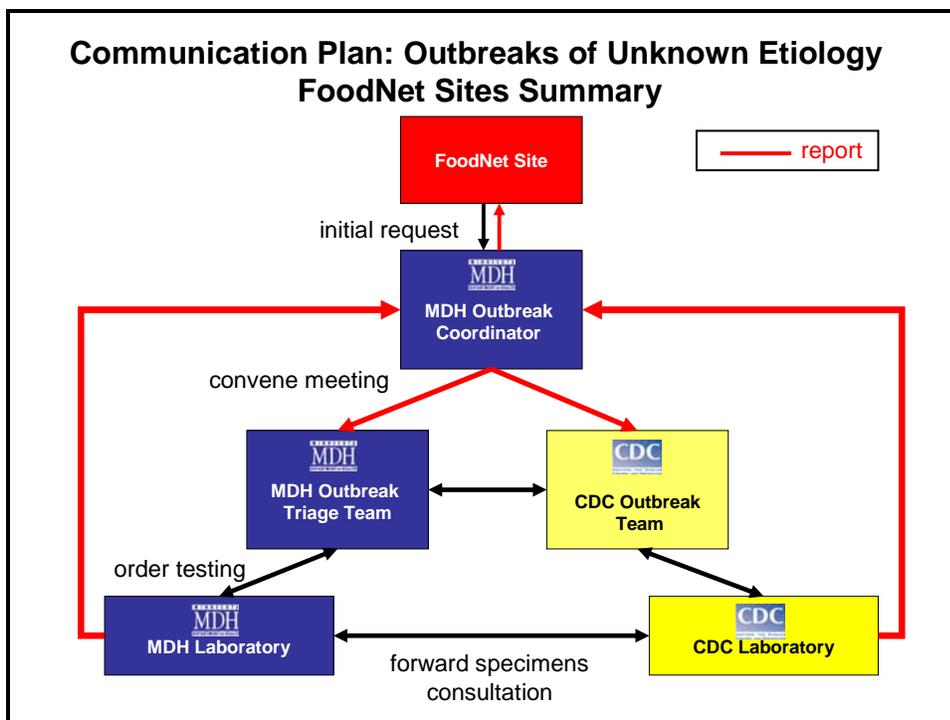
- 3) Properly package and ship specimens to MN (See Appendix 3: Foodborne/Diarrheal Outbreak Specimen Shipment guidelines)
- 4) Notify CDC of any results received from MN (see Communication plan below)
- 5) If a pathogen is not identified, specimens can be sent on to CDC laboratories for even further screening.

C) ACTIONS TO BE TAKEN BY THE FOODNET OUTBREAK WORKING GROUP

- 1) The FoodNet outbreak working group coordinator (A CDC FoodNet Surveillance Epidemiologist) will maintain a record for all outbreaks of undetermined etiology reporting to eFORS by FoodNet sites.
 - a. During the FoodNet outbreak working group, the Outbreak Working Group coordinator will present working group members with a line list of eFORS reports that have yet to be marked with a confirmed etiology.
 - b. The list will document when stool from outbreaks of undetermined etiology have been sent to MN.
 - c. Site should indicate why an outbreak on undetermined etiology was not forwarded to MN for enhanced screening.
 - d. If FoodNet sites can respond to this absence, such information will be documented.
 - e. If there is no known explanation for the missing etiology the working group can discuss the viability of submitting any collected stool specimens to MN for further testing.

CDC will keep a running database which documents all outbreaks with undetermined etiologies as reported to eFORS by FoodNet sites by collecting information from the outbreak working group calls, and by logging all report forms that are faxed into CDC when specimens are sent on to MN SPHL (see Communication plan)

III. COMMUNICATION PLAN



1. Initial contact

- FoodNet site contacts MDH Outbreak Coordinator (MDH-OC; Candace Fuller)
- MDH-OC interviews caller, collects outbreak information on standard form
- Form is FAX'ed to FoodNet Office(404-639-2206 Attention FoodNet- Ida Rosenblum)

2. Triage process and development of Testing Plan

- Routine outbreaks (localized, uncomplicated): MDH-OC provides information to MDH Unexplained Outbreak team

- b) Complex, serious, or multistate outbreaks: MDH-OC convenes situation meeting, including CDC Outbreak team (by phone)
3. Notification of Testing Plan and results reporting: The following groups are contacted by the MDH-OC at each significant juncture in the process.
- a) FoodNet state
 - b) FoodNet Office
 - c) CDC Outbreak Team
 - d) MDH Laboratory
4. Follow-up activities
- a) MDH contacts CDC Laboratories and other specialized laboratories for pathogen discovery, confirmation, and high-level pathogen characterization

MDH-OC creates quarterly summary reports of pending and completed outbreaks

B) FOR eFORS REPORTS NOT MARKED WITH A CONFIRMED ETIOLOGY

As described in the methods section, the FoodNet outbreak working group will be provided with a line list of all eFORS reports with both missing and suspected etiologies. Sites can then provide explanation as to why no etiology has been identified or why the suspected etiology was marked as such. Once eFORS is closed out for a given year, a final review of all outbreaks with undetermined etiologies will be performed by the working group.

Foodborne/Diarrheal Outbreak Specimen Collection: This table describes the types of specimens to be collected for foodborne/diarrheal disease outbreaks, and suggested tests to be performed. It has been designed to provide adequate specimens for second-tier testing and pathogen discovery should the etiology prove elusive. Since optimal specimen types vary by disease, and since information needed to determine the likely agent is often absent or fragmentary, a variety of scenarios are presented.

All Outbreaks									
						Specimen(s); save until etiology/source determined	If available, also save:		
						1) Raw Stool, 2-8°C	1) SMAC plate (2-8°C)		
						2) Raw Stool, -70°C (-20° if -70° not available)	2) Suspect food (2-8°C)		
						3) Stool in bacterial transport medium (preferably Cary Blair), 2-8°C	3) Stool in 2 vial parasitology fixative system		
							4) Extracted DNA/RNA (-20°C to -70°C)		
Specimen Acceptance Criteria									
<p>The maximum interval between cessation of symptoms and specimen collection that normally will be accepted are: 1 day (outbreaks with incubation periods <18hours), 5 days (incubation period >18 hours; probable viral etiology as described in Attachment 1), or 7 days (incubation period >18 hours or incubation period unknown; probable bacterial or parasitic etiology or no etiology hypothesis).</p>									
Transport									
See "Shipping" tab									
Key Outbreak Features			Outbreaks by Distinguishing Features						
diarrhea	some cases with bloody stools	vomiting	fever	median incubation period	mean duration	Outbreak profile	Usual suspect(s)	Rule out, if possible, before submission for novel pathogen testing:	Additional specimen collection/storage notes:
		Y		24-48h		Percent cases vomiting > 50%, or ratio vomiting/fever _≥ 1, median incubation period 24-48h	Norovirus, other caliciviruses	Norovirus	Extracted RNA, store at -20°C

