Ministry of Health and Long-Term Care

Infectious Diseases Protocol

Appendix A: Disease-Specific Chapters

Chapter: Salmonellosis

Effective: February 2019

Ontario

Salmonellosis

☒ Communicable

☐ Virulent

Health Protection and Promotion Act:
O. Reg. 135/18 (Designation of Diseases)

1.0 Aetiologic Agent

Salmonellosis is caused by the bacterium, *Salmonella,* a gram-negative, non-spore forming bacillus that has over 2,500 serotypes, belonging to the *Enterobacteriaceae* family.[1,2]

Nomenclature for *Salmonella* is *Salmonella enterica* subsp *enterica.* Serotypes include Typhimurium, Enteriditis, etc.[1]

2.0 Case Definition

2.1 Surveillance Case Definition

Refer to Appendix B for Case Definitions.

2.2 Outbreak Case Definition

The outbreak case definition varies with the outbreak under investigation. Please refer to the *Infectious Diseases Protocol, 2018* (or as current) for guidance in developing an outbreak case definition as needed.

The outbreak case definitions are established to reflect the disease and circumstances of the outbreak under investigation. The outbreak case definitions should be developed for each individual outbreak based on its characteristics, reviewed during the course of the outbreak, and modified if necessary, to ensure that the majority of cases are captured by the definition. The case definitions should be created in consideration of the outbreak definitions.

Outbreak cases may be classified by levels of probability (*i.e.* confirmed and/or probable).

3.0 Identification

3.1 Clinical Presentation

Salmonellosis commonly manifests as sudden onset of diarrhea, which may be bloody, abdominal pain, fever, nausea, and vomiting.[1,2] The illness usually lasts 4 to 7 days, and most individuals recover without treatment.[3,4] Diarrhea may lead to dehydration, which can be severe among the young, the elderly and those with impaired immune systems.[1-3] Severity of the disease is related to serotype, number of organisms ingested

and host factors; severity can be increased when the organism is resistant to antimicrobial agents used to treat the patient.[1]

Salmonella infections can spread to urine, blood, bones, joints, the brain, or the nervous system, or other internal organs causing symptoms related to that part of the body or system. These extra-intestinal infections can have long-term effects, may be severe, and are potentially fatal.[3] Death is uncommon, except among the very young, the frail elderly, and the immunosuppressed.[1,3]

3.2 Diagnosis

See Appendix B for diagnostic criteria relevant to the Case Definitions.

For further information about human diagnostic testing, contact the Public Health Ontario Laboratories or refer to the Public Health Ontario Laboratory Services webpage: http://www.publichealthontario.ca/en/ServicesAndTools/LaboratoryServices/Pages/default.aspx

4.0 Epidemiology

4.1 Occurrence

Occurrence is worldwide. More illness occurs than is confirmed by culture. The incidence rate of infection is highest among infants and young children. Large outbreaks in hospitals, institutions for children, restaurants, nursing homes and the community are common. Outbreaks usually arise from food contaminated at its source that was inadequately cooked or that cross-contaminated other foods, and less often through handling by an ill person or carrier. *Salmonella* can also cause outbreaks due to widely distributed commercial products that are contaminated; these cases may appear to be sporadic, appearing in many jurisdictions or geographical locations.[1]

Between 2009 and 2013, an average of 6,500 cases of salmonellosis were reported annually in Canada.[4] The number of Salmonellosis cases typically peaks in the summer months.[3] *S. Enteritidis, S. Typhimurium* and *S. Heidelberg* are the three most common serotypes in Ontario.

Please refer to Public Health Ontario's (PHO) Reportable Disease Trends in Ontario reporting tool and other reports for the most up-to-date information on infectious disease trends in Ontario.

http://www.publichealthontario.ca/en/DataAndAnalytics/Pages/DataReports.aspx

For additional national and international epidemiological information, please refer to the Public Health Agency of Canada and the World Health Organization.

