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  • Fact Sheet (vs. 05/2018) ☑
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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.

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<td>05/2018</td>
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<td>Updated case definition (CDC 2017). Notification Section and restriction section modified with requirements of new reporting regulations. Restriction section modified to bring in agreement with Kansas Food Code 2012. Daycare section modified.</td>
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* 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.
CASE DEFINITION (CDC 2017)

Clinical Description for Public Health Surveillance:
An illness of variable severity characterized by diarrhea, fever, nausea, cramps, and tenesmus. Asymptomatic infections may occur.

Laboratory Criteria for Case Classification:
Supportive laboratory evidence: Detection of *Shigella* spp. or *Shigella/Enteroinvasive E. coli* (EIEC) in a clinical specimen using a culture-independent diagnostic testing (CIDT).

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

Epidemiologic Linkage:
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 90 days of a previously reported infection in the same individual.

When two or more different serotypes are identified in 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):

- Laboratories: The submission of *Shigella* isolates from Kansas laboratories to KHEL is required by law. KHEL stores and analyzes these Shigella isolates for public health investigations.
  - Ship isolates using the *infectious disease mailers* provided by KHEL.
- Testing of stool specimens from suspected cases during outbreak investigations. **Preapproval** is required through KDHE Epidemiology at 877-427-7317.
- Culture of stool specimens to assist in removal of work / daycare restrictions.
  - The health department with jurisdiction over the case is responsible for the collection and shipment of stool specimens needed for the removal of restrictions and exclusions.
  - Specimen type: Feces; marble size amount in Cary-Blair
  - Collection materials: *Enteric kit* (bottle with Cary-Blair medium (0.16%))
  - Timing of specimen collection, to remove work/daycare restrictions:
    - Collect the specimen >48 hours after the discontinuation of antibiotics.
    - Continue collecting specimens ≥24 hours apart until needed negatives are obtained.
  - Specimen must be received by KHEL within 7 days of collection.
  - Clinical specimens are refrigerated until shipment.
  - Ship specimens back in the enteric mailer as soon as possible after collection using a courier or rapid shipping method, such as UPS or FedEx.
  - Notify the KDHE Epidemiology when a specimen has been shipped.
- County Health Departments should keep at least five universal forms and unexpired enteric kits in stock for immediate use.
  - Enteric kits and universal forms should be ordered using separate forms.
  - For additional information concerning collection, transport, or facility identification numbers, call KHEL at (785) 296-1620.
EPIDEMIOLOGY

Shigellosis has a worldwide distribution with an estimated 600,000 deaths occurring annually throughout the world. Secondary attack rates can be as high as 40% in households and among close contacts. Outbreaks can result from person-to-person transmission and/or contaminated food and water. There is an increased risk in certain populations, including homosexual men or in conditions of crowding where personal hygiene may be poor; such as prisons, institutions for children, mental hospitals and refugee camps.

DISEASE OVERVIEW

A. Agent:
Shigella is a gram-negative rod divided into 4 groups, including: S. dysenteriae (Group A), S. flexneri (Group B), S. boydji (Group C) and S. sonnei (Group D). Group A infections are serious with high fatality rates, but are rare in the United States. Group B infections are often associated with travel to/from developing countries. Over 75% of all Shigella infections in the U.S. are Group D.

B. Clinical Description:
Acute gastroenteritis with diarrhea, fever, nausea, vomiting, cramps and/or tenesmus (difficulty passing stool). When severe, stools contain blood, mucus and pus. While usually self-limiting to 4-7 days, severe dehydration can occur; especially with infants and the elderly. Asymptomatic infections can occur.

C. Reservoirs: Humans.

D. Mode(s) of Transmission:
Fecal-oral transmission with low infectious dose (10-200 organisms). Direct transmission is associated to poor hand washing and with certain sexual behaviors (e.g., oral-anal). Indirect transmission occurs via contaminated food, milk, water, inanimate objects (fomites) and houseflies (vectors).

E. Incubation Period:
Usually 1-3 days, range from 12 to 96 hours. Up to 1 week for S. dysenteriae.

F. Period of Communicability:
Variable as long as organisms are excreted, usually < 4 weeks after onset. Asymptomatic carriers may transmit infection; rarely, a carrier-state persists for months. Antimicrobial treatment may decrease the shedding to a few days.