Y			N		>72h	Ratio diarrhea/vomiting >2.5, little or no fever, mean duration >72h	ETEC (enterotoxigenic <i>E. coli</i> ; ST/LT)	<i>Salmonella</i> , <i>Shigella</i> , <i>Campylobacter</i> , <i>Vibrio spp.</i> , <i>Yersinia spp.</i>	Save SMAC plate, store at 2-8°C
Y	Y		≤101°F			Bloody diarrhea, fever ≤101°F or absent	STEC (Shiga toxin producing <i>E. coli</i> STX1/STX2)	<i>Salmonella</i> , <i>Shigella</i> , <i>Campylobacter</i> , STEC incl. O157 culture, <i>Yersinia spp.</i> , <i>Vibrio spp.</i>	Save SMAC plate, store at 2-8°C
Y						Any cases of hemolytic uremic syndrome (HUS)	STEC, other agents	STEC, including O157:H7 culture	Save SMAC plate, GN broth, Collect respiratory samples if previous or concurrent respiratory disease
Y			>101°F			Diarrhea, high grade fever (>101°F), other information unavailable or unclear	<i>Salmonella spp.</i> , <i>Shigella spp.</i> , <i>Campylobacter spp.</i> , <i>Yersinia enterocolitica</i>	<i>Salmonella spp.</i> , <i>Shigella spp.</i> , <i>Campylobacter spp.</i> , <i>Yersinia enterocolitica</i> , <i>Vibrio spp.</i>	
Y		N	N	8-16h		Little vomiting or fever, median incubation period 8-16h	<i>C. perfringens</i> (diarrheal form), <i>B. cereus</i>	<i>C. perfringens</i> , <i>B. cereus</i> , <i>S. aureus</i>	Suspect food, store continuously at 2-8°C (food testing is especially important for outbreaks due to preformed bacterial toxins)
Y		Y		1-6h		Substantial # of cases vomiting, median incubation period 1-6h	<i>S. aureus</i> enterotoxin, <i>B. cereus</i> (emetic form)	<i>C. perfringens</i> , <i>B. cereus</i> , <i>S. aureus</i>	Suspect food, store continuously at 2-8°C (food testing is especially important for outbreaks due to preformed bacterial toxins)
				<18h		Short median incubation period (< 18 hours), other information unavailable or unclear	<i>B. cereus</i> , <i>S. aureus</i> , <i>C. perfringens</i> , Heavy metals	<i>B. cereus</i> and <i>S. aureus</i> (culture and toxin from suspect food, stool culture and toxin test on isolates), <i>C. perfringens</i> (culture and toxin test on stool), heavy metals (incubation period 5 minutes to 1 hour), mushroom toxins	Suspect food, store at 2-8°C; save isolates (<i>B. cereus</i> , <i>S. aureus</i> , <i>C. perfringens</i>)
		Y		<2h		Significant vomiting, median incubation period <1 hour (and range includes very short incubations as little as 5 minutes)	Heavy metals, other chemicals	Heavy metals, <i>S. aureus</i> (if incubation periods are towards the median rather than short end of range)	Suspect food, 50ml urine from 10 cases, 10 controls; consider collecting vomitus, store at 2-8°C
		Y				Significant vomiting, (other information unavailable or unclear)	Norovirus, <i>B. cereus</i> , <i>S. aureus</i> enterotoxin, heavy metals, <i>Vibrio cholera</i>	Norovirus, <i>B. cereus</i> , <i>S. aureus</i> , <i>V. cholera</i>	Suspect food, consider collecting vomitus, store at 2-8°C
				>5d		Long median incubation period (> 5 days)	Intestinal parasites, unknown agents	Intestinal parasites, including at a minimum <i>Cryptosporidium spp.</i> , <i>Cyclospora cayetanensis</i> , <i>Giardia spp.</i>	Stool in 2 vial parasitology fixative, acute and convalescent serum. Consider collecting additional sources (e.g. small bowel aspirates)

Y	Y		>101°F			High grade fever (>101°F), some cases with bloody stools	<i>Salmonella, Shigella, Campylobacter, Yersinia</i>	<i>Salmonella, Shigella, Campylobacter, Yersinia spp., Vibrio spp.</i>	
Y						Diarrhea with rash	Systemic viral diseases, toxic shock (GAS, <i>S. aureus</i>), <i>Yersinia spp.</i>	Primary systemic illnesses, <i>Salmonella spp., Shigella spp., Campylobacter spp., Yersinia spp.</i>	Stool in viral transport media, serum, extraintestinal culture (as appropriate)
Y						Diarrhea with concurrent or preceding respiratory illness	Viral pathogens (coronavirus, influenza), Group A streptococcus	Respiratory pathogens as appropriate to presentation (e.g. Influenza A/B, Group A streptococcus)	Consider collecting throat/nose/NP swabs, culturette and viral transport tubes; stool in viral transport media
N		N				Abdominal pain primary presenting symptom	<i>Yersinia pseudotuberculosis, Arcobacter butzleri</i>	<i>Salmonella, Shigella, Campylobacter, STEC, Yersinia enterocolitica</i>	Save SMAC plate, broth enrichments, store at 2-8°C
						Abdominal cramps with or without diarrhea/blood	<i>Salmonella spp, Shigella spp, Campylobacter spp, Yersinia spp, Vibrio spp, Arcobacter butzleri</i>	<i>Salmonella spp., Shigella spp, Campylobacter spp., Yersinia enterocolitica, Vibrio spp.</i>	Save SMAC plate, broth enrichments
						Neurological symptoms	Marine toxins, botulism toxin	Marine toxins, botulism toxin	Serum, suspect food, store at 2-8°C
Y						Any cases with hepatic symptoms	Hepatitis A/E	Hepatitis A (IgM)	Serum, suspect food, store at 2-8°C
						High hospitalization or death rates, extremely long duration or debilitating disease		<i>Salmonella, Shigella, Campylobacter, STEC, Yersinia spp., Vibrio cholera, Routine O&P, Cryptosporidium spp., Cyclospora cayentans, norovirus</i>	Stool in 2 vial parasitology fixative system, Total DNA/RNA (-20°C), acute and convalescent serum(-20°C), blood culture, suspect food (2-8°C), stool in viral transport media, SMAC plate, enrichment broths

Appendix 1: Foodborne/Diarrheal Outbreak Specimen Collection: This table describes the types of specimens to be collected for foodborne/diarrheal disease outbreaks, and suggested tests to be performed. It has been designed to provide adequate specimens for second-tier testing and pathogen discovery should the etiology prove elusive. Since optimal specimen types vary by disease, and since information needed to determine the likely agent is often absent or fragmentary, a variety of scenarios are presented.

