Detection of Outbreaks in Minnesota

Minnesota Foodborne & Waterborne Illness Hotline
Report foodborne or waterborne illness
651-201-5655
Toll free statewide
1-877-FOOD ILL
Email
health.foodill@state.mn.us
Online
health.state.mn.us/foodill

- Centralized at MDH
- Coordinated by one person
- Complaints received from public directly or from public via local health departments
  - Approximately 1000 complaints per year
- Detects almost all norovirus and bacterial intoxication outbreaks
- Information we gather:
  - Illness history
  - 4-day food consumption history
Person becomes ill

Goes to the doctor

Doctor requests stool sample for testing

Stool is culture positive for a reportable foodborne pathogen

Doctor sends report to MDH Epi

Culture is sent to MDH Laboratory

Lab and Epi data are combined

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**Reportable Disease Surveillance**

**Diseases Reportable to the Minnesota Department of Health**

- **REPORT IMMEDIATELY BY TELEPHONE**
  - Middle East Respiratory Syndrome (MERS)
  - Hepatitis A virus
  - Plague (Yersinia pestis)
  - Pulmonary Tuberculosis
  - