



**LANE COUNTY PUBLIC HEALTH DEPARTMENT**  
**Disease Control and Environmental Health**

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**Food-borne Illness  
Investigation Manual**

DISEASE CONTROL AND ENVIRONMENTAL HEALTH

# Food-borne Illness Investigation

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# Policy Statement

Lane County Public Health Department will respond in a timely manner (within 24 hours) to a food borne outbreak with origins in Lane County by utilizing the existing relationships between Communicable Disease and Environmental Health departments, and with the Oregon Department of Agriculture as appropriate. The food-borne illness complaint may originate from the public, medical community, governmental agencies, or other entities. The County response uses protocols outlined by *Oregon Health Authority Guidelines for Outbreak Investigations* and the environmental assessments of the involved food facilities. Roles and responsibilities are defined to avoid duplication and loss of efficiencies. Support services (laboratory, other agencies) are available to assist in the investigation. Oregon Health Services may assist in the epidemiological analysis of data. A Lane County final report is created that attempts to identify the cause (or probable cause) of the outbreak. An internal review of the investigational process by the participating investigators will be used to improve future outbreak responses.

Please refer to *Appendix A* for Standard No. 5, or go online at <http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/ProgramStandards/ucm245409.htm>

# Chapter 1

## Intake

*Database utility and Roles and Responsibilities of agencies involved in a Food-borne Illness (FBI) investigation.*

Food borne illness complaints reported to Lane County will be routed to the Environmental Health (EH) Department and assigned to an EH Specialist (EHS) for initial assessment. The EHS will assess the complaint and collaborate with other agencies if an investigation into the complaint is needed. This section discusses using the database for intake analysis of complaints. Roles and responsibilities of various agencies involved in an investigation will be identified to clarify and enlist appropriate personnel resources. *Refer to Appendix H for phone numbers of various agency contacts.*

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**USING THE  
DATABASE**

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A foodborne illness Microsoft Access database, developed in 2005, is used by the Environmental Health Department to document food-borne illness (FBI) investigations. The data base is controlled and maintained by the intake operator and assignment is made to the Environmental Health Specialist (EHS) responsible for the county area or district from where the complaint originated. The District EHS assigned will begin documentation of the investigation. Communicable Disease (CD) nurse investigators will be consulted as necessary during the investigative process.

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**ROLES AND  
RESPONSIBILITIES**

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### **Lane County Environmental Health Specialist**

The Lane County Environmental Health Office (EH) has a team to conduct FBI investigations. This FBI team is lead by an EHS. The EHS' role is to work with Oregon Department of Agriculture (ODA), Oregon Health Services, CD and other agencies if needed, to investigate the illness. If it appears there is a food borne outbreak, they will conduct the outbreak investigation using the EH team and CD team if needed. Environmental Health in general takes the lead in food borne outbreaks, event or facility related outbreaks.

## Lane County Communicable Disease Nurse

If CD nurses receive the initial reports of FBI, they will refer the caller to the EH intake staff who will assign the complaint to the district EHS for initial assessment. All CD nurses share responsibility for case investigations of reportable diseases. If more than one case investigation identifies food as a common source, they will work with EH on the on-site investigation. Either EH or CD may take the lead in an outbreak investigation depending on staff resources and the circumstances of the outbreak. If an outbreak is identified, and CD takes the lead the CD nurse will contact ODA, if indicated, and OHA. The CD nurse will then coordinate the investigation with all agency partners.

## Oregon Health Authority (OHA) Epidemiologist:

Each day one of the epidemiologists is assigned as the Epidemiologist of the Day. Typically he or she will be on call at most once in a week, although there may be informal swaps and short-term coverage by another epidemiologist. The state Acute and Communicable Disease (ACD) receptionist will know who is on call. Duties of the OHA Epidemiologist of the Day include but are not limited to:

- Take all general communicable disease calls, including food borne outbreaks.
- Epidemiologists (Epi) may refer the call to another team member for more difficult situations or if their schedule suggests a conflict. This may be accomplished by the Epi conferencing with another and getting back to the caller or by having the caller talk to the other OHA member directly.
- For outbreaks or situations that cannot be resolved in one day, by default, the Epi who initially receives the call will remain the contact person until the outbreak or situation is resolved. If there is change in the OHS Epi point of contact, OHA will notify County investigators of the change. The original OHA Epi will share outbreak information and progress with the new Epi.
- Epi of the Day has the option to hand off outbreak to “Urgent Epi Response Team” (UERT) member, who would handle the outbreak for the duration. UERT person is available Monday through Friday.
- Unusual situations or situations of concern will be shared/reviewed at OHA Wrap Up, which is a daily get-together of epidemiology staff starting at 4PM and lasting 5-30 minutes.

- If the Epi point of contact for the outbreak is unavailable, the OHS receptionist will request someone else to respond immediately.
- OHS will contact and/or inform other counties or states as appropriate.

## Oregon Department of Agriculture (ODA)

The ODA’s role is to provide an analysis of the safety of their licensed facilities and to assist in trace-back, testing, and other food-related investigation activities. ODA will investigate implicated food products and personnel in ODA facilities, including grocery stores, meat markets, warehouses, bakeries, food processors, dairies, and street-side venues (fish, seafood, produce stands). ODA will report **meat, poultry and egg products** to the United States Department of Agriculture—Food Safety and Inspection Service (USDA-FSIS) for investigation. ODA can provide **shellfish** testing if a food illness is suspected due to shellfish consumption.

**Complaints without suspect illness:**

Complaints involving ODA-licensed facilities should be sent electronically to ODA Central office in Salem within one business day. Send the ODA Consumer Complaint Form as outlined in Chapter 2: *Investigative Procedures*. ODA management will determine how the complaint is handled. This does not preclude the involvement of CD or EHS; however, ODA will determine which agencies will be involved.

**Illness Complaints:**

Please see Chapter 2: *Investigative Procedures* for response guidelines to an FBI outbreak. Complaints of illness received by ODA will be referred to the local EH Office for investigation. ODA will phone or fax the following information within one business day: *See attached agreement between ODA and OHS, Appendix A.*

- Name and phone number of the complainant (if known)
- Synopsis of illness complaint, including: Signs and symptoms, date of onset, duration
- Names of others reported to be ill

ODA field services staff will conduct on-site evaluation of the facility and will provide feedback to Lane County EH on the results of their evaluation. Lane County remains the lead investigator of FBI outbreaks. (ODA is not expected to perform epidemiological investigation of potential food borne illness involving an ODA-licensed facility).

## Oregon State Public Health Laboratory

The OSPHL can assist in an FBI investigation by testing human and food specimens. All outbreak sample/specimen testing must have the approval of the OHS Epidemiologist. The purpose is to ensure appropriate samples are collected and the lab is given as much notice as possible of incoming specimens.

The *Quick Reference Guide*, at <http://oregon.gov/DHS/ph/phl/docs/quikref.pdf>, arranged alphabetically by organism, provides information about the types of tests available at the OSPHL, specimen requirements, request forms, fees, and turn-around times.

OSPHL **lab request forms** (Virology/Immunology, Bacteriology/Parasitology, & Microbacteriology Examination) are in the *Guide to Services* at <http://oregon.gov/DHS/ph/phl/docs/guide.pdf>.

**Food Testing:** The Oregon State Public Health Laboratory (OSPHL) intends to expand its limited capacity in this area, but at present food testing is difficult, expensive, and can be unproductive. Always consult with OHS staff about the need for and availability of food testing. They may need to apply for outside resources (e.g., FDA, Washington State) if circumstances warrant. *Oregon Department of Agriculture will provide shellfish testing if a food illness is suspected due to shellfish consumption.*

## Food and Drug Administration (FDA) District Laboratory

The FDA Seattle District Lab is available for testing of products that fall under FDA jurisdiction (i.e. any food in interstate commerce that is not meat or poultry). This lab is not able to assist with strictly retail-related outbreaks.

# Chapter 2

## Investigative Procedures

*Identifying and investigating unusual occurrences (outbreaks) of food-borne illnesses; Lane County Environmental Health and Communicable Disease investigative procedures*

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IDENTIFYING AN  
UNUSUAL  
OCCURRENCE

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**T**O determine whether a complaint of illness relates to foods eaten and warrants a public health response, the State's *FBI compendium of acute food-borne diseases* is used to help identify the agent at <http://egov.oregon.gov/DHS/ph/acd/reporting/guideln/compend.pdf>. In general two or more ill persons from separate households define an outbreak requiring investigation.

### Note

**Bioterrorism:** If the illness is determined to be an intentional and not naturally occurring event, such as bioterrorism or tampering, the County public health response may not follow the procedures for a naturally occurring event. The public health investigation will proceed in conjunction with the criminal investigation, and the Incident Command System may be activated. The first action in these intentional situations is to NOTIFY EH/CD MANAGERS AND THE COUNTY HEALTH OFFICER (or THE INCIDENT COMMANDER). Follow the Incident Command and refer to the County bioterrorism and emergency response plans for appropriate actions.

When an identified food-borne outbreak involves a Lane County food service facility or event, Lane County EHS may work in collaboration with CD nurses. Food service facilities in Lane County *may include those that are inspected or not-inspected and/or licensed by EH*. These may include restaurants, schools, jails, nursing homes, residential care facilities, assisted living facilities, adult foster homes, child-care facilities, and other food events that require a public health response.

Environmental Health does not inspect ODA-licensed facilities such as grocery stores, meat markets, warehouses, bakeries, food processors, dairies, and street-side venues (fish, seafood, produce stands) if an ODA food product /employee is implicated. The ODA inspector will inspect the facility and work with EH on the epidemiological investigation.

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**ROLES AND  
RESPONSIBILITIES  
OF FBI OUTBREAK**

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For each cluster/outbreak, CD and EH staff will clarify expectations, responsibilities, and assignments of each team to improve communication flow and work process. The next two sections detail investigative operating procedures for the EHS and CD nurse. *See Case and Outbreak Investigation in Appendix C.*

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**INVESTIGATIVE  
PROCEDURES**

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In addition to specific EH and CD procedures, investigators shall refer to the *Oregon Health Services Investigative Guidelines-Food-borne Disease Outbreaks* for further State guidelines. The latest State guidelines can be retrieved from OHA website at <http://egov.oregon.gov/DHS/ph/acd/reporting/guideln/guideln.shtml>.

## Investigative Procedures: EHS

**Complaints  
without suspect  
illness:**

If the consumer complaint involves an Oregon Department of Agriculture facility (relating to product, facility sanitation, and/or employee issues) **without** involving a suspect illness, redirect the call to the ODA inspector responsible for that facility. If it does not involve an ODA facility, follow up the complaint with a call or visit to the facility to investigate the food handling practices that might be in question. Counsel facility operator on proper practices.

**OUTBREAK:**

If the consumer complaint involves a suspect illness: Record the complaint in the FBI Database and refer the complaint to the district EHS.

If the FBI complaint involves a facility, event and/or illnesses in more than one household, follow the Outbreak Investigation procedures outlined in *Appendix C*:

- If the facility is **ODA's**, such as grocery stores, meat markets, warehouses, bakeries, food processors, dairies, and street-side venues (fish, seafood, produce stands), contact the appointed ODA personnel. This notification should be called and faxed on the attached *Foodborne Disease Investigation Report for Food and Dairy Division Regulated Facilities, Appendix B*, form to ODA and should include:

- The implicated facility and food item(s) including any descriptive information on the food item such as packaging, size, codes, expiration dates, use-by-dates, etc.
  - A plausible association between the facility and associated illness
  - Dates of consumption, preparation, and/or expiration of the implicated food item(s)
  - Signs, symptoms, incubation period, and pathogen suspected
  - For shellfish, see attached *Guidelines for Conducting Shellfish Related Foodborne Illness Investigations, Appendix F*.
- EH will obtain complete menu of foods served if a non-ODA facility is implicated. ODA will obtain a complete menu of foods for their facilities. The EH will report their initial findings to the OHS Epi who will develop a questionnaire to be used in the investigation.