4.2 Reservoir

Domestic and wild animals, including poultry (e.g., chickens, especially chicks, turkeys, geese, ducks), reptiles (e.g., turtles, iguanas, snakes), amphibians (e.g., frogs, toads),

swine, cattle, rodents (e.g., hamsters, rats, mice), and pets (e.g., dogs, cats, hedgehogs).[1,2,4] Humans infected with *Salmonella* bacteria and convalescent carriers.[1,4]

4.3 Modes of Transmission

Salmonella live in the intestines of humans and other animals, including poultry and other birds.[3,4] Infection is acquired by direct or indirect contact with infected animals or their environment.[1,4]

The predominant mode of transmission is through the ingestion of contaminated food, often times of animal origin. The most common food sources include raw and undercooked poultry and poultry products (e.g. frozen breaded chicken products), unpasteurized/raw milk and milk products, eggs, meat and meat products, processed foods and produce.[1,3,4]

Salmonella has also been found in pet food and treats.[1,4]

Contaminated water is also an important mode of transmission, especially in areas where drinking water supplies are not disinfected.[1]

Fecal-oral transmission from person-to-person has also been observed when diarrhea is present, especially in institutional settings. Infants and stool incontinent adults pose a greater risk of transmission than do asymptomatic carriers.[1]

4.4 Incubation Period

From 6-72 hours, usually about 12-36 hours. Longer incubation periods of up to 16 days have been documented, and may not be uncommon following low-dose ingestion.[1]

4.5 Period of Communicability

The period of communicability extends throughout the course of infection and carriage. A temporary carrier state may continue for months, especially in infants. Depending on the serotype, approximately 1% of infected adults and 5% of children younger than 5 years, may excrete the organism for up to 1 year.[1] Antimicrobial therapy can prolong excretion.[2]

4.6 Host Susceptibility and Resistance

Susceptibility is universal and increased by achlorhydria, antacid treatment, gastrointestinal surgery, prior or current antibiotic therapy, neoplastic disease, and other immunosuppressive conditions, including malnutrition. Immunosuppressed patients, infants and the elderly are at increased risk for invasive infection.[1]

5.0 Reporting Requirements

As per Requirement #3 of the “Reporting of Infectious Diseases” section of the *Infectious Diseases Protocol, 2018* (or as current), the minimum data elements to be reported for each case are specified in the following:

- *Ontario Regulation 569* (Reports) under the *Health Protection and Promotion Act* (HPPA);[5]
- The iPHIS User Guides published by PHO; and
- Bulletins and directives issued by PHO.

6.0 Prevention and Control Measures

6.1 Personal Prevention Measures

Preventive measures:[1]

- Minimize cross-contamination through the use of safe food handling techniques, including keeping raw meats separate from cooked or ready-to-eat foods.
- Practice good hand hygiene: after using sanitary facilities, after assisting others with personal care (e.g. diapering or toileting), after touching or handling pets and other animals, and before, during, and after food handling.
- Cook and reheat food thoroughly to the appropriate temperatures. For temperatures, see the ministry's publication "Food Safety: Cook" available at http://www.health.gov.on.ca/en/public/programs/publichealth/foodsafety/cook.aspx#4
- Follow manufacturer's directions for cooking and re-heating of high-risk food items (such as raw or frozen poultry and processed poultry products).
- For high risk individuals, avoid consuming raw sprouts of any kind.
- Avoid preparing or serving food while ill.
- Treat or boil water intended for consumption.
- Avoid consuming raw or undercooked eggs and dirty or cracked eggs. Use pasteurized eggs or egg products in recipes that would result in the consumption of raw or undercooked eggs (e.g. Hollandaise sauce).
- Avoid consuming raw or unpasteurized milk and milk products.
- Keep storage of hazardous food at room temperature for no more than 2 hours.

