

Salmonellosis (Non-Typhoid) Investigation Guideline

Contents

CASE DEFINITION	1
LABORATORY ANALYSIS	2
EPIDEMIOLOGY	2
DISEASE OVERVIEW	2
NOTIFICATION TO PUBLIC HEALTH	3
INVESTIGATOR RESPONSIBILITIES	4
STANDARD CASE INVESTIGATION	4
Case Investigation	4
Contact Investigation	6
Isolation, Work and Daycare Restrictions.....	8
Case Management	8
Contact Management	9
Environmental.....	9
Education	10
MANAGING SPECIAL SITUATIONS	11
A. Outbreak Investigation	11
B. Community Water or Commercial Source is Implicated.....	11
C. Public Gathering Implicated	12
D. Case Is a Food handler or Food Establishment Is Implicated	12
D. Daycare Worker or Attendee	13
E. Health Care Setting Associated	14
G. Intentional Contamination	14
DATA MANAGEMENT AND REPORTING	15
ADDITIONAL INFORMATION / REFERENCES	16
ATTACHMENTS	16
• Fact Sheet (vs. 05/2018) 	
• Sample Letter, Enteric to Case (vs. 05/2012) 	

Attachments can be accessed through the Adobe Reader's navigation panel for attachments. Throughout this document attachment links are indicated by this symbol ; when the link is activated in Adobe Reader it will open the attachments navigation panel. The link may not work when using PDF readers other than Adobe.

Revision History (New – Old):

Date	Replaced	Comments
05/2018	06/2012	Updated case definition (CDC 2017), Notification Section modified with requirements of new reporting regulations. Laboratory Analysis addition to specimen requirements.
06/2012	02/2012	Updated investigation sections to agree with new surveillance system, added reporting form, and updated fact sheet.
02/2012	05/2011	Removed references to KS-EDSS. Updated CDC case definition to 2012 version.
05/2011	03/2009	Minor formatting and editing of investigation guideline. Incorporated disease-specific agent recommendations from Enteric Outbreak in Daycares Manual. Updated Laboratory Analysis and Management of Special Situations. BEPHI replaced BSE throughout.

* Please note the red **[tab]** names listed in this investigation guideline are notations on the location in EpiTrax where the collected data should be recorded.



Salmonellosis

Disease Management and Investigation Guidelines

CASE DEFINITION (CDC 2017)

Clinical Description for Public Health Surveillance:

An illness of variable severity commonly manifested by diarrhea, abdominal pain, nausea and sometimes vomiting. Asymptomatic infections may occur and the organism may cause extra-intestinal infections.

Laboratory Criteria for Case Classification:

Supportive laboratory evidence: Detection of *Salmonella* spp. in a clinical specimen using a CIDT.

Confirmatory laboratory evidence: Isolation of *Salmonella* spp. from a clinical specimen.

Epidemiologic Linkage:

Probable: A clinically compatible case that is epidemiologically linked to a case that meets the supportive or confirmatory laboratory criteria for diagnosis.

Criteria to Distinguish New Case from an Existing Case:

A case should not be counted as a new case if laboratory results were reported within 365 days of a previously reported infection in the same individual.

When two or more different serotypes are identified from one or more specimens from the same individual, each should be reported as a separate case.

Case Classification:

Probable:

- A case that meets the supportive laboratory criteria for diagnosis; **OR**
- A clinically compatible case that is epidemiologically linked to a case that meets the supportive or confirmatory laboratory criteria for diagnosis.

Confirmed:

- A case that meets the confirmed laboratory criteria for diagnosis.

Comment: *Both asymptomatic infections and infections at sites other than the gastrointestinal tract, if laboratory confirmed, are considered confirmed cases that should be reported.*

LABORATORY ANALYSIS

Services available from the Kansas Health and Environmental Laboratories (KHEL):

- The submission of *Salmonella* isolates from Kansas laboratories to KHEL is required by law. KHEL stores and analyzes these *Salmonella* isolates for public health investigations.
- Culture of stool specimens from suspected cases during outbreak investigations. **Preapproval** is required through the KDHE Infectious Disease Response unit at 1-877-427-7317.