**Food Testing:**

- The EHS will obtain food samples as indicated.
- **Food testing to be sent to OSPHL must be approved by OHA.** The OSPHL may request testing approval from the OHA Epidemiologist. Approval may be obtained when Lane County EHS or CD nurse calls to alert the OHA Epi of the possibility of an outbreak.
- As of July 2002: **Very limited routine food sample testing** capacity exists in Oregon. Exceptions to this may be *C. perfringens* and *C. botulinum*.
- Although test capacity is low, it is often a good idea to collect appropriate food samples at the outset, as they *may* prove to be very useful, and it is too late to get them after they are discarded. Specimens should be collected and held, but recognize that the decision about whether and how to test them may not be made for some time—and that the answer will often be to not test.
- Accordingly, DO NOT promise testing: Tell the parties involved that decisions to test will be made after more information from the investigation is available and only after consultation with OHA. Once agreement on testing is finalized between Lane County and OHA, changes in testing or strategies will not occur without a discussion involving both parties.

- Using a developed questionnaire, EHSs (some or all) and possibly nurses will contact the complainant(s) as soon as possible to confirm illness. Determine the case definitions, symptoms, time of onset, duration, and severity of illness by doing an Epi investigation. (Call a significant sampling of the ill to decide how to set up the interview questionnaire). Complete interviews of both the ill and well.
- Decide on a probable cause.
- Select needed **laboratory tests**.
  - Instructions for collection of stool specimens for viral isolation or enteric bacteriology can be found attached in *Appendix E*.
  - Obtain enough stool samples to yield 4-6 positive tests depending on the size of the outbreak. Don't forget that testing is often useful even if people have recovered from their symptoms. Noro virus, for example, can often be identified even 4–5 days or more after resolution of symptoms.
  - OSPHL lab request forms (Virology/Immunology, Bacteriology/Parasitology, & Microbacteriology Examination) are available on line at <https://www.oregon.gov/oha/PH/LABORATORYSERVICES/COMMUNICABLEDISEASETESTING/Pages/forms-kits.aspx>.
  - Have a state outbreak number assigned (given by the OHA Epi). Set up an agreement with the ill to get appropriate samples (stool or vomit). Note the outbreak number on the lab slip.
- Fax completed questionnaires to OHA who will analyze the data and report their findings.
- Share data results with all partners of the outbreak team and finalize a determination of cause of outbreak.

**Note**

**Waterborne Outbreak:** Lane County CD and EH will respond to waterborne outbreaks or suspected outbreaks in an investigative process similar to the existing food-borne outbreak model (notification of EHS Lead, CD, OHA). If a call is received by EH, the State Drinking Water program will be brought into the investigation. An EHS may assist the State Drinking Water specialist with the leg work and education piece. Similarly, if CD receives a call, EH may be asked to assist in the investigation. Assessments by EH, CD and the Drinking Water specialist

will be compiled in a final report. A debrief of the event will conclude the formal investigation. Report forms for waterborne outbreaks can be found at: <http://egov.oregon.gov/DHS/ph/acd/reporting/forms/water.pdf>.

# Chapter 3

## Results Reporting: Writing and Sharing Final Report

*Identifying roles and responsibilities; writing and sharing final report; media management*

Information sharing with the facility or event will be discreet until a hypothesis or confirmation of the likely cause is determined. EH will write a summary of the environmental investigation based upon information gathered during the investigation including CD's data. Summary will be sent to CD. A final summation may be sent to the facility. The lead EHS or CD nurse will create a final report using the template found at <http://egov.oregon.gov/DHS/ph/acd/reporting/forms/foodform.pdf>. The report will be sent to EH, CD, OHA, and ODA if that agency participated in the investigation. The state epidemiologist (OHA) is responsible for forwarding the final report to the CDC.

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TEMPLATE FOR  
OUTBREAK REPORT

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### Environmental Health Specialist

During the course of the investigation, several records of observations may be created (Food illness complaint form, onsite visit assessments, communication with CD and the facility, etc). When the investigation phase is nearing completion, a written narrative is completed to assist in the final debrief of the event. The EH narrative will be used in the final report of the investigation. The following guidance in narrative writing is offered to include the event's historical perspective and the possible causal identification of the outbreak. Writer's creativity in the narrative is encouraged following the guidance template. Using the standard questions of who, what, when, and where is a start in the narrative process.