For more food safety prevention measures, please see the ministry's food safety frequently asked questions available from http://www.health.gov.on.ca/en/public/programs/publichealth/foodsafety/faq.aspx

6.2 Infection Prevention and Control Strategies

Strategies:

- Educate food handlers and the general public about the importance of hand hygiene before, during, and after food preparation; thorough cooking of all foods; proper food handling and storage especially avoiding cross-contamination between raw and cooked foods; maintaining a sanitary kitchen.[1]
- Implement routine practices and contact precautions for incontinent and diapered cases.[2]
- Refer to PHO's website at www.publichealthontario.ca to search for the most up-to-date information on Infection Prevention and Control.

6.3 Management of Cases

In addition to the requirements set out in the Requirement #2 of the "Management of Infectious Diseases – Sporadic Cases" and "Investigation and Management of Infectious Diseases Outbreaks" sections of the *Infectious Diseases Protocol, 2018* (or as current), the board of health shall investigate cases to determine the source of infection. Refer to Section 5: Reporting Requirements above for relevant data to be collected during case investigation.

In addition, the following disease-specific information may also be collected:

- Food consumed and exposure to animals, animal feed/ pet treats or recreational water for the 3 day period prior to gastrointestinal symptom onset;
- Known exposure to a carrier or person with clinical signs and symptoms compatible with salmonellosis;
- History of occupation or activities involving vulnerable populations, food handling, childcare and healthcare; and
- History of visits to farms, petting zoos, zoos, and travelling animal shows.

Investigators should also note any treatment prescribed including name of medication, dose duration of treatment and start and finish dates.

Decisions regarding treatment of individual cases are at the discretion of the attending clinician. For uncomplicated enterocolitis, treatment is generally supportive (e.g., rehydration and electrolyte replacement as needed).[1] Evidence suggests that antibiotic therapy does not shorten the duration of disease, can prolong the duration of fecal excretion, may not eliminate the carrier state, and may lead to resistant strains or more severe infections.[6-9] Antibiotic treatment may be considered for certain groups, including infants up to 2 months, the elderly, the debilitated, those with sickle cell disease, persons with HIV, or patients with continued high fever or manifestations of extra-intestinal infection.[1,2]

If available, collect and test suspected food items and prevent further consumption by recalling, holding or otherwise disposing of the suspected items. Please see 'Management of Outbreaks' section for more information.

Provide education about transmission of infection and prevention via proper hand hygiene and safe food handling.

Exclusion criteria for symptomatic cases (confirmed and probable):

- Exclude symptomatic individuals from food handling, from attending or working in day nurseries, from direct care of infants, elderly, immunocompromised and institutionalized patients until symptom free for 24 hours, or symptom free for 48 hours after discontinuing use of anti-diarrheal medication.
- The rationale for exclusion for 48 hours after discontinuing the use of anti-diarrheal medication is to ensure that diarrhea does not return after the anti-diarrheal medication has been discontinued. In the event that antibiotics are used, the person should be excluded until symptom-free for 24 hours.

If the case is working in a hospital, use the "Enteric Diseases Surveillance Protocol for Ontario Hospitals" (OHA and OMA Joint Communicable Diseases Surveillance Protocols Committee, 2017 or as current) for exclusion criteria: https://www.oha.com/labour-relations-and-human-resources/health-and-safety/communicable-diseases-surveillance-protocols

Exclusion considerations for asymptomatic food handlers with laboratory confirmation of salmonellosis *(*see the case definition for Salmonellosis for appropriate clinical specimens*):*

- Consider the need for work exclusion based on an assessment of the potential risk of food contamination in the context of the following factors:
    - The understanding and anticipated compliance of the affected food handler and the food premise operator(s) with:
        - Safe food handling practices
        - Appropriate hand hygiene practices
    - The nature of the specific food handling duties, type of food items being prepared (e.g., preparing ready-to-eat foods with multiple ingredients may require more food handling, handling unpackaged food to be consumed without further processing).
    - Preparing food for a population (such as the very young, elderly and immunocompromised) with risk factors for severe disease and complications.
    - Reassignment to low-risk activities (e.g. no direct contact with food or patient care) may be considered as an alternative to exclusion.