Specimen collection criteria:

- Specimen type: Feces; quarter sized amount in Cary-Blair
- Collection materials: [Enteric kit](#) (bottle with Cary-Blair medium (0.16%))

Further requirements based on type of testing requested at KHEL:

- Confirmation testing for *Salmonella*: no preapproval needed; must be received at KHEL with 7 days of collection.
- Enteric Molecular GI Screen: Preapproval required; must be received at KHEL within 4 days of collection.
- Shipment of isolate: Use [infectious disease mailers](#) provided by KHEL.

For additional information concerning collection or transport call (785) 296-1620.

EPIDEMIOLOGY

Salmonellosis has a worldwide distribution. In the United States, an estimated 5 million cases occur annually. Between 60-80% of these cases are sporadic but large outbreaks have occurred in institutional settings and nationwide from common food sources.

DISEASE OVERVIEW

A. Agent:

A gram-negative bacillus with 4 distinct species causes *Salmonella*; more than 2,000 serotypes have been identified.

B. Clinical Description:

Acute gastroenteritis with sudden onset of headache, fever, abdominal pain, diarrhea, nausea and sometimes vomiting. Severe dehydration, bloody diarrhea and invasive disease may develop. Invasive infection can occur as urinary tract infection, septicemia, abscess, arthritis, cholecystitis, endocarditis, pericarditis, meningitis, or pneumonia. Asymptomatic infections also occur.

C. Reservoirs:

Domestic and wild animals, including: livestock, pets, poultry and other birds, reptiles and amphibians. Humans may also be a source of infection.

D. Mode(s) of Transmission:

Fecal-oral route transmission. The most common mode is ingestion of food or water contaminated with human or animal feces or food derived from infected animals. Handling raw meat or poultry products, or contact with infected reptiles, can also result in transmission.

E. Incubation Period:

Range 6 to 72 hours; usually within 12-36 hours after initial exposure. Prolonged incubation periods may be noted with low-dose ingestion.

F. Period of Communicability:

Extremely variable, usually several days to several weeks dependent upon the course of infection. A carrier state can continue for over 1 year in 1% of adults and 5% of children under 5 years of age, especially infants. Prolonged, asymptomatic fecal shedding can promote person-to-person transmission.

G. Susceptibility and Resistance:

Susceptibility is general and is usually increased due to achlorhydria, antacid or broad-spectrum antibiotic use, GI surgery, neoplastic disease, immunosuppressive therapy, or other debilitating conditions including malnutrition. It is possible to become re-infected by other serotypes.

H. Treatment:

Antibiotic treatment does not shorten the course of the disease and may prolong carriage and encourage the appearance of resistant strains. Reserve treatment for those with continued high fevers or invasive disease, infants < 2 months, the elderly, debilitated, and those with HIV or sickle cell disease. If treatment is indicated, antibiotic sensitivities should be examined first.

NOTIFICATION TO PUBLIC HEALTH AUTHORITIES

Suspected cases of salmonellosis shall be reported within 24 hours, except if the reporting period ends on a weekend or state-approved holiday, the report shall be made by 5:00 p.m. on the next business day after the 24-hour period:

1. Health care providers and hospitals: report to the local public health jurisdiction
2. Local public health jurisdiction: report to KDHE-BEPHI (see below)
3. Laboratories: report to KDHE-BEPHI (see below)

**Kansas Department of Health and Environment (KDHE)
Bureau of Epidemiology and Public Health Informatics (BEPHI)
Phone: 1-877-427-7317 Fax: 1-877-427-7318**

Further responsibilities of state and local health departments to the CDC:

As a nationally notifiable condition, shigellosis cases require a ROUTINELY NOTIFIABLE report to the Center of Disease Control and Prevention (CDC).

1. ROUTINE reporting requires KDHE-BEPHI to file an electronic report for cases within the next reporting cycle.
 - KDHE-BEPHI will file electronic reports weekly with CDC.
2. The **Local public health jurisdiction** will:
 - Start the investigation of the case **within 3 days** of receiving a notification and report the information requested in the Kansas EpiTrax within 5 days of receiving a notification of a report.