- What/When was the initial inquiry that led to an outbreak investigation?  
(Describe intake call; date/time of call and by whom- the name of individual

(s) is omitted. Include the time OHS and any other agencies or programs were notified.

- Describe the planning (brief description, “EH and CD met or communicated to decide roles and responsibilities. EH was to perform an onsite assessment and obtain a menu of items served, etc.”).
- Describe onsite assessment of facility, identifying contacts and possibly creating a production flow diagram. *See Appendix D for Guidelines.* A subsequent visit(s) may need to be made to provide additional information as the investigation progresses. Document time and record observations of the assessment and contacts (“management, staff position, etc”). Remember, an assessment is not to be construed as a formal inspection but rather a fact-finding process in the investigation. Prudent communication tools may be effective in interacting with the facility management. A final report may be released to the facility.
- Include any subsequent laboratory findings of both human and environmental samples in the narrative. If a possible causative factor is hypothesized, include those comments with supportive findings (writer’s creativity). Complete the narrative and use it to complete the final report. CD will complete any needed case investigation forms.

You will have “working notes” that you will use to create your narrative. These notes are part of the formal investigation and will be included in the confidentiality (names of individuals, medical diagnoses, etc) portions of the investigation. These are not public record documents, but can be subpoenaed. The narrative may be public record.

In addition to completing the OHA Outbreak Summary reporting form available online at <http://egov.oregon.gov/DHS/ph/acd/outbreak/obstndrd.pdf>, the EHS will complete the Foodborne Outbreak Final Report available online at <http://egov.oregon.gov/DHS/ph/acd/reporting/forms/foodform.pdf>.

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**MEDIA  
MANAGEMENT**

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The Health Officer will be consulted in developing any media releases in coordination with the County Public Information Officer, Oregon Department of Human Resources, Health Services, or Agriculture as appropriate. In their absence the Program Manager or CD Nursing Supervisor will be consulted along with the EHS involved in the investigation. Every attempt will be made to assure consistent information is being released.

A designated Spokesperson will handle individual media requests.

# Chapter 4

## Trace back and Recalls

*Identify source of food contamination to eliminate further consumption*

The purpose of a trace-back investigation is to identify the source(s) of food(s) implicated in a food-borne outbreak and take steps to halt its further distribution. Lane County's policy is to be knowledgeable of and communicate risk to appropriate agencies for performance of trace-back procedures. In general, Lane County will obtain desired information for a trace-back and communicate findings to the Oregon Department of Agriculture and Oregon Health Authority. The Lane County EHS Lead or designee is responsible for coordinating any investigative support and providing requested reports necessary to complete a recall in accordance with the agency coordinating the recall, including effectiveness checks. Any suspect food located in a facility in which the County licenses will be embargoed or destroyed by the facility operator. ODA, not Lane County, will coordinate further investigation with regional and national Food and Drug Administration and Department of Agriculture partners as applicable. The primary agency coordinating trace-back and/or recall is responsible for distributing final report to involved agencies and for forwarding the final report to CDC.

See Procedure Guidance at FDA Trace-back Guide website:

<https://www.fda.gov/inspections-compliance-enforcement-and-criminal-investigations/inspection-guides/guide-traceback-fresh-fruits-and-vegetables-implicated-epidemiological-investigations-april-2001>

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DESIRED  
INFORMATION FOR  
TRACE BACK

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- **Epidemiology evidence:** 1) Suspect etiologic agent, incubation period, onset date of illness, signs and symptoms, other relevant data. 2) Laboratory confirmation of etiologic agent or probable case information. 3) Total number ill, sex, age groups, city, and state.
- **Hazard analysis** to indicate that the product was the likely source of contamination and other causes didn't contribute to the outbreak.
- **Product Information:** Location of store where product was purchased or restaurants where food was eaten. Origin of restaurant products, such as a warehouse, or a licensed & inspected facility. Name and type of product

(preferably a product label), lot number, shellfish tags, and any other pertinent information. The label will contain all necessary information to do a trace back/trace forward. If product was purchased from a supermarket:

- Obtain purchase information such as like receipts, check book entries. If the consumer belongs to a store savings club, we may try to contact for their product purchase history.
- *Example:* Ground Beef. Was it purchased at the supermarket? Need purchase information, receipts, check book entries, store savings club. Was it ground at the supermarket? Need “grind logs.”