All Outbreaks

						Specimen(s); save until etiology/source determined	If available, also save:	
						1) Raw Stool, 2-8°C	1) SMAC plate (2-8°C)	
						2) Raw Stool, -70°C (-20° if -70° not available)	2) Suspect food (2-8°C)	

						<p>The maximum interval between cessation of symptoms and specimen collection that normally will be accepted are: 1 day (outbreaks with incubation periods <18hours), 5 days (incubation period >18 hours; probable viral etiology as described in Attachment 1), or 7 days (incubation period >18 hours or incubation period unknown; probable bacterial or parasitic etiology or no etiology hypothesis.</p>			
						See "Shipping" (appendix 3)			
		Y		24-48h		Percent cases vomiting > 50%, or ratio vomiting/fever \geq 1, median incubation period 24-48h	Norovirus, other caliciviruses	Norovirus	Extracted RNA, store at -20°C
Y			N		>72h	Ratio diarrhea/vomiting >2.5, little or no fever, mean duration >72h	ETEC (enterotoxigenic <i>E. coli</i> ; ST/LT)	<i>Salmonella</i> , <i>Shigella</i> , <i>Campylobacter</i> , <i>Vibrio spp.</i> , <i>Yersinia spp.</i>	Save SMAC plate, store at 2-8°C
Y	Y		$\leq 101^\circ\text{F}$			Bloody diarrhea, fever $\leq 101^\circ\text{F}$ or absent	STEC (Shiga toxin producing <i>E. coli</i> STX1/STX2)	<i>Salmonella</i> , <i>Shigella</i> , <i>Campylobacter</i> , STEC incl. O157 culture, <i>Yersinia spp.</i> , <i>Vibrio spp.</i>	Save SMAC plate, store at 2-8°C
Y						Any cases of hemolytic uremic syndrome (HUS)	STEC, other agents	STEC, including O157:H7 culture	Save SMAC plate, GN broth, Collect respiratory samples if previous or concurrent respiratory disease
Y			$> 101^\circ\text{F}$			Diarrhea, high grade fever ($> 101^\circ\text{F}$), other information unavailable or unclear	<i>Salmonella spp.</i> , <i>Shigella spp.</i> , <i>Campylobacter spp.</i> , <i>Yersinia enterocolitica</i>	<i>Salmonella spp.</i> , <i>Shigella spp.</i> , <i>Campylobacter spp.</i> , <i>Yersinia enterocolitica</i> , <i>Vibrio spp.</i>	

Y		N	N	8-16h	Little vomiting or fever, median incubation period 8-16h	<i>C. perfringens</i> (diarrheal form), <i>B. cereus</i>	<i>C. perfringens</i> , <i>B. cereus</i> , <i>S. aureus</i>	Suspect food, store continuously at 2-8°C (food testing is especially important for outbreaks due to preformed bacterial toxins)
Y		Y		1-6h	Substantial # of cases vomiting, median incubation period 1-6h	<i>S. aureus</i> enterotoxin, <i>B. cereus</i> (emetic form)	<i>C. perfringens</i> , <i>B. cereus</i> , <i>S. aureus</i>	Suspect food, store continuously at 2-8°C (food testing is especially important for outbreaks due to preformed bacterial toxins)
				<18h	Short median incubation period (< 18 hours), other information unavailable or unclear	<i>B. cereus</i> , <i>S. aureus</i> , <i>C. perfringens</i> , Heavy metals	<i>B. cereus</i> and <i>S. aureus</i> (culture and toxin from suspect food, stool culture and toxin test on isolates), <i>C. perfringens</i> (culture and toxin test on stool), heavy metals (incubation period 5 minutes to 1 hour), mushroom toxins	Suspect food, store at 2-8°C; save isolates (<i>B. cereus</i> , <i>S. aureus</i> , <i>C. perfringens</i>)
		Y		<2h	Significant vomiting, median incubation period <1 hour (and range includes very short incubations as little as 5 minutes)	Heavy metals, other chemicals	Heavy metals, <i>S. aureus</i> (if incubation periods are towards the median rather than short end of range)	Suspect food, 50ml urine from 10 cases, 10 controls; consider collecting vomitus, store at 2-8°C
		Y			Significant vomiting, (other information unavailable or unclear)	Norovirus, <i>B. cereus</i> , <i>S. aureus</i> enterotoxin, heavy metals, <i>Vibrio cholera</i>	Norovirus, <i>B. cereus</i> , <i>S. aureus</i> , <i>V. cholera</i>	Suspect food, consider collecting vomitus, store at 2-8°C
				>5d	Long median incubation period (> 5 days)	Intestinal parasites, unknown agents	Intestinal parasites, including at a minimum <i>Cryptosporidium spp.</i> , <i>Cyclospora cayentanensis</i> , <i>Giardia spp.</i>	Stool in 2 vial parasitology fixative, acute and convalescent serum. Consider collecting additional sources (e.g. small bowel aspirates)
Y	Y		>101°F		High grade fever (>101°F), some cases with bloody stools	<i>Salmonella</i> , <i>Shigella</i> , <i>Campylobacter</i> , <i>Yersinia</i>	<i>Salmonella</i> , <i>Shigella</i> , <i>Campylobacter</i> , <i>Yersinia spp.</i> , <i>Vibrio spp.</i>	
Y					Diarrhea with rash	Systemic viral diseases, toxic shock (GAS, <i>S. aureus</i>), <i>Yersinia spp.</i>	Primary systemic illnesses, <i>Salmonella spp.</i> , <i>Shigella spp.</i> , <i>Campylobacter spp.</i> , <i>Yersinia spp.</i>	Stool in viral transport media, serum, extraintestinal culture (as appropriate)
Y					Diarrhea with concurrent or preceding respiratory illness	Viral pathogens (coronavirus, influenza), Group A streptococcus	Respiratory pathogens as appropriate to presentation (e.g. Influenza A/B, Group A streptococcus)	Consider collecting throat/nose/NP swabs, culturette and viral transport tubes; stool in viral transport media
N		N			Abdominal pain primary presenting symptom	<i>Yersinia pseudotuberculosis</i> , <i>Arcobacter butzleri</i>	<i>Salmonella</i> , <i>Shigella</i> , <i>Campylobacter</i> , STEC, <i>Yersinia enterocolitica</i>	Save SMAC plate, broth enrichments, store at 2-8°C

						Abdominal cramps with or without diarrhea/blood	<i>Salmonella spp., Shigella spp., Campylobacter spp., Yersinia spp., Vibrio spp., Arcobacter butzleri</i>	<i>Salmonella spp., Shigella spp., Campylobacter spp., Yersinia enterocolitica, Vibrio spp.</i>	Save SMAC plate, broth enrichments
						Neurological symptoms	Marine toxins, botulism toxin	Marine toxins, botulism toxin	Serum, suspect food, store at 2-8°C
Y						Any cases with hepatic symptoms	Hepatitis A/E	Hepatitis A (IgM)	Serum, suspect food, store at 2-8°C
						High hospitalization or death rates, extremely long duration or debilitating disease		<i>Salmonella, Shigella, Campylobacter, STEC, Yersinia spp., Vibrio cholera, Routine O&P, Cryptosporidium spp., Cyclospora cayetansis, norovirus</i>	Stool in 2 vial parasitology fixative system, Total DNA/RNA (-20°C), acute and convalescent serum(-20°C), blood culture, suspect food (2-8°C), stool in viral transport media, SMAC plate, enrichment broths

Appendix 2: Outbreaks of Undetermined Etiology Testing Site

**Outbreaks of Unknown Etiology Testing Site
Specimen Submission Form**

Enclose this form when sending specimens to the MDH Public Health Laboratory (PHL) for testing of outbreaks of unknown etiology. Please call Candace Fuller 651-201-5414 before submitting samples