INVESTIGATOR RESPONSIBILITIES

- 1) [Report](#) all confirmed, probable and suspect cases to the KDHE-BEPHI.
- 2) Contact medical provider to collect additional information and confirm diagnosis using current [case definition](#).
 - If *Salmonella* was isolated, ensure a bacterial isolate is sent to KHEL.
 - Collect all information requested in [Step 1\)](#) of case investigation.
 - Ensure that case is aware of his/her diagnosis.
- 3) Continue the [case investigation](#) starting within 3 days of the notification.
 - Complete an interview with the case to collect information requested on the [Salmonella Investigation Form](#).
 - Complete the case investigation within 5 days of notification.
- 4) Conduct [contact investigation](#) to locate additional cases and/or contacts.
 - Only contacts at high risk of acquiring infection require follow-up.
- 5) Identify whether the source of infection is major public health concern,
 - Identification of *Salmonella* from a clinical specimen: ensure isolate or clinical specimen is sent to KHEL.
 - Involvement of a food handler, a daycare, or direct patient care provider.
 - Suspected outbreak.
 - Commercial raw milk, public water supply or commercial poultry exposure, or other public source involved.
- 6) Initiate control and prevention measures to prevent spread of disease.
- 7) [Record](#) data, collected during the investigation, in the KS EpiTrax system under the data's associated [\[tab\]](#) in the case morbidity report (CMR).
- 8) As appropriate, use the notification letter(s) and the disease [fact sheet](#) to notify the case, contacts and other individuals or groups.

STANDARD CASE INVESTIGATION AND CONTROL METHODS

Case Investigation

- 1) Contact the medical provider who ordered testing or is attending to the case and obtain the following. (This may require a request for medical records.)
 - Obtain clinical information on [symptoms](#) [\[Investigation-Symptoms\]](#), [onset date and time](#) and, if available, [recovery date and time](#). [\[Clinical\]](#)
 - Calculate the [exposure period](#), 7 days prior to the onset date. [\[Clinical\]](#)
 - Note any underlying immunodeficiency. [\[Investigation-Symptoms\]](#)
 - Examine laboratory testing, specifically culture results. [\[Laboratory\]](#)
 - If *Salmonella* was isolated, ensure bacterial isolate was sent to KHEL.
 - Mark yes/ no to: “Specimen Sent to State Lab?” in EpiTrax. [\[Laboratory\]](#)
 - Determine if further laboratory testing is needed.

- If unconfirmed cases are increasing in number in your jurisdiction, it may be necessary to [collect stool specimens](#) for testing at KHEL.
 - Collect case's demographics ([address](#), [birth date](#), [gender](#), [race/ethnicity](#), [primary language](#), and [phone number\(s\)](#)). [Demographic]
 - Record [hospitalizations](#): location and duration of stay. [Clinical]
 - Record outcomes: survived or [date of death](#). [Clinical]
- 2) Interview the case to determine source, risk factors and transmission settings:
- At least 3 phone attempts at different times of day are made before the [Enteric Letter to Case](#) is used and the case is closed as lost to follow-up.
 - Collect epidemiological information that helps to establish risks of acquiring and transmitting infection: [Epidemiological]
 - Case's occupation: food handler, healthcare worker, daycare attendee or worker, school attendee or worker, lab employee or student; indicate if the case volunteers at any of these occupations.
 - Any group living arrangements.
 - If the employee worked at or attended any facilities while ill: record the facility name, address, and phone number.
 - Even if they did not work while ill record places of potential exposure (where they could have acquired or transmitted illness) this includes daycare, school, restaurants, recreational source, and group living.
 - For the period **7 days** prior to symptoms onset, examine:
 - In-state and out-of-state travel. [Investigation – General]
 - Obtain dates and location(s).
 - Include hiking, camping or hunting trips.
 - Attendance at restaurant or large group gathering.
 - Record large gathering(s) type, name, location and exposure date(s). [Investigation – General]
 - Record restaurant(s) location and exposure date(s) [Epidemiological]
 - Exposure to (contact with) others with diarrhea. [Investigation – General]
 - Obtain contact's onset date and exposure date(s) to case, relationship to case and contact's occupation.
 - To identify outbreaks, note if contact(s) had onset within or greater than 24 hours before/after case-patient's onset time.
 - Association with childcare (including contact with attendees): daycare, preschool, elementary school, camp, or any other. [Investigation – General]
 - Record childcare location and exposure dates [Epidemiological]
 - Food history (including place of purchase).
 - Source of food at home [Investigation-Food Source]
 - Examine risks such as vegetables, fruits or foods that were bare-handed without further cooking. [Investigation-Food]
 - Recreational water exposure, record type [Investigation-Water]
 - Record water location and exposure dates [Epidemiological]