There is no specified time period for work exclusion of asymptomatic food handlers with laboratory confirmation of salmonellosis. Work exclusion should include conditions for return to regular duties and should be based on a risk assessment.

6.4 Management of Contacts

Consider household members as close contacts of a case. Provide education about transmission of infection and proper hand hygiene.

Symptomatic contacts that work in high risk settings should be assessed by their health care provider to determine if infected, and should be excluded as specified for cases.

6.5 Management of Outbreaks

Please see the *Infectious Diseases Protocol, 2018* (or as current) for the public health management of outbreaks or clusters in order to identify the source of illness, manage the outbreak and limit secondary spread.

Two or more cases linked by time, common exposure, and/or place is suggestive of an outbreak.

For more information regarding specimen collection and testing, please see the Public Health Inspector's Guide to the Environmental Microbiology Laboratory Testing (2017, or as current).[10]

Refer to Ontario's Foodborne Illness Outbreak Response Protocol (ON-FIORP) 2013 (or as current) for multi-jurisdictional foodborne outbreaks which require the response of more than two Parties (as defined in ON-FIORP) to carry out an investigation.

7.0 References

1. Heymann DL, editor. Control of Communicable Diseases Manual. 20 ed. Washington, D.C: American Public Health Association; 2015.
2. Committee on Infectious Diseases, American Academy of Pediatrics. Section 3: Summaries of Infectious Diseases: *Salmonella* Infections. In: Kimberlin DW, Brady MT, Jackson MA, Long SS, editors. Red Book: 2018 Report of the Committee on Infectious Diseases. 31 ed. Itasca, IL: American Academy of Pediatrics; 2018.
3. Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases (NCEZID). Salmonella [Internet]. Atlanta, GA: U.S. Department of Health & Human Services 2018 [updated July 19, 2018; cited July 25, 2018]. Available from: https://www.cdc.gov/salmonella/index.html
4. Government of Canada. Salmonellosis (Salmonella) [Internet]. Ottawa, ON: Her Majesty the Queen in Right of Canada; 2018 [updated July 21, 2018; cited July 25, 2018]. Available from: https://www.canada.ca/en/public-health/services/diseases/salmonellosis-salmonella.html
5. Health Protection and Promotion Act, R.S.O. 1990, Reg. 569, Reports, (2018). Available from: https://www.ontario.ca/laws/regulation/900569
6. Onwuezobe IA, Oshun PO, Odigwe CC. Antimicrobials for treating symptomatic non-typhoidal Salmonella infection. The Cochrane Database of Systematic Reviews 2012;11(CD001167).
7. Murase T, Yamada M, Muto T, Matsushima A, Yamai S. Fecal Excretion of Salmonella entericaSerovar Typhimurium Following a Food-Borne Outbreak. Journal of Clinical Microbiology. 2000;38(9):3495-7.
8. Neill MA, Opal SM, Heelan J, Giusti R, Cassidy JE, White R, et al. Failure of ciprofloxacin to eradicate convalescent fecal excretion after acute salmonellosis: experience during an outbreak in health care workers. Annals of Internal Medicine. 1991;114(3):195-9.
9. Wiström J, Jertborn M, Ekwall E, Norlin K, Söderquist B, Strömberg A, et al. Empiric treatment of acute diarrheal disease with norfloxacin: a randomized, placebo-controlled study. Annals of Internal Medicine. 1992;117(3):202-8.
10. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Public Health Inspector's Guide to Environmental Microbiology Laboratory Testing. 5th ed. Toronto, ON: Queen's Printer for Ontario; 2017. Available from: https://www.publichealthontario.ca/en/ServicesAndTools/LaboratoryServices/Pages/PHIGuide.aspx