Project # (MDH provides) _____ **EFORS#** _____ **Outbreak#** _____

Total Number of Ill: _____
Number Interviewed _____ Cases _____ Controls
Case definition (ex. ≥ 3 stools per day) _____
Implicated Event date(s) _____
Suspected pathogen/agent(s) _____
 No suspected pathogen

Setting : Restaurant School Nursing Home Day Care Center Other (Please describe below) _____

Incubation Period Median _____ (hr/days)
 Shortest _____ (hr/days) Longest _____ (hr/days)
(Please circle units)
 Incubation Period Undetermined
 Peak Onset Date _____

Illness Duration Median _____ (hr/days)
 Shortest _____ (hr/days) Longest _____ (hr/days)
(Please circle units)
 Duration Undetermined
 Comments: _____

Outbreak Type (Please Check):
 Foodborne Waterborne Person-to-Person
 Animal contact implicated *Undetermined*
 ↓
 Please describe _____

Demographics:
Age Range (Please circle units)
 Median Age _____ (month/yr)
 Youngest _____ (month/yr) Oldest _____ (month/yr)
Sex :
 Male _____ % Female _____ %

Clinical Information:

Symptoms/Outcomes	Cases with Outcome (Number or Percent, please specify)	Total Cases with info available
Diarrhea		
Vomiting		
Fever		
Cramps		
Bloody Stools		
Death		
HUS		
Hospitalized		

Additional Epi or Environmental Health Findings:

Epi Implicated items (Please list available info):

1. _____ (please list item)

	Case #	Control #
Exposed		
Unexposed		

Estimated Odds Ratio/Risk Ratio (please circle one) _____
 Confidence Interval _____ P-value _____

2. _____ (please list item)

	Case #	Control #
Exposed		
Unexposed		

Estimated Odds Ratio/Risk Ratio (please circle one) _____
 Confidence Interval _____ P-value _____

3. _____ (please list item)

	Case #	Control #
Exposed		
Unexposed		

Estimated Odds Ratio/Risk Ratio (please circle one) _____
 Confidence Interval _____ P-value _____

--	--

Specimen Information:

Specimen Numbers and Collection Dates (please list):

Specimen Identifier	Specimen Type	Collection Date	Sample Preservation
	<input type="checkbox"/> Stool <input type="checkbox"/> Vomitus <input type="checkbox"/> Isolates <input type="checkbox"/> Food (specify): _____ <input type="checkbox"/> Other (Please describe) _____	___/___/___	<input type="checkbox"/> Cary Blair <input type="checkbox"/> O & P <input type="checkbox"/> Isolates <input type="checkbox"/> Frozen <input type="checkbox"/> Unpreserved <input type="checkbox"/> Other (Please describe) _____
	<input type="checkbox"/> Stool <input type="checkbox"/> Vomitus <input type="checkbox"/> Isolates <input type="checkbox"/> Food (specify): _____ <input type="checkbox"/> Other (Please describe) _____	___/___/___	<input type="checkbox"/> Cary Blair <input type="checkbox"/> O & P <input type="checkbox"/> Isolates <input type="checkbox"/> Frozen <input type="checkbox"/> Unpreserved <input type="checkbox"/> Other (Please describe) _____
	<input type="checkbox"/> Stool <input type="checkbox"/> Vomitus <input type="checkbox"/> Isolates <input type="checkbox"/> Food (specify): _____ <input type="checkbox"/> Other (Please describe) _____	___/___/___	<input type="checkbox"/> Cary Blair <input type="checkbox"/> O & P <input type="checkbox"/> Isolates <input type="checkbox"/> Frozen <input type="checkbox"/> Unpreserved <input type="checkbox"/> Other (Please describe) _____
	<input type="checkbox"/> Stool <input type="checkbox"/> Vomitus <input type="checkbox"/> Isolates <input type="checkbox"/> Food (specify): _____ <input type="checkbox"/> Other (Please describe) _____	___/___/___	<input type="checkbox"/> Cary Blair <input type="checkbox"/> O & P <input type="checkbox"/> Isolates <input type="checkbox"/> Frozen <input type="checkbox"/> Unpreserved <input type="checkbox"/> Other (Please describe) _____
	<input type="checkbox"/> Stool <input type="checkbox"/> Vomitus <input type="checkbox"/> Isolates <input type="checkbox"/> Food (specify): _____ <input type="checkbox"/> Other (Please describe) _____	___/___/___	<input type="checkbox"/> Cary Blair <input type="checkbox"/> O & P <input type="checkbox"/> Isolates <input type="checkbox"/> Frozen <input type="checkbox"/> Unpreserved <input type="checkbox"/> Other (Please describe) _____
	<input type="checkbox"/> Stool <input type="checkbox"/> Vomitus <input type="checkbox"/> Isolates <input type="checkbox"/> Food (specify): _____ <input type="checkbox"/> Other (Please describe) _____	___/___/___	<input type="checkbox"/> Cary Blair <input type="checkbox"/> O & P <input type="checkbox"/> Isolates <input type="checkbox"/> Frozen <input type="checkbox"/> Unpreserved <input type="checkbox"/> Other (Please describe) _____
	<input type="checkbox"/> Stool <input type="checkbox"/> Vomitus <input type="checkbox"/> Isolates <input type="checkbox"/> Food (specify): _____ <input type="checkbox"/> Other (Please describe) _____	___/___/___	<input type="checkbox"/> Cary Blair <input type="checkbox"/> O & P <input type="checkbox"/> Isolates <input type="checkbox"/> Frozen <input type="checkbox"/> Unpreserved <input type="checkbox"/> Other (Please describe) _____
	<input type="checkbox"/> Stool <input type="checkbox"/> Vomitus <input type="checkbox"/> Isolates <input type="checkbox"/> Food (specify): _____ <input type="checkbox"/> Other (Please describe) _____	___/___/___	<input type="checkbox"/> Cary Blair <input type="checkbox"/> O & P <input type="checkbox"/> Isolates <input type="checkbox"/> Frozen <input type="checkbox"/> Unpreserved <input type="checkbox"/> Other (Please describe) _____
	<input type="checkbox"/> Stool <input type="checkbox"/> Vomitus <input type="checkbox"/> Isolates <input type="checkbox"/> Food (specify): _____ <input type="checkbox"/> Other (Please describe) _____	___/___/___	<input type="checkbox"/> Cary Blair <input type="checkbox"/> O & P <input type="checkbox"/> Isolates <input type="checkbox"/> Frozen <input type="checkbox"/> Unpreserved <input type="checkbox"/> Other (Please describe) _____
	<input type="checkbox"/> Stool <input type="checkbox"/> Vomitus <input type="checkbox"/> Isolates <input type="checkbox"/> Food (specify): _____ <input type="checkbox"/> Other (Please describe) _____	___/___/___	<input type="checkbox"/> Cary Blair <input type="checkbox"/> O & P <input type="checkbox"/> Isolates <input type="checkbox"/> Frozen <input type="checkbox"/> Unpreserved <input type="checkbox"/> Other (Please describe) _____