- Consumption of untreated/unfiltered water, record source, location and date of exposure [[Investigation-Water](#)]
 - For infants ≤ 3 months of age, if a source is not identified, consider:
 - Collecting detailed epidemiologic data and performing stool cultures on caretaker(s), even if asymptomatic.
 - Carefully review food-handling practices to determine whether cross-contamination of infant formula or food may be involved.
 - Collect information from case for the [Contact Investigation](#). (See below).
- 3) Investigate epi-links among cases (clusters, household, co-workers, etc).
- If the case had contact with person(s) who have/had *Salmonella*, determine if the other “cases” have been reported to the state:
 - Search EpiTrax for the possible case.
 - If found, record the previously reported record number in the record of the case you are investigating in [[Notes](#)].
 - Highly suspected cases, that have not previously been reported should be investigated as a suspect case and [reported](#) to KDHE-BEPHI.
 - For suspected [outbreaks](#) refer to Managing Special Situations section.

Contact Investigation

- 1) Review the case’s occupation and activities that were collected during the case investigation and recorded on the [[Epidemiological](#)] tab, especially dates, activities during the period from illness onset till the resolution of symptoms.
- 2) Consider the following types of contacts during a contact investigation:
 - Household and intimate/sexual contacts of case
 - Those who ate food that the case prepared or food that was implicated as the source of the case’s infection.
 - Daycare contacts, consider the following situations to determine contacts:
 - All children are toilet trained or are all over 2 years of age: Consider only direct caregivers and room/classmates of the case
 - Non-toilet trained attendees present or if >1 employee or child is infected or if household contacts of ≥ 2 separate attendees are infected: Consider all employees and attendees of a daycare
 - Daycare in which outbreak recognition is delayed by ≥ 3 weeks: Consider all employees, attendees and household contacts of diapered attendees.
 - Infectious food handler prepared food: Individuals who work the same shift in a kitchen and all daycare attendees and employees who ate food prepared by an infected food handler, especially if the case handled bare-handed ready-to-eat foods or worked while experiencing diarrhea.
 - **School contacts:** **Only** with epidemiologic evidence of transmission in a school setting should you investigate contacts. Consider those who share similar exposure activities with the cases (e.g. common food/drink, animal

or recreational water sources).

- Food service contacts: Patrons of the establishment of an infected food handler if (1) the food handler worked while infectious, (2) had poor personal hygiene, and (3) had the opportunity to have bare-hand contact with ready-to-eat food. (This information can be collected from the Kansas Department of Agriculture (KDA) inspector who investigates the establishment.)
 - Direct patient care provider contacts: Patients of an infected care provider if there is evidence that the provider was (1) symptomatic with poor personal hygiene and (2) had an opportunity for bare-hand contact with the patient's ready-to-eat foods, oral medications, or oral treatments.
 - Residential Facility / Institutional Contacts (Crowded Living Conditions):
 - Room or cellmates and those who share common bathroom facilities.
 - In conditions where personal hygiene is poor or with issues of fecal incontinence or toilet use, those who share common areas with cases.
- 3) After identifying potential contacts, evaluate whether a risk of transmission exists. ONLY if a risk of transmission exists, create a line listing of contacts at-risk of developing disease and make note of any high risk contacts. [Contact]
- Risk of transmission is assumed to exist with the following exposures:
 - Household contacts and intimate/sexual contacts.
 - Those who consumed food prepared by an infectious case.
 - Those who consumed food associated to an outbreak.
 - Risk of transmission increases if the following is present:
 - Cases exhibit lack of fecal continence (i.e. diapered children) or have poor personal hygiene, especially after using the bathroom.
 - Contacts exhibit frequent hand-to-mouth activity (i.e. toddlers and infants) or have poor personal hygiene, especially after assisting someone in the bathroom, changing a diaper, or any other activity that may result in possible exposure to someone else's feces
 - High risk contacts: those who may develop a severe infection or expose those at high risk for developing a severe infection. (i.e. older or immunocompromised adults or preschool age children)
- 4) Follow-up with household and other contacts (especially high risk contacts) as recommended under [Contact Management](#).
- 5) Institute control measures for school or day-care contacts as indicated under [Isolation, Work and Daycare Restrictions](#).