8.0 Document History

Table 1: History of Revisions

Revision Date	Document Section	Description of Revisions
December 2014	General	New template. Title of Section 4.6 changed from "Susceptibility and Resistance" to "Host Susceptibility and Resistance". Title of Section 5.2 changed from "To Public Health Division (PHD)" to "To the Ministry of Health and Long-Term Care (the ministry) or Public Health Ontario (PHO), as specified by the ministry". Section 9.0 Document History added.
December 2014	1.0 Aetiologic Agent	First paragraph, "…bacillus that has more than 2,000 serotypes…" changed to "bacillus that has over 2,500 serotypes…" Second paragraph, removal of "new".
December 2014	2.1 Outbreak Case Definition	First paragraph, addition of second sentence "For example, confirmed outbreak cases should at a minimum meet the criteria specified for the provincial surveillance confirmed case classification." Numbers converted into bullets for all points. Bullet 1, removal of "laboratory". Addition of a fifth bullet "Further strain typing (e.g. serotype, phage type (PT), pulsed field gel electrophoresis (PFGE)) as appropriate, which may be used to support linkage."

Revision Date	Document Section	Description of Revisions
December 2014	3.1 Clinical Presentation	First paragraph, addition of first sentence "Salmonellosis causes a spectrum of illness ranging from asymptomatic gastrointestinal tract carriage to gastroenteritis, bacteremia and focal infections." First paragraph, "…after consumption of contaminated food or beverage" changed to "…after exposure." First paragraph, addition of new third sentence, "Some infected individuals may experience bloody diarrhea." First paragraph, "resulting in…" replaced with "may result in…" First paragraph, removed "In these patients, the infection may spread to the bloodstream; occasionally, the bacteria may localize in any tissue of the body, producing abscesses ad other systemic complications." First paragraph, added "Reactive arthritis is a recognized sequela of salmonellosis." First paragraph, removed "…except in the very old, the very young, and in persons with compromised immune systems." Added a second paragraph, "Foodborne *Salmonella* infection can lead to urinary tract infection, particularly among elderly women. This is generally caused either by self-contamination of the urinary tract due to improper wiping or as a result of bacteremia."

Revision Date	Document Section	Description of Revisions
December 2014	3.2 Diagnosis	First paragraph, addition of “for diagnostic criteria relevant to the Case Definition.” Removal of second paragraph “Diagnosis is made through the isolation of *Salmonella* organisms from stool, rectal swabs, urine, blood or any other sterile site.” Addition of new second paragraph “For further information about human diagnostic testing, contact the Public Health Ontario Laboratories or refer to the Public Health Ontario Laboratory Services webpage…”
December 2014	4.1 Occurrence	Entire section revised.
December 2014	4.2 Reservoir	First paragraph, addition of “baby poultry, hamsters, hedgehogs, amphibians, lizards, toads, newts and salamanders” to list of domestic and wild animals.

Revision Date	Document Section	Description of Revisions
December 2014	4.3 Modes of Transmission	Second paragraph, addition of "(e.g. raw/undercooked chicken nuggets)". Addition of new third paragraph, "Raw alfalfa sprouts, raw mung bean sprouts, and spicy sprouts have been linked to a number of outbreaks in Canada and the United States." Removal of previous third paragraph. Replaced with new fourth paragraph, "In addition to the animals identified in the 'Reservoir' section above, *Salmonella* has recently been found in pet foods and was associated with a multistate wide outbreak in the US and UK." Fourth paragraph changed from "Fecal-oral transmission from person-to-person can also occur when diarrhea is present, and can be a concern, especially in institutional settings" to "Fecal-oral transmission from person-to-person has also been observed when diarrhea is present, especially in institutional settings. Infants and stool incontinent adults pose a greater risk of transmission than do asymptomatic carriers."
December 2014	4.4 Incubation Period	Addition of second sentence, "Longer incubation periods of up to 16 days have been documented, and may not be uncommon following low-dose ingestion."
December 2014	4.5 Period of Communicability	Entire section revised.
December 2014	5.1 To local Board of Health	First sentence changed from "Confirmed and suspected cases shall be report to the…" to "Individuals who have or may have salmonellosis shall be reported as soon as possible to the…"