Laboratory Tests Already Performed (please check and list methods if possible):

Bacterial	<i>Campylobacter spp.</i> <input type="checkbox"/> <i>E.coli</i> O157:H7 <input type="checkbox"/> <i>Salmonella spp.</i> <input type="checkbox"/> <i>Shigella spp.</i> <input type="checkbox"/> <i>B.cereus</i> <input type="checkbox"/> Method _____ Toxin Testing? _____ <i>Clostridium perfringens</i> <input type="checkbox"/> Method _____ Toxin Testing? _____ Quantitation? _____ <i>Clostridium difficile</i> <input type="checkbox"/> Method _____ Toxin Testing? _____ <i>S.aureus</i> <input type="checkbox"/> Method _____ Toxin Testing? _____ Quantitation? _____ <i>Shiga-toxin producing E.coli</i> <input type="checkbox"/> (Non-O157:H7) Method _____ <i>Vibrio spp.</i> <input type="checkbox"/> <i>Yersinia spp.</i> <input type="checkbox"/> Other <input type="checkbox"/> _____
Viral	Norovirus <input type="checkbox"/> Rotavirus <input type="checkbox"/> Hepatitis A <input type="checkbox"/> Viral Culture <input type="checkbox"/> Other <input type="checkbox"/> _____
Parasite/ Other	Formalin concentrate (Ova, protozoan cysts) <input type="checkbox"/> PVA (trophozoites, cysts) <input type="checkbox"/> AF stain (Isospora, <i>Cyclospora</i> , <i>Cryptosporidium</i>) <input type="checkbox"/> Fluorescence (<i>Giardia</i> , <i>Cryptosporidium</i>) <input type="checkbox"/> Fecal leukocytes <input type="checkbox"/> Other <input type="checkbox"/> _____
Food Testing	Please describe: _____ _____

Other Laboratory Testing Results (Please List):

Were any laboratory findings for these specimens, positive or suspect? Please describe findings:

Yes

No

Description of Test Results _____

Appendix 3: Shipping Guidelines for Stool Specimens

Stool specimens are classified as a biological substance category B UN 3373

*Packaging instructions include triple packaging with a pressure certified secondary container if they are being shipped by air transport

*Outer package needs to be a sturdy box with the smallest dimension of 4 inches

*Labeling on the outer box consists of:

-UN 3373 label

-Proper shipping name “Biological substance, category B”

-Responsible person name and phone number in addition to the consigner and consignee (phone number to be answered during business hours)

-If shipping frozen with dry ice, you must include the dry ice label with the weight of dry ice indicated

*Ship frozen samples to arrive Tuesday through Friday – not on the weekend or holiday

*Category B samples may be sent via US mail, private courier, or DOT courier (Fed Ex, DHL, UPS etc.) (unless they are known to contain one of the pathogens from list of substances that may never be shipped as Category B such as Shigatoxigenic E. coli)

MDH mailing address:

Minnesota Department of Health Public Health Laboratory

Attention: Novel Pathogens

601 Robert Street North

Saint Paul, MN 55155

References:

49 CFR parts 171, 172, 173, and 175

IATA: 48th Edition 2007

FoodNet Steering Committee Proposal

Proposed title: Deaths due to Bacterial Pathogens Commonly Transmitted Through Food in the Foodborne Diseases Active Surveillance Network (FoodNet), 1996-2005

Proposed by: Casey Barton Behravesh, Elaine Scallan, and study team members to be named (FYI- Abstract co-authors: Casey Barton Behravesh, O. Henao, C. Long, D. Vugia, R. Marcus, S. Thomas, E. Swanson, B. Anderson, T. Jones, E. Scallan, and FoodNet Working Group)

Date submitted: January 7, 2008

Purpose: The objective of this manuscript is to describe deaths associated with bacterial pathogens commonly transmitted through food using data collected by FoodNet over the 10 year period from 1996 to 2005.

Proposal: (Note: This study was submitted as an EIS Abstract and was accepted for the 2007 EIS Conference)

Background: *Salmonella* and *Listeria* are the leading causes of death due to known foodborne pathogens. We reviewed data from the Foodborne Diseases Active Surveillance Network (FoodNet) to describe the epidemiology of deaths due to bacterial foodborne pathogens.

Methods: FoodNet conducts population-based, active surveillance for laboratory-confirmed infections due to foodborne pathogens at >650 clinical laboratories serving 10 sites (44 million persons; 15% of the U.S. population). Information on outcome seven days after laboratory-confirmation was ascertained for all cases during 1996-2005.

Results: FoodNet ascertained 122,104 cases of laboratory-confirmed bacterial infections including 558 (0.5%) deaths (0.2 deaths/100,000 population), of which 215 (36%) were associated with *Salmonella* and 173 (29%) with *Listeria*. When compared with persons <65 years old, persons ≥ 65 years accounted for 55% (n=326) of deaths (p<0.001), but only 8.5% (n=8,524) of cases. Most deaths due to *Salmonella* (59%) and *Listeria* (73%) occurred in persons ≥ 65 years old. Of laboratory-confirmed infections, *Listeria* had the highest case fatality rate (CFR) (16.9%) followed by *Vibrio* (7.3%), *Escherichia coli* O157 (0.9%), *Salmonella* (0.6%), *Campylobacter* (0.15%), and *Shigella* (0.13%). Although there were significant decreases in the incidence of certain laboratory-confirmed infections during 1996-2005, including *Salmonella* and *Listeria*, CFRs did not change.

Conclusions: *Salmonella* and *Listeria* remain the leading causes of death due to bacterial foodborne pathogens. *Salmonella* causes the largest number of deaths but has a low CFR relative to *Listeria*, a low-incidence pathogen. This highlights the importance of including information on deaths when determining the impact of specific foodborne pathogens. Significantly more deaths occurred in persons ≥ 65 years old, which may be due to age-related comorbidities. This suggests the need for food safety interventions to protect this high-risk group.

non-Typhi *Salmonella* Clinical Outcomes Cohort Study Status updated 12/27/07

2006

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	473	52	31 (60%)	0 (0%)	5 (10%)	16 (31%)
CO	1/4	1/1/2006	352	87	64 (74%)	0 (0%)	17 (20%)	6 (7%)
CT	1/4	1/1/2006	502	109	98 (90%)	0 (0%)	9 (8%)	2 (2%)
GA	1/20	3/15/2006	1545	76	44 (58%)	0 (0%)	2 (3%)	30 (39%)
MD	1/10	5/1/2006	618	68	50 (74%)	0 (0%)	5 (7%)	13 (19%)
MN	1/5	1/1/2006	720	136	112 (82%)	0 (0%)	12 (9%)	12 (9%)
NM	1/5	1/1/2006	258	45	27 (60%)	0 (0%)	5 (11%)	13 (29%)
NY	1/5	1/1/2006	492	96	57 (59%)	0 (0%)	14 (15%)	25 (26%)
OR	1/20	1/1/2006	397	25	20 (80%)	0 (0%)	3 (12%)	2 (8%)
TN	1/10	1/1/2006	785	76	65 (86%)	0 (0%)	4 (5%)	7 (9%)
Total			6142	770	568 (74%)	0 (0%)	76 (10%)	126 (16%)