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**R E C A L L**

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## Fish

The FDA is the primary regulatory agency for fishery products, and will be contacted by ODA.

### Note

**Shellfish Recall.** Contact the ODA Food Safety Division. The CDC Vibrio Illness Surveillance Report must also be completed and sent to OHA *available online at* <https://www.cdc.gov/nationalsurveillance/pdfs/cdc5279-covis-vibriosis-508c.pdf>

The following information is necessary to collect in the investigation of a molluscan shellfish related food-borne illness investigation:

Determine how the shellfish was ordered, i.e. shooters, on the half shell, or cooked, and if ordered from a specific bay or harvest area.

Determine how the shellfish was distributed to the restaurant – in the shell, shucked, or unknown.

Determine the source. Determine which shellfish tags go with the suspect product(s) and make copies of them. If tags are not available, copy the invoice.

Investigate and document shellfish handling. What was the temperature of the shellfish during shipping, receiving and storage?

Determine how many meals were consumed with the suspect product including staff of the facility.

Obtain samples if available (leftover same or similar product and transport in insulated chilled containers (ice, freeze gel packs, etc.)

## **Meat, Poultry, and Eggs**

**USDA-FSIS** (US Department of Agriculture--Food Safety and Inspection Services) is responsible for the investigation of meat, poultry and egg products. ODA will contact USDA.

# Chapter 5

## Planning and Analysis

*Evaluation of outbreak; trend analysis*

**T**he purpose of evaluating an outbreak is to improve future responses. Trend analysis serves the public health function of disease surveillance. The goal is to continually improve strategies in ameliorating, containing, and/or eliminating specific food-borne diseases.

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DEBRIEF AND  
EVALUATION OF  
FBI  
INVESTIGATION

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### Scheduling Debrief

The lead investigator will call the meeting when the investigation is completed or nearly completed.

**Attendees:** Health Officer, Investigation Lead, other CD RNs as available, EH Specialist, other EH as appropriate, CD Nursing Supervisor, EH Supervisor as appropriate.

If facility licensed by Oregon Dept of Ag: An ODA EHS will be included as appropriate.

**Desired Outcomes:**

- Discussion of all relevant data
- Discussion/agreement as to what caused the outbreak
- Discussion/agreement re: any more information, data or analysis needed?
- Discuss/ agreement re: Conclusions of investigation

- Discussion/ agreement re: completing the report
- Completion of OHS FBI report and written summary
- Evaluate investigation process

## **Agenda**

### **Review of all data from investigation:**

- Background:
  - Brief description of the establishment/event/etc
- Original Complaint:
  - What brought it to our attention?
- Investigation Actions:
- Findings:
  - Environmental Health Specialist's (or ODA) findings
  - Interview results
  - Lab results (if any)
- Discussion
- Conclusions:

## **Evaluation**

### **Review process of investigation:**

- What worked well?
- Areas for improvement?
- Assessment of investigation “tools”
- Recommendations to CD/EH FBI Committee (if any)

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**DESCRIPTIVE  
ANALYSIS**

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An annual review of the data in the log or data base and the illness or injury investigations is conducted to identify the trends and possible contributing factors that are most likely to cause illness or injury. The review focuses on, but is not limited to:

- Multiple complaints on the same establishment;
- Multiple complaints on the same establishment type;
- Multiple complaints implicating the same food;
- Multiple complaints involving food preparation processes;
- Number of laboratory-confirmed, food-related outbreaks;
- Number of non-laboratory-confirmed food-related outbreaks;
- Contributing factors most often identified.