Revision Date	Document Section	Description of Revisions
December 2014	5.2 To the Ministry of Health and Long-Term Care (the ministry), or Public Health Ontario (PHO), as specified by the ministry	First paragraph, first sentence, removed “to PHD”. Second bullet removed and replaced with “The iPHIS User Guides published by PHO”. Third bullet, “the Ministry” replaced with “PHO”.

Revision Date	Document Section	Description of Revisions
December 2014	6.1 Personal Prevention Measures	First bullet, "…by washing cutting boards and utensils with warm soapy water between uses…" changed to "…through the use of safe food handling techniques." Second bullet, "Wash hands after using sanitary facilities…" changed to "Practice good hand hygiene after using sanitary facilities, after assisting other with personal care (e.g. diapering or toileting), after handling raw foods, pets and other animals, and before food handling." Third bullet, "Thoroughly cook all food derived from animal sources…" changed to "Cook and reheat food thoroughly to the appropriate temperatures. For temperatures, see the ministry's publication "Food Safety: Cook" available at…" New fourth bullet added, "Follow manufacturer's directions for cooking and re-heating of high-risk food items (such as raw or frozen poultry and processed poultry products)." New fifth bullet added, "For high risk individuals, avoid consuming raw sprouts." Eighth bullet, "Consume only pasteurized milk and dairy products made from pasteurized milk" changed to "Avoid drinking raw or unpasteurized milk. For children, older adults, pregnant women and the immunocompromised, avoid consuming dairy products made from unpasteurized or raw milk." Ninth bullet added, "Keep storage of hazardous food at room temperature for no more than 2 hours." Tenth bullet added, "For more food safety prevention measures, please see the ministry's food safety frequently asked questions available from…"

Revision Date	Document Section	Description of Revisions
December 2014	6.2 Infection Prevention and Control Strategies	Bullets reordered. Second bullet, removed “for the duration of hospitalization.” Added paragraph, “Refer to Public Health Ontario’s website at www.publichealthontario.ca to search for the most up-to-date Provincial Infectious Diseases Advisory Committee (PIDAC) best practices on Infection Prevention and Control (IPAC). PIDAC best practice documents can be found at…”
December 2014	6.3 Management of Cases	First paragraph, removed “The following disease-specific information pertaining to the 3 days prior to onset of symptoms should also be obtained during case management”.

Revision Date	Document Section	Description of Revisions
December 2014	6.3 Management of Cases	Second paragraph added, “In addition to the requirements of HPPA *Regulation 569* (Reports), the following disease-specific information should also be obtained during the three day incubation period (or if asymptomatic, use date of specimen collection in place of onset date)”. Second bullet removed, “History of out-of-province or international travel, including earliest and latest exposure dates”. New second bullet added, “Food consumed and exposure to animals, animal feed/ pet treats or recreational water for the 3 day period prior to gastrointestinal symptom onset”. New third bullet, “Known exposure to a carrier or person with clinical signs and symptoms compatible with salmonellosis” to replace previous fourth bullet “Known exposure to a carrier or unreported case in the 3 days before symptom onset”. Fourth bullet, addition of “or activities” Fifth bullet, addition of “petting zoos, zoos, and travelling animal shows.” Third paragraph removed. Fourth paragraph, changed from “Note any treatment prescribed…” to “Investigators should also note any treatment prescribed including name of medication, dose duration of treatment and start and finish dates.”