2007

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	411	52	25 (48%)	4 (8%)	9 (17%)	14 (27%)
CO	1/10	1/1/2006	300	26	20 (77%)	1 (4%)	2 (8%)	3 (12%)
CT	1/20	1/1/2006	406	22	19 (86%)	0 (0%)	1 (5%)	2 (9%)
GA	1/20	3/15/2006	1815	122	67 (55%)	19 (16%)	7 (6%)	29 (24%)
MD	1/10	5/1/2006	553	83	51 (61%)	7 (8%)	3 (4%)	22 (27%)
MN	1/20	1/1/2006	669	35	26 (74%)	2 (6%)	2 (6%)	5 (14%)
NM	1/5	1/1/2006	248	50	25 (50%)	2 (4%)	5 (10%)	18 (36%)
NY	1/5	1/1/2006	491	97	49 (51%)	8 (8%)	15 (15%)	25 (26%)
OR	1/10	1/1/2006	299	56	43 (77%)	3 (5%)	6 (11%)	4 (7%)
TN	1/10	1/1/2006	780	61	46 (75%)	2 (3%)	0 (0%)	13 (21%)
Total			5972	604	371 (61%)	48 (8%)	50 (8%)	135 (22%)

Interviewed Total 2006-2007 = 939

E. coli O157 Cohort Study Status

State	Study Start Date	FoodNet Cases	Eligible	Interviewed (% of eligible)	Pending (% of eligible)	Refused (% of eligible)	Other Not Enrolled (% of eligible)
CA	3/1/2006	77	74	52 (70%)	2 (3%)	8 (11%)	12 (16%)
CO	2/1/2006	62	62	41 (66%)	0 (0%)	13 (21%)	8 (13%)
CT	6/1/2006	78	79	58 (73%)	1 (1%)	16 (20%)	4 (5%)
GA	1/22/2007	83	45	19 (42%)	4 (9%)	10 (22%)	12 (27%)
MD	5/1/2006	51	56	27 (48%)	0 (0%)	9 (16%)	20 (36%)
MN	3/1/2006	294	290	207 (71%)	2 (1%)	27 (9%)	54 (19%)
NM	6/1/2006	27	25	13 (52%)	0 (0%)	3 (12%)	9 (36%)
NY	3/1/2006	104	108	56 (52%)	1 (1%)	30 (28%)	21 (19%)
OR	3/1/2006	146	145	111 (77%)	5 (3%)	7 (5%)	22 (15%)
TN	1/1/2006	138	148	99 (67%)	2 (1%)	8 (5%)	39 (26%)
Total		1060	1032	683 (66%)	17 (2%)	131 (13%)	201 (19%)

Updated 1/1/08

Enrollment Status for Selected *Salmonella* Serotypes Study, as of December 27, 2007

	S. Javiana	S. Infantis	S. I 4,[5],12:i-	Total Eligible	Interviewed (% of eligible)	Pending (% of eligible)	Refused (% of eligible)	Other Not Enrolled (% of eligible)
CA	2	6	18	26	12 (46)	2 (8)	3 (12)	9 (35)
CO	6	4	5	15	6 (40)	2 (13)	2 (13)	5 (33)
CT	2	7	14	23	22 (96)	0 (0)	1 (4)	0 (0)
GA MSA	188	11	54	253	170 (67)	11 (4)	13 (5)	59 (23)
MD	26	4	34	64	34 (53)	0 (0)	5 (8)	25 (39)
MN	8	11	28	47	37 (79)	1 (2)	0 (0)	9 (19)
NM	28	4	11	43	19 (44)	0 (0)	9 (21)	15 (35)
NY	1	7	17	25	7 (28)	2 (8)	6 (24)	10 (40)
OR	1	5	21	27	14 (52)	0 (0)	3 (11)	10 (37)
TN	20	2	52	74	57 (77)	0 (0)	6 (8)	11 (15)
Total (Cases)	282	61	254	597	378 (63)	18 (3)	48 (8)	153 (26)
Controls	-	-	-	-	1286	-	-	-

Enrollment Status for Validation Sub-Studies for Selected *Salmonella* Serotypes Study, as of December 27, 2007

	Selection Bias Sub-Study		Misclassification Bias Sub-Study	
	Eligible	Completed Questionnaires Received (% of eligible)	Eligible	Completed Questionnaires Received (% of eligible)
CA	12	2 (17)	0	N/A
CO	5	1 (20)	0	N/A
CT	1	0 (0)	0	N/A
GA	35	9 (26)	0	N/A
MD	8	2 (25)	0	N/A
MN	5	2 (40)	0	N/A
NM	24	5 (21)	0	N/A
NY	0	N/A	0	N/A
OR	10	4 (40)	0	N/A
TN	11	3 (27)	2	0 (0)
Total (Cases)	111	28 (25)	2	0 (0)
Controls	-	120	-	12

Table 1. Summary of Foodborne Outbreaks with ≥ 2 ill, by FoodNet Site, 2007
(Data accessed January 2nd, 2008 (eFORS 2) PRELIMINARY DATA)

State	Outbreaks reported	2006 population	Rate/1,000,000 population	Median Number Ill	Known Etiology* No. (%)	Etiology (confirmed and suspected)	Known Vehicle** No. (%)	Restaurant-associated*** No. (%)
CA	7	3,225,786	2.17	13	6 (86)	Bacillus Cerus/ Clostridium perfringens(1) <i>Campylobacter</i> (1), Norovirus(4)	3 (43)	6 (86)
CO	22	2,636,544	8.34	18	16 (73)	Norovirus(11), <i>Salmonella</i> (2), STEC O157 (1) STEC O121/STECO26/STECO84(1) <i>Clostridium botulinum</i> (1)	10 (45)	12 (55)
CT	17	3,504,809	4.85	13	13 (77)	Norovirus (7) STEC O157 (2), <i>Salmonella</i> (3), Ciguatoxin(1)	15 (88)	8 (47)
GA	24	9,363,941	2.56	22	22 (92)	Norovirus(6), <i>Campylobacter</i> (1) <i>Clostridium perfringens</i> (4) <i>Salmonella</i> (9) STEC O157 (2)	12 (50)	7 (29)
MD	14	5,615,727	2.49	23	8 (57)	Norovirus(5) <i>Clostridium perfringens</i> (2) <i>Salmonella</i> (1)	11 (89)	8 (57)
MN	39	5,167,101	7.55	11	32 (82)	Hep A(2), Norovirus(14), <i>Clostridium</i> <i>perfringens</i> (4), <i>Salmonella</i> (6), STEC O157 (4) Scromboid toxin(1) <i>Cryptosporidium</i> (1),	19 (49)	24 (62)
NM	1	1,954,599	0.51	48	1 (100)	<i>Campylobacter</i> (1)	1 (100)	-(-)
NY	11	4,291,545	2.56	13	8 (73)	Norovirus(4), STEC O157 (1) Scromboid toxin(1), <i>Salmonella</i> (1) <i>Bacillus Cerus</i> (1)	10 (91)	5 (45)
OR	28	3,700,758	7.57	17	23 (82)	<i>Clostridium perfringens</i> (1), Norovirus (14) STEC O157 (3), <i>Salmonella</i> (5)	9 (32)	19 (68)
TN	20	6,038,803	3.31	8	20 (100)	Norovirus (10) <i>Salmonella</i> (3), <i>Bacillus Cerus</i> (2) <i>Staph aureus</i> (3) STEC O157 (2)	9 (45)	16 (80)
Total	183	45,499,613	4.02	19	152 (83)		99 (54)	105 (57)