G. Susceptibility and Resistance:
Susceptibility is general. The elderly, debilitated, and malnourished are more at risk for severe disease and death. Breastfeeding is protective for infants. There is evidence of serotype specific immunity but only for short durations.

H. Treatment:
Antibiotics have been shown to shorten the duration of illness and bacterial shedding. Usage should be based on the clinical status of patient and sensitivity of organism. High levels of resistance to Ampicillin and TMP/SMX have been found in the United States. Fluid and electrolyte replacement may be necessary in severe cases. The use of antimotility agents is contraindicated.
NOTIFICATION TO PUBLIC HEALTH AUTHORITIES

Suspected cases of shigellosis 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 within 3 days of receiving a notification, and
   - Will report the information requested in the Kansas EpiTrax system, as soon as possible, ensuring that the electronic form is completed within 7 days of receiving a notification of a report.

Additional notification that occur for work or daycare restrictions:

1. KDHE will notify the county health department with jurisdiction over a case-patient, as soon as it is identified that the patient must be excluded from work or school.
2. The county health department with jurisdiction will immediately notify the case-patient of the need to collect stool samples, make arrangements for specimen collection, and will notify the employer or daycare of the case-patient, if necessary, using the provided templates.
3. The county health department will notify KDHE Epidemiology as soon as a specimen is shipped for testing at KHEL.
4. KDHE will notify KHEL that the specimen is being shipped and will notify the county health department by phone as soon as preliminary or final results are available.
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 *Shigella* 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 receiving a report and completing the case investigation within 5 days of receiving the report.
   - Complete an interview with the case to collect information requested on the **Shigella Investigation Form**.

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 Shigella from a clinical specimen: ensure isolate or clinical specimen is sent to KHEL.
   - Involvement of a foodhandler, a daycare, or direct patient care provider.
   - Suspected outbreak.
   - Public water supply involvement.

6) Initiate control and prevention measures to prevent spread of disease.
   - Initiate needed measures to prevent case-patient from returning to work or school as required by **K.A.R 28-1-6**.
   - Arrange the collection and shipment of stool specimens to the KHEL to allow the removal of restrictions and exclusions from work or daycare.

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, 4 days prior to the onset date. [Clinical]
- Note any underlying immunodeficiency. [Investigation-Symptoms]
- Examine laboratory testing, specifically culture results. [Laboratory]
  - If *Shigella* 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 suspect cases are increasing in number in your jurisdiction, it may be necessary to collect stool specimens for testing at KHEL.
- Collect case’s demographics and contacting information (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 should be made before the *Shigella 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.
  - Note 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 4 days prior to symptoms onset, examine:
- In-state and out-of-state travel. [Investigation – General]
  o Obtain dates and location(s).
  o Include hiking, camping or hunting trips.
- Attendance at restaurant or large group gathering.
  o Record large gathering(s) type, name, location and exposure date(s). [Investigation – General]
  o Record restaurant(s) location and exposure date(s) [Epidemiological]
- Exposure to (contact with) others with diarrhea. [Investigation – General]
  o Obtain contact’s onset date and exposure date(s) to case, relationship to case and contact’s occupation.
  o 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]
  o Record childcare location and exposure dates [Epidemiological]
- Food history (including place of purchase).
  o Source of food at home [Investigation-Food Source]
  o Examine risks such as vegetables, fruits or foods that were bare-handed without further cooking. [Investigation-Food]
- Recreational water exposure, record type [Investigation-Water]
  o 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 Shigella, 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 [Notes]
- Highly suspected cases, that have not previously been reported should be investigated as a potential 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, collected during the case investigation and recorded on the [Epidemiological] tab, especially dates and activities during the period from illness onset till symptom resolution.

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 >1 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 (food/drink or recreational water).
   - 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. (Collect this information from the KS 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 exits. 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 (while not assumed) does increase if:
- Cases exhibit lack of fecal continence (including diapered children) or have poor personal hygiene, especially after using the bathroom.
- Contacts exhibit frequent hand-to-mouth activity (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 are those who may develop a severe infection or who may expose those at high risk for developing a severe infection.

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 Shigella Control of Cases

- Each person with a case shall be excluded working as a food employee, health care worker, and attending or working in a child care facility:
  - Until one negative stool culture or other laboratory test acceptable to the secretary is obtained at least 48 hours following completion of antimicrobial therapy.