Isolation, Work and Daycare Restrictions

K.A.R 28-1-6 for *Salmonella* (non-typhoidal):

- Each person with a case shall be excluded from working as a food employee, health care worker, and attending or working in a child care facility for 24 hours after resolution of symptoms.

In addition to the K.A.R. 28-1-6 requirements, food handlers symptomatic with vomiting or diarrhea are subject to the [2012 Kansas Food Code](#):

Kansas Food Code 2012:

- *Except when the symptom is from a noninfectious condition, EXCLUDE a FOOD EMPLOYEE if the FOOD EMPLOYEE is symptomatic with vomiting or diarrhea until the employee is ASYMPTOMATIC for at least 24 hours.*
 - ***Exclusion*** means to prevent a person from working as an employee in a food establishment or entering a food establishment as an employee.
 - For noninfectious Conditions, the employee must *provide the PERSON IN CHARGE written medical documentation from a HEALTH PRACTITIONER that states the symptom is from a noninfectious condition.*

School-aged children:

With an understanding of and ability to practice good hygiene, children usually do not represent a risk of spreading this pathogen via the fecal-oral route. Children are a risk only if the infected child is unable to or fails to maintain good hygiene, including hand hygiene after toilet use. Children in diapers at any age constitute a far greater risk of spreading enteric pathogens.

In school settings:

1. Exclude children with diarrhea, vomiting, and fever until symptoms resolve.
2. During a school-based outbreak of *Salmonella*, stronger exclusion measures may be warranted and will be based on consultations with the KDHE-BEPHI.

Case Management

- 1) Educate case on measures to avoid future illness and to prevent transmission.
- 2) Follow-up is needed to assure compliance with [restrictions or exclusions](#) if:
 - A case is working as a food employee, health care worker, and attending or working in a child care works in childcare handles food to assure compliance with work restrictions while symptomatic.
 - A case is suffering complications from illness (i.e. hospitalization).

- 3) Additional stool cultures are not routinely indicated.
- 4) Initiate outbreak control measures appropriate to setting, as needed.
- 5) Report any changes in patient status, especially complications, hospitalizations, or death. [\[Clinical\]](#)

Contact Management

- 1) Prophylaxis: None.
- 2) If a contact listing was created because of the high possibility of disease transmission, follow-up with the listed contacts to determine if transmission occurred and to identify any high-risk situations [\[Contact\]](#)
 - Collect information on each contact's health status, noting any symptoms
 - Collect information on each contact's occupation, school, or daycare attendance.
 - Note any other high-risk contacts or situations and handle appropriately.
- 3) As needed, provide education on avoiding further exposures and to ensure proper medical care is obtained and precautions taken if symptoms develop.
- 4) A symptomatic contact is consider a probable case requiring investigation and [reporting](#) to KDHE-BEPHI [\[Contact\]](#)

(On the Contact Tab of the CMR, click 'Show' beside the symptomatic contact on the listing. When View Contact Event opens in show mode, select 'Promote to CMR')

 - Initiate any [restrictions](#) needed for the probable case (symptomatic contact).
 - Encourage the symptomatic contact to seek medical evaluation.
- 5) In outbreak situations:
 - Cultures to confirm epi-linked cases may be warranted
- 6) As needed, provide education on avoiding further exposures and to ensure proper medical care is obtained and precautions taken if symptoms develop.

Environmental

Environmental Investigation: If a [commercial food service](#), [daycare center](#), [public water supply](#), [commercial raw milk dairy or poultry](#) is implicated in transmission, coordinate with the proper regulatory agency to accomplish the following:

- 1) Inspecting the facility.
- 2) Collecting food, drink or water samples

Environmental control measures:

- 1) Proper chlorination or boiling of water prevents illness transmission.
- 2) Clean and sanitize contaminated surfaces with 1% bleach or proper germicides.