*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

*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, 2007* Data accessed January 2nd, 2008 (eFORS 2)

* Preliminary data

State	Outbreaks reported	2006 population	Rate/1,000,000 population	Median Number Ill	Known Etiology* No. (%)	Known Vehicle** No. (%)	Restaurant-associated*** No. (%)
CA	2	3,225,786	0.62	34	2 (100)	1 (50)	1 (50)
CO	10	2,636,544	3.79	33	9 (90)	5 (50)	3 (30)
CT	7	3,504,809	2.00	23	5 (71)	6 (86)	3 (43)
GA	10	9,363,941	1.07	46	9 (90)	6 (60)	2 (20)
MD	7	5,615,727	1.25	41	5 (71)	5 (71)	4 (57)
MN	14	5,167,101	2.71	21	11 (79)	7 (50)	7 (50)
NM	1	1,954,599	0.51	48	1 (100)	1 (100)	-(-)
NY	6	4,291,545	1.40	21	4 (67)	5 (83)	2 (33)
OR	12	3,700,758	3.24	34	12 (100)	3 (25)	10 (83)
TN	7	6,038,803	1.16	14	6 (86)	1 (14)	6 (86)
2007 Total	76	45,499,613	1.67	32	64 (84)	40 (53)	38 (50)

*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

Site	In catchment (N=99)												In catchment (N=99)											
	<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	--	5	0 (0)	2	0 (0)	0	--	2	1 (50)	0	--	0	0.0	5	3.0	2	1.0	0	0.0	2	0.1	0	0.0
CO	0	--	7	0 (0)	1	0 (0)	0	--	0	--	0	--	0	0.0	7	4.4	1	0.6	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	0.5	1	0.4	0	0.0	0	0.0
GA	1	0 (0)	6	0 (0)	1	0 (0)	0	--	2	0 (0)	0	--	1	0.7	6	1.1	1	0.2	0	0.0	2	0.0	0	0.0
MD	0	--	3	0 (0)	0	--	0	--	0	--	1	1 (100)	0	0.0	3	1.0	0	0.0	0	0.0	0	0.0	1	0.1
MN	0	--	9	0 (0)	3	0 (0)	1	0 (0)	3	0 (0)	3	1 (33)	0	0.0	9	3.3	3	0.9	1	0.3	3	0.1	3	0.4
NM	0	--	4	0 (0)	0	--	1	0 (0)	0	--	0	--	0	0.0	4	3.5	0	0.0	1	0.7	0	0.0	0	0.0
NY	0	--	0	--	0	--	0	--	0	--	0	--	0	0.0	0	0.0	0	0.4	0	0.0	0	0.0	0	0.0
OR	0	--	6	0 (0)	0	--	2	0 (0)	3	0 (0)	0	--	0	0.0	6	3.2	0	0.0	2	0.8	3	0.1	0	0.0
TN	1	0 (0)	19	0 (0)	3	0 (0)	3	0 (0)	1	0 (0)	0	--	1	1.2	19	6.0	3	0.8	3	0.7	1	0.0	0	0.0
Total	2	0 (0)	62	0 (0)	11	0 (0)	8	0 (0)	11	1 (9)	4	2 (40)	2	0.33	62	2.55	11	0.41	8	0.26	11	0.04	4	0.1

*per 100,000 persons

Site	In catchment (N=81)												In catchment (N=81)											
	<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	2	0 (0)	3	0 (0)	0	--	0	--	0	--	0	--	2	4.7	3	1.7	0	0.0	0	0.0	0	0.0	0	0.0
CO	0	--	2	0 (0)	1	0 (0)	0	--	1	0 (0)	0	--	0	0.0	2	1.3	1	0.6	0	0.0	1	0.1	0	0.0
CT	0	--	1	0 (0)	4	0 (0)	2	0 (0)	0	--	2	0 (0)	0	0.0	1	0.6	4	1.8	2	0.8	0	0.0	2	0.3
GA	0	--	8	0 (0)	2	0 (0)	2	0 (0)	0	--	0	--	0	0.0	8	1.4	2	0.3	2	0.3	0	0.0	0	0.0
MD	0	--	0	--	0	--	0	--	0	--	0	--	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
MN	0	--	9	0 (0)	3	0 (0)	1	0 (0)	2	0 (0)	2	0 (0)	0	0.0	9	3.4	3	0.9	1	0.3	2	0.1	2	0.2
NM	0	--	0	--	0	--	0	--	0	--	0	--	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
NY	2	0 (0)	2	0 (0)	0	--	0	--	0	--	1	0 (0)	2	4.3	2	1.1	0	0.0	0	0.0	0	0.0	1	0.1
OR	0	--	5	0 (0)	2	0 (0)	0	--	1	0 (0)	0	--	0	0.0	5	2.8	2	0.9	0	0.0	1	0.0	0	0.0
TN	0	--	16	1 (6)	3	0 (0)	2	0 (0)	0	--	0	--	0	0.0	16	5.2	3	0.8	2	0.5	0	0.0	0	0.0
Total	4	0 (0)	46	1 (2)	15	0 (0)	7	0 (0)	4	0 (0)	5	0 (0)	4	0.66	46	1.91	15	0.52	7	0.23	4	0.01	5	0.07

*per 100,000 persons

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

as of 1/1/08

	Site														TOTAL							
	CA		CO		CT		GA		MD		MN		NM		NY		OR		TN			
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%		
Diarrhea in 3 weeks before HUS diag./ Total patients	7	(78)	6	(75)	5	(100)	10	(100)	4	(100)	18	(95)	4	(80)	0	--	12	(100)	27	(100)	93	(94)
Stool specimen obtained/ Patients with diarrhea	7	(100)	6	(100)	5	(100)	10	(100)	4	(75)	18	(100)	4	(100)	0	--	12	(100)	25	(93)	90	(97)
	7		6		5		10		4		18		4		0		12		27		93	
E. coli O157 Isolation																						
Stool cultured for E. coli O157/ Patients with stool specimens obtained	7	(100)	5	(83)	3	(60)	10	(100)	3	(100)	18	(100)	4	(100)	0	--	12	(100)	24	(96)	86	(96)
E. coli O157 isolated from stool/ Patients with stool cultured for O157	5	(71)	2	(40)	3	(100)	6	(60)	2	(67)	15	(83)	3	(75)	0	--	8	(67)	16	(67)	60	(70)
	7		5		3		10		3		18		4		0		12		24		86	
Shiga toxin + Questions																						
Stool tested for Shiga toxin/ Patients with stool specimen obtained	5	(71)	2	(33)	3	(60)	10	(100)	1	(33)	18	(100)	4	(100)	0	--	3	(25)	10	(40)	56	(62)
Stool Shiga toxin-positive/ Patients with stool tested for Shiga toxin	5	(100)	1	(50)	1	(33)	5	(50)	1	(100)	14	(78)	3	(75)	0	--	1	(33)	10	(100)	41	(73)
	5		2		3		10		1		18		4		0		3		10		56	
Non-O157 Isolation																						
Stool tested for non-O157 STEC/ Patients with stool tested for Shiga toxin	0	(0)	1	(50)	1	(33)	7	(70)	1	(100)	3	(17)	1	(25)	0	--	0	(0)	0	(0)	14	(25)
Non-O157* STEC isolated from stool/ Stool tested for non-O157 STEC	0	--	1	(100)	0	(0)	0	(0)	0	(0)	1	(33)	0	(0)	0	--	0	--	0	--	2	(14)
	0		1		1		7		1		3		1		0		0		0		14	
Serum																						
Serum Tested/ Serum Collected	2	(100)	1	(100)	3	(100)	3	(75)	0	--	5	(100)	0	(0)	0	--	6	(86)	11	(100)	31	(91)
O157*/Tested	2	(100)	1	(100)	2	(67)	1	(33)	0	--	2	(40)	0	--	0	--	6	(100)	9	(82)	23	(74)
	2		1		3		3		0		5		0		0		6		11		31	
Total Stool																						
O157, non-O157 STEC, Shiga toxin +/ Total stool specimens obtained	5	(71)	3	(50)	3	(60)	6	(60)	2	(67)	16	(89)	3	(75)	0	--	8	(67)	18	(72)	64	(71)
	7		6		5		10		3		18		4		0		12		25		90	

Non-O157 identified:

*Culture:O121 (1), O145 (1)

For cases with Diarrhea in 3 wks before HUS dx																						
	CA		CO		CT		GA		MD		MN		NM		NY		OR		TN		TOTAL	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Cases with O157 + Only/ Cases O157 positive	0	(0)	2	(100)	2	(67)	1	(17)	1	(50)	2	(13)	0	(0)	0	--	7	(88)	8	(50)	23	(38)
	5		2		3		6		2		15		3		0		8		16		60	
Cases with non-O157 + Only/ Cases non-O157 +	0	--	0	(0)	0	--	0	--	0	--	0	(0)	0	--	0	--	0	--	0	--	0	(0)
	0		1		0		0		0		1		0		0		0		0		2	
Cases positive for shiga-toxin only/ Cases shiga-toxin positive	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	--	0	(0)	2	(20)	2	(5)
	5		1		1		5		1		14		3		0		1		10		41	
Cases not positive for O157, Stx or non-O157 Total Stool Specimens	2	(29)	3	(50)	2	(40)	4	(40)	1	(33)	2	(11)	1	(25)	0	--	4	(33)	7	(28)	26	(29)
	7		6		5		10		3		18		4		0		12		25		90	
Cases positive for Stx and O157 or Stx and Total Stool Specimens	5	(71)	1	(17)	1	(20)	5	(50)	1	(33)	14	(78)	3	(75)	0	--	1	(8)	8	(32)	39	(43)
	7		6		5		10		3		18		4		0		12		25		90	

*not positive or not tested

	Site												TOTAL									
	CA		CO		CT		GA		MD		MN		NM		NY		OR		TN		TOTAL	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Diarrhea in 3 weeks before HUS diag./ Total patients	4	(80)	3	(75)	8	(89)	12	(100)	0	--	17	(100)	0	--	4	(80)	8	(100)	21	(100)	77	(95)
Stool specimen obtained/ Patients with diarrhea	4	(100)	4	(0)	8	(100)	11	(92)	0	--	17	(100)	0	--	4	(100)	3	(38)	17	(81)	64	(83)
E. coli O157 Isolation																						
Stool cultured for E. coli O157/ Patients with stool specimens obtained	4	(100)	0	--	7	(88)	10	(91)	0	--	17	(100)	0	--	4	(100)	3	(100)	16	(94)	61	(95)
E. coli O157 isolated from stool/ Patients with stool cultured for O157	2	(50)	0	--	4	(57)	6	(60)	0	--	10	(59)	0	--	3	(75)	2	(67)	11	(69)	38	(62)
Shiga toxin + Questions																						
Stool tested for Shiga toxin/ Patients with stool specimen obtained	3	(75)	0	--	5	(63)	7	(64)	0	--	17	(100)	0	--	3	(75)	1	(33)	11	(65)	47	(73)
Stool Shiga toxin-positive/ Patients with stool tested for Shiga toxin	2	(67)	0	--	4	(80)	6	(86)	0	--	10	(59)	0	--	1	(33)	1	(100)	8	(73)	32	(68)
Non-O157 Isolation																						
Stool tested for non-O157 STEC/ Patients with stool tested for Shiga toxin	0	(0)	0	--	5	(0)	6	(86)	0	--	4	(24)	0	--	2	(67)	1	(100)	0	(0)	18	(38)
Non-O157* STEC isolated from stool/ Stool tested for non-O157 STEC	0	--	0	--	0	(0)	0	(0)	0	--	0	(0)	0	--	0	(0)	1	(100)	0	--	1	(6)
Serum																						
Serum Tested/ Serum Collected	2	(100)	0	--	1	--	1	(33)	0	--	6	(100)	0	--	0	--	1	(50)	5	(83)	16	(76)
O157*/Tested	2	(100)	0	--	1	(100)	0	(0)	0	--	2	(33)	0	--	0	--	0	(0)	4	(80)	9	(56)
Total Stool																						
O157, non-O157 STEC, Shiga toxin +/ Total stool specimens obtained	2	(50)	0	--	6	(75)	6	(55)	0	--	10	(59)	0	--	2	(50)	3	(100)	11	(65)	40	(63)

Non-O157 identified:

*Culture: O111 (1)

For cases with Diarrhea in 3 wks before HUS dx																						
	CA		CO		CT		GA		MD		MN		NM		NY		OR		TN		TOTAL	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Cases with O157 + Only/ Cases O157 positive	0	(0)	0	--	2	(100)	0	(0)	0	--	0	(0)	0	--	1	(33)	2	(100)	3	(27)	8	(21)
Cases with non-O157 + Only/ Cases non-O157 +	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	(0)	0	--	0	(0)
Cases positive for shiga-toxin only/ Cases shiga-toxin positive	0	(0)	0	--	2	(50)	0	(0)	0	--	0	(0)	0	--	1	(100)	0	(0)	0	(0)	3	(9)
Cases not positive for O157, Stx or non-O157*/ Total Stool Specimens	2	(50)	0	--	2	(25)	5	(45)	0	--	7	(41)	0	--	2	(50)	0	(0)	5	(29)	23	(36)
Cases positive for Stx and O157 or Stx and non-O157/ Total Stool Specimens	2	(50)	0	--	2	(25)	6	(55)	0	--	10	(59)	0	--	1	(25)	1	(33)	8	(47)	30	(47)

*not positive or not tested