In addition to the K.A.R. 28-1-6 requirements, food handlers are subject to the 2012 Kansas Food Code, which restricts or excludes those diagnosed with Shigella, depending on the type of population the person serves:

Kansas Food Code 2012:
- Food handlers diagnosed with Shigella must be excluded from food establishments until symptoms have resolved for at least 24 hours. After symptoms have resolved for at least 24 hours, the worker is restricted. Food handlers must be excluded from work if they serve a highly susceptible population, even after symptoms have resolved.
Kansas Food Code 2012, continued:

- Food handlers exposed (1) by consuming or preparing food that is suspected source of a confirmed *Shigella* outbreak, (2) by working or attending a setting of a confirmed *Shigella* outbreak, or (3) by living with someone diagnosed with *Shigella* or who worked in a setting of a confirmed *Shigella* outbreak shall be restricted when working in a food establishment serving a **highly susceptible population** until:
  - More than 3 calendar days have passed since last day of potential exposure, or
  - More than 3 calendar days have passed since the last the employee’s household contact became asymptomatic.

  - **Restriction** means to limit the activities of a food employee so that there is no risk of transmitting a disease that is transmissible through food and the food employee does not work with exposed food, clean equipment, utensils [including tableware such as dishes and glasses], linens, or unwrapped single-service or single-use articles.

  - **Exclusion** means to prevent a person from working as an employee in a food establishment or entering a food establishment as an employee.

  - **Highly susceptible population** means persons who are more likely than other people in the general population to experience foodborne disease because they are:
    - (1) Immunocompromised; preschool age children, or older adults; and
    - (2) Obtaining food at a facility that provides services such as custodial care, health care, or assisted living, such as a child or adult day care center, kidney dialysis center, hospital or nursing home, or nutritional or socialization services such as a senior center.

**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 *Shigella*. In school settings:

1. Exclude children with diarrhea, vomiting, and fever until symptoms resolve.

2. During a school-based outbreak, stronger restriction and exclusion measures may be warranted and will be based on consultations with the KDHE-BEPHI.
Figure 1: Management of a food handler with suspected Shigella

Foodhandler who was diagnosed with Shigella or tested positive for Shigella

Currently experiencing diarrhea?

YES

Excluding from the food establishment. Employee is not allowed to perform any duties.

NO

Has the food handler been asymptomatic for at least the past 24 hours?

NO

Exclude from the food establishment. Employee is not allowed to perform any duties.

YES

Does the food establishment serve a highly susceptible population of preschool age children, older adults, or the immunocompromised, such as a kitchen in a health care facility, nursing home, or daycare?

NO

Restrict duties. Do not perform work duties that involve working with food, drinks, clean equipment or clean dishes/utensils.

YES

Exclude from the food establishment. Employee is not allowed to perform any duties.

Has the food handler tested negative for Shigella in one stool specimen collected at least 48 hours after the discontinuation of antibiotics?

NO

Notify food establishment that food handler may again perform any work duties. Provide documentation as requested.

YES
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:
   - Case cares for young children, the elderly or patients;
   - Case or exposed contact handles food; or
   - Case attends a daycare or family daycare home.

3) When the health department is carrying out restrictions or exclusions:
   - The county of residence is responsible for providing stool enteric kits and instructions for specimen collection to the excluded patient.
     - Plan on having at least five kits and universal forms on hand.
     - Order supplies through KHEL (refer to Laboratory Analysis).
   - Inform the patient or guardian of the restrictions and exclusion and arrange for the pick-up and return of enteric kits from and to the health department.
     - Prolonged shedding may occur; the patient should be prepared to submit multiple specimens that are collected 24 hours apart.
     - Patients should be symptoms free for 48 hours before testing and testing less than 48 hours after the discontinuation of antibiotic use will lead to a “no normal growth” result which is interpreted as a positive.
     - A doctor’s note releasing a patient from restrictions or exclusions does not supersede the state regulation requiring negative stool cultures.
   - Inform the patient’s supervisor or daycare of the restriction or exclusion.
     - Sample letters are available that can be adapted for use.
   - After shipping the specimen to KHEL, contact KDHE-BEPHI that a specimen was collected and is being shipped.
   - Continue collecting specimens until restrictions or exclusions can be lifted.
   - Document negatives in EpiTrax and the date the exclusion was lifted.