Education

- 1) Instruct on the necessary [restrictions](#).
- 2) Counsel contacts to watch for signs or symptoms within 1 week of exposure and to seek medical attention if needed.
- 3) Use the Public Health [Fact sheet](#) to assist with education.
- 4) Provide education on preventing the spread of disease:
 - Stress that case should wash hands thoroughly with soap and water before eating/handling food or after using the toilet.
 - Education should emphasize cleaning fingernails and personal hygiene.
 - Symptomatic individuals should not prepare food / drinks for others.
 - Remind contacts that when taking care of someone with diarrhea scrub hands with plenty of soap and water after cleaning the bathroom, helping the person use the toilet, or changing diapers, soiled clothes or sheets.
- 5) Provide education on preventing future illness:
 - Hand washing: wash hands thoroughly with soap and water before eating/handling food or after handling raw food, using the toilet, changing diapers and handling pets, fowl, or other animals and/or feces.
 - Avoid eating raw or undercooked meat or poultry. Cook hamburger to an internal temperature of at least 160°F (70°C). Cook poultry to an internal temperature of at least 170°F (77°C) for breast meat, and 180°F (82°C) for thigh meat – meat no longer pink and juices run clear
 - Do not drink unpasteurized milk or eat anything made from it.
 - Use only clean utensils, dishes and cutting boards to prepare food that is already cooked or will be eaten raw or lightly cooked.
 - Anything used to prepare raw meat, seafood, or poultry, including hands and table or counter top, should be washed thoroughly before touching other food.
 - Wash fresh produce before cutting or consuming.
 - Properly refrigerate and store perishable foods. Store in small containers and do not leave at room temperature for more than 2 hours.
 - Avoid drinking or swallowing untreated surface water. Surface water should be boiled or otherwise disinfected before consumption.

MANAGING SPECIAL SITUATIONS

A. Outbreak Investigation:

Outbreak definition: (1) An unexpected, unexplained increase in cases clustered by time, place, or person; or (2) two or more cases in different households with the same strain or pulsed-field gel electrophoresis (PFGE) pattern clustered by person, place or time (within the incubation period).

- 1) Notify KDHE-BEPHI immediately, 1-877-427-7317.
- 2) Organize and maintain all data related to outbreak:
 - Construct and maintain case listing which includes:
 - Record number, name, DOB (or age) and other demographics,
 - Symptoms; onset date and time; recovery date and time
 - Source of exposure (i.e., case ID, setting, classroom),
 - Specimen collection date and lab results,
 - Case status (i.e., confirmed, probable, suspect)
 - All epidemiologic data will be reported and managed with EpiTrax.
- 3) Identify population(s) at risk of infection based on the scope and spread of the outbreak; use the information collected in case investigations to define:
 - Person: who is becoming ill (i.e., age, gender, occupations)
 - Place: where are the cases (i.e. classrooms, address) and to what settings or activities are they associated
 - Time: when did it start and is it still going on
- 4) Enhance surveillance and perform active case finding using active surveillance with medical providers and others serving the affected community for 1 week (two incubation periods) from last confirmed case.
- 5) Outbreak control:
 - Target efforts on those population(s) identified as at risk.
 - Evaluate the effectiveness of and consider amendments to the restrictions discussed in [Isolation, Work and Daycare Restrictions](#).
 - Establish protocols for control measures necessary to slow or prevent the transmission of disease in affected settings.

B. Community Water Source, Commercial Dairy, or Commercial Poultry Source is Implicated:

Consult with KDHE-BEPHI epidemiology staff at 877-427-7317 if a case reports drinking raw milk from a commercial dairy with no other identifiable source of infection or when the investigation implicates a community drinking water system or commercial poultry source is implicated.

C. Public Gathering Implicated:

- 1) Food sources may include undercooked meat, cross-contaminated food, or possibly food contaminated by food handler.
- 2) Conduct active case finding; ask about recent illness among food handlers.
- 3) If a food establishment or distributor is implicated as the source of infection refer to "[Case Is a Food Handler or Food Establishment Is Implicated.](#)"
- 4) If animal sources are implicated:
 - Hygienic and control measures may need to be initiated on farms, petting zoos or fairs. (Refer to [Animals in Public Places Compendium.](#))
 - Proper hand washing after handling animals should always be stressed.

D. Case Is a Food handler or Food Establishment Is Implicated:

- 1) Contact the KS Department of Agriculture (KDA) Division of Food Safety.
- 2) The assigned local food facility inspector will perform the following:
 - Interview the manager to identify other possible illness among staff.
 - Inquire into any recent complaints from other patrons.
 - Execute any [work restrictions](#) for ill food handlers.
 - If there is going to be a restaurant specific survey used and/or a case control study, the inspector will collect a menu and credit card receipts.
 - Report findings to KDHE (or local health department, if requested).
- 3) The local health department will perform or coordinate the following:
 - Collect stool samples from any staff or patron with history of diarrheal illness within the past week.
 - Ensure proper [work restrictions](#) have been executed.
 - If needed, approve reinstatement of food handler(s) to full duties [after necessary conditions](#) have been met.
 - If more than one case of gastrointestinal illness is associated to the restaurant, the local health department will contact those that are known to be ill to identify if the cases are from different households. If they are, the local health department will perform the following:
 - Initiate an [outbreak investigation](#) and notify KDHE-BEPHI.
 - Collect contact information for all individuals who may have been exposed to the food establishment, starting with those that were eating with the ill individuals and expanding the contact investigation, as needed, to other patrons based on guidance from KDHE-BEPHI.
 - Interview the ill individuals and others exposed using either a generic or restaurant-specific foodborne outbreak questionnaire.
 - Request and collect stool specimens from 2-5 ill persons.

D. Daycare Worker or Attendee:

For the one case identified at a daycare perform the following actions:

- 1) Interview the operator and request review of attendance records to identify other possible cases among staff or attendees in the past week.
- 2) Coordinate the collection stool specimens or rectal swabs from any other attendees or staff with a history of diarrheal illness within the past week.
 - Collect samples first from those who are still symptomatic followed by those who most recently had their symptoms resolve.
 - If more than five people are ill, stool cultures from 3-5 symptomatic individuals will help to confirm the diagnosis but testing of all symptomatic individuals is not a good use of resources.
- 3) Reinforce the need:
 - To exclude all symptomatic children and adults with diarrhea, vomiting, and fever until 24 hours after symptoms resolve, and
 - How to prevent disease transmission at center and at home.
- 4) Instruct the facility operator to call the health department immediately if new cases of diarrhea occur.
- 5) Call or visit each week for a one week after the last case's onset to verify no further cases and that appropriate hygienic measures are being carried out.

Continue to investigate if greater than one case is identified at a daycare.

- 1) Contact KDHE-BEPHI and initiate an [outbreak investigation](#).
- 2) Contact the KDHE Child-Care Licensing Program at (785) 296-1270, and/or the local daycare inspector to coordinate the following:
 - A thorough inspection of the facility should be conducted.
 - Investigate hand washing, diapering and disinfection procedures.
 - Investigate for possible source of infection during last 7 days:
 - Possible index cases
 - Animal contact (on-site and field trips.)
 - Water-play areas
 - For suspected point source outbreaks, collect menus of food and drinks served during the last 3 days from the first date of onset.
 - Conduct a findings review with the operator and implement control measures; as needed, use the [fact sheet](#) for notifications.
- 3) Exclusion and readmission:
 - Continue to exclude symptomatic cases until no symptoms for 24 hours.
 - Requiring one “formed” stool before readmit is an effective control.

E. Health Care Setting Associated:

Nosocomial describes infections not present or incubating prior to the patient being admitted but acquired in hospitals and usually observed >48 hours after admission. As the [incubation period](#) will vary, each infection should be assessed individually. Nosocomial infections include those acquired in the hospital but not evident until after discharge.

- Hospitals: *Salmonella spp.*, are occasionally associated with nosocomial infections. Sources of infection include food, person-to-person, contaminated instruments and asymptomatic infants.
- Coordinate investigation efforts with hospital infection control.
- Nursing home: Crowded communal living conditions and age-related risk factors including immune status and higher rates of antibiotic usage, dementia, and incontinence may allow transmission of enteric pathogens.
- Coordinate investigation efforts through nursing home administrator.
- Kansas Department of Aging should be notified if a nursing home, adult care, or long-term care facility is involved in an outbreak.

G. Intentional Contamination

- 1) As a category B agent and food safety threat, it is moderately easy to disseminate and results in moderate morbidity but low mortality. In 1984, the intentional *S. typhimurium* contamination of The Dalles, Oregon salad bars resulted in 751 illnesses.
- 2) If suspected, notify local law enforcement and state public health officials.
- 3) Consider epidemiologic clues and law enforcement guidance.
- 4) Observations during environmental assessments may provide evidence.
- 5) Implement “Chain of Custody” procedures for all samples collected, as they will be considered evidence in a criminal investigation.

DATA MANAGEMENT AND REPORTING TO THE KDHE

- A.** Accept the case assigned to the LHD and record the date the LHD investigation was started on the **[Administrative]** tab.
- B.** Organize and collect data, using appropriate questionnaires, case listings (spreadsheets), and investigation forms, including:
- EpiTrax [Salmonella Investigation Form](#) (This is a paper-based form that allows investigators to collect all required information without being logged into EpiTrax.)
 - Alternatively, investigators can collect and enter all required information directly into EpiTrax **[Investigation]**, **[Clinical]**, **[Demographics]**, and **[Epidemiological]** tabs.
 - During outbreak investigations, refer to guidance from a KDHE epidemiologist for appropriate collection tools.
- C.** Report data collected during the course of the investigation via EpiTrax.
- Verify that all data requested on the [Salmonella Investigation Form](#) has been recorded on an appropriate EpiTrax **[tab]**, or that actions are completed for a case lost to follow-up as outlined below.
 - Some data that cannot be reported on an EpiTrax **[tab]** may need to be recorded in **[Notes]** or scanned and attached to the record.
 - Paper report forms do not need to be sent to KDHE after the information is recorded in EpiTrax. The forms should be handled as directed by local administrative practices.
- D.** If a case is lost to follow-up, after the appropriate attempts to contact the case have been made:
- Indicate 'lost to follow-up' on the **[Administrative]** tab with the number of attempts to contact the case recorded.
 - Record at least the information that was collected from the medical records.
 - Record a reason for 'lost to follow-up' in **[Notes]**.
- E.** After the requirements listed under [Case Investigation](#) have been completed, record the "Date LHD investigation completed" field located on the **[Administrative]** tab.
- Record the date even if the local investigator's [Case](#) or [Contact Management](#) for the contact is not "Complete".
- F.** Once the entire investigation is completed, the LHD investigator will click the "Complete" button on the **[Administrative]** tab. This will trigger an alert to the LHD Administrator so they can review the case before sending to the state.
- The LHD Administrator will then "Approve" or "Reject" the CMR.
 - Once a case is "Approved" by the LHD Administrator, BEPHI staff will review the case to ensure completion before closing the case.

ADDITIONAL INFORMATION / REFERENCES

- A. Treatment / Differential Diagnosis:** American Academy of Pediatrics. Red Book: Report of the Committee on Infectious Disease, 30th Edition. Illinois, Academy of Pediatrics, 2015.
- B. Epidemiology, Investigation and Control:** Heymann. D., ed., Control of Communicable Diseases Manual, 20th Edition. Washington, DC, American Public Health Association, 2015.
- C. Case Definitions:** CDC Division of Public Health Surveillance and Informatics, Available at: www.cdc.gov/nndss/
- D. Quarantine and Isolation:** Kansas Community Containment Isolation/ Quarantine Toolbox Section III, Guidelines and Sample Legal Orders www.kdheks.gov/cphp/operating_guides.htm
- E. Kansas Regulations/Statutes Related to Infectious Disease:** www.kdheks.gov/epi/regulations.htm
- F. Additional Information (CDC):** www.cdc.gov/health/default.htm

ATTACHMENTS

- **Fact Sheet**
- **Sample Letter, Enteric to Case**

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