Revision Date	Document Section	Description of Revisions
December 2014	6.3 Management of Cases	Addition of new fifth paragraph, “Decisions regarding treatment of individual cases are at the discretion of the attending clinician. For uncomplicated enterocolitis, treatment is generally supportive (e.g., rehydration and electrolyte replacement as needed). Evidence suggests that antibiotic therapy does not shorten the duration of disease, can prolong the duration of fecal excretion, may not eliminate the carrier state, and may lead to resistant strains or more severe infections. Antibiotic treatment may be considered for certain groups, including infants up to 2 months, the elderly, the debilitated, those with sickle cell disease, persons with HIV, or patients with continued high fever or manifestations of extraintestinal infection.” Sixth paragraph, addition of “Please see ‘Management of Outbreaks’ section for more information.” Removed entire seventh paragraph, “If available, collection and test suspected food items and prevention further consumption by recalling...” Subheading changed from “Exclusion Criteria” to “Exclusion criteria for symptomatic cases (confirmed and probable)”. All bullets under subheading “Exclusion criteria for symptomatic cases (confirmed and probable)” were revised. Entire new subsection added with the subheading “Exclusion considerations for asymptomatic food handlers with laboratory confirmation of salmonellosis (see Appendix B for appropriate clinical specimens)”.

Revision Date	Document Section	Description of Revisions
December 2014	6.3 Management of Cases	New seventh paragraph added, “There is no specified time period for work exclusion of asymptomatic food handlers with laboratory confirmation of salmonellosis. Work exclusion should include conditions for return to regular duties and should be based on a risk assessment.”
December 2014	6.4 Management of Contacts	Second paragraph, changed “above” to “specified for cases”.
December 2014	6.5 Management of Outbreaks	Second paragraph changed from “Two or more unrelated cases of the same serotype of salmonellosis…” to “**Two or more cases linked by time, common exposure, and/or place is suggestive of an outbreak.**” Third bullet, addition of “These definitions should be reviewed during the course of the outbreak, and modified if necessary, to ensure that the majority of cases are captured by the definitions”. Addition of new eighth bullet, “Identify the origin of suspect food, along with the transportation, storage and preparation processes”. Ninth bullet, addition of “environmental and/or food specimens”. Addition of new fourth paragraph, “For more information regarding specimen collection and testing, please refer to the Public Health Inspector’s Guide to the Principles and Practices of Environmental Microbiology…” Addition of new fifth paragraph, “Refer to Ontario’s Foodborne Illness Outbreak Response Protocol (ON-FIORP) for multi-jurisdictional foodborne outbreaks which require the response of more than two Parties (as defined in ON-FIORP) to carry out an investigation…”

Revision Date	Document Section	Description of Revisions
December 2014	7.0 References	Updated.
December 2014	8.0 Additional Resources	Updated.
February 2019	General	Minor revisions were made to support the regulation change to Diseases of Public Health Significance. Common text included in all Disease Specific chapters: Surveillance Case Definition, Outbreak Case Definition, Diagnosis, Reporting Requirements, Management of Cases, and Management of Outbreaks. The epidemiology section and references were updated and Section 8.0 Additional Resources was deleted.
February 2019	3.1 Clinical Presentation	Entire section revised.
February 2019	4.1 Occurrence	Entire section revised.
February 2019	4.2 Reservoir	Minor revisions to entire section.
February 2019	4.3 Modes of Transmission	Entire section revised.
February 2019	4.5 Period of Communicability	Entire section revised.
February 2019	4.6 Host Susceptibility and Resistance	Last sentence added: “Immunosuppressed patients, infants and the elderly are at increased risk for invasive infection.”
February 2019	6.1 Personal Prevention Measures	Minor revisions to entire section. Bullet added: “Avoid consuming raw or undercooked eggs and dirty or cracked eggs. Use pasteurized eggs or egg products in recipes that would results in the consumption of raw or undercooked eggs (e.g. Hollandaise sauce)”.


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