4) Report changes in patient status, complications, hospitalizations, or death. [Clinical]

Contact Management

1) 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.
   - A contact that is a food-handler should be restricted from facilities that serve highly susceptible populations. Consult restrictions or exclusions.
   - Note any other high risk contacts or situations and handle appropriately.

2) As needed, provide education on avoiding further exposures and to ensure proper medical care is obtained and precautions taken if symptoms develop.
3) A symptomatic contact is considered 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** or exclusions needed for the probable case (symptomatic contact)
- Encourage the symptomatic contact to seek medical evaluation.

4) In outbreak situations, cultures to confirm epi-linked cases may be warranted

5) Provide education on avoiding exposures and to obtain medical care if symptoms develop.

### Environmental

**Environmental Investigation:** If a **commercial food service, daycare center, public water supply or commercial raw milk dairy** 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 or exclusions.
2. Counsel contacts to watch for signs or symptoms within 1 week of exposure and to seek medical attention if needed.
3. 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.
   - Remind infected individuals not to use recreational water venues until symptoms resolve for 2 weeks.
4. 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.
   - Wash fresh produce before cutting or consuming.
   - Avoid drinking or swallowing untreated surface water.
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).

- Notify KDHE-BEPHI immediately, 1-877-427-7317.
- Organize and maintain all data related to outbreak:
  - Construct and maintain case listing which includes:
    o Record number, name, DOB (or age) and other demographics,
    o Symptoms; onset date and time; recovery date and time
    o Source of exposure (i.e., case ID, setting, classroom),
    o Specimen collection date and lab results,
    o Case status (i.e., confirmed, probable, suspect)
  - All epidemiologic data will be reported and managed with EpiTrax.
- 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
- 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.
- Outbreak control:
  - Target efforts on those population(s) identified as at risk.
  - Evaluate the effectiveness of and consider amendments to the restrictions or exclusions 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 or Commercial Dairy is Implicated:

Consult with the State epidemiology staff when the investigation implicates that a community drinking water system.
C. Public Gathering Implicated:
   1) Determine if anyone who prepared food for the gathering had diarrhea during the week prior to food preparation.
   2) Conduct active case finding; determine if any other food preparers or attendees developed diarrhea within 4 days after the gathering.
   3) Collect stool specimens for culture from any symptomatic food handler.
      • If it is <72 hours since exposure, contacts who are food handlers are managed according to Isolation, Work and Daycare Restrictions.
   4) 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.”

D. Case Is a Food handler or Food Establishment Is Implicated:
   1) Contact the Kansas Department of Agriculture (KDA).
   2) The assigned local food facility inspector will perform the following:
      • Interview the manager to identify other possible cases among staff or patrons within the past week.
      • Inquire into any recent complaints from other patrons.
      • Execute any work restrictions or exclusions for ill food handlers.
      • If there is going to be a restaurant specific questionnaire used 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 or exclusions 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:
         o Initiate an outbreak investigation and notify KDHE-BEPHI.
         o 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.
         o Interview the ill individuals and others exposed using either a generic or restaurant-specific foodborne outbreak questionnaire.
         o 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.

3) Reinforce the need to exclude:
   - All symptomatic children and adults with diarrhea, vomiting, and fever.
   - All culture positive attendees and workers involved in child care or food handling until after the submission of negative stool samples taken from the excluded person 48 hours after the discontinuation of any antibiotic treatment.

4) Instruct the facility operator
   - To call immediately if new cases of diarrhea occur.
   - On how to prevent disease transmission at center and at home.

5) Call or visit 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:
   - Performance of a thorough inspection of the facility.
     - Investigate hand washing, diapering and disinfection procedures.
     - Investigate for possible source of infection during last 7 days:
       - Possible index cases
       - Water-play areas
       - For suspected point source outbreaks, collect menus of food and drinks served during the last 4 days from the first date of onset.
   - Conduct of a findings review with the operator and implementation of control measures.

3) Request stool samples from all symptomatic children, food handlers/childcare givers, and household/close contacts.

4) Consider the collection of stool samples from the following if there appears to be ongoing, continued transmission (consult with KDHE epidemiology):
   - Asymptomatic children in the “class or room” of the sick children if the group includes non-toilet trained children.
   - Asymptomatic food handlers and childcare givers.
   - Asymptomatic household/close contacts who are engaged in sensitive occupations such as food handling or direct patient care.
5) Exclusion and readmission:
   - Continue to exclude culture positive workers and attendees until two negative stools are collected as required.
   - In addition, exclude all children and adults with diarrhea, vomiting, or fever until after symptoms has ceased for 24 hours. (Requiring one “formed” stool before readmit is an effective control measure.)

6) Antibiotic resistance and treatment:
   - Due to an increase in antibiotic resistance among strains of *Shigella spp.*, an antibiogram should be obtained early in the outbreak.
     - Provide the antibiogram to the physicians of sick individuals.
     - Do not assume that simultaneous outbreaks at different day cares share the same antibiogram. Obtain an antibiogram for each center.
   - Recommend all lab-confirmed children and adults (symptomatic and asymptomatic) seek medical evaluation for treatment.
     - Treatment cannot be mandated, but public health measures can still include restriction or exclusions of the activities of stool positive individuals.
   - Encourage any symptomatic individual to submit a stool specimen for culturing to confirm diagnosis prior to any antibiotic treatment.

7) Closing of daycares:
   - Close to new admissions when there is evidence of noncompliance with control measures or if there is continued transmission within the center.
   - Do not close to readmission or enforce a temporary closure, as this may result in the spread of infection to other daycares.
   - Permanent closure/revocation of license may occur only if deemed necessary by the Child Care Licensing Program.

8) Notification: use the [Sample Parent Letter](#).

*Eight days after control measures started, if new cases are still occurring, the local health officer / administrator or designee may use the following:*

1) Re-inspect to ensure control measures are being employed.

2) If not already done, consider closing the daycare to new admissions, but still not to readmission or temporary closure.

3) Consider expanding the testing to asymptomatic contacts and previously treated children that may not have been tested.

4) Examine restriction or exclusion measures that are occurring; modify, as needed.

5) For facilities with the capability, consider cohorting:
   - **Asymptomatic, stool positive** (or previously positive) children and staff may be placed in separate convalescent rooms away from healthy individuals, with the provision of separate restrooms when possible.
• Individuals may be released after two consecutive stool samples are taken 24 hours apart and, if treated, 48 hours after the discontinuation of any antibiotic treatment.

E. Health Care Setting Associated:

1) Hospitals: *Shigella* has rarely been associated with nosocomial infections.
   • 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.
   • Coordinate investigation efforts with hospital infection control.

2) 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. Residential Facility or Institutional Outbreaks:

1) Special measures may be required, including separate housing for cases and new admissions, vigorous program of supervised hand washing, and repeated cultures of patients and attendants.

2) Groups that include non-toilet trained or young children, those who are mentally deficient and those without an adequate water or hand washing facilities are the most difficult to control.

3) Coordinate efforts with institutional medical staff and appropriate regulatory agency. (For example, the Kansas Department of Corrections should be notified of outbreaks involving state prisons.)

H. Intentional Contamination

*Shigella dysenteriae* is a category B agent and food safety threat, it is moderately easy to disseminate, results in moderate morbidity but low mortality, and requires specific enhancements of CDC's diagnostic capacity and disease surveillance.

1) If suspected, notify local law enforcement and state public health officials.
   • Consider epidemiologic clues and law enforcement guidance.
   • Observations during environmental assessments may provide evidence.

2) 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 Shigella Investigation Form (This is a paper-based form allows investigators to collect required information without being in 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 Shigella 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 and appropriate attempts have been made:
   - Indicate ‘lost to follow-up’ on the [Administration] 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.

(Review the EpiTrax User Guide, Case Routing for further guidance.)
ADDITIONAL INFORMATION / REFERENCES


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


F. Kansas Regulations/Statutes Related to Infectious Disease: www.kdheks.gov/epi/regulations.htm


I. Additional Information (CDC): www.cdc.gov/health/default.htm

ATTACHMENTS

- Fact Sheet
- Sample Letter, Shigella to Case
- Sample Letter, To Parent for Daycare Outbreak

To view attachments in the electronic version:
1. Go to <View>; <Navigation Pane>; <Attachments> – OR – Click on the “Paper Clip” icon at the left.
2. Double click on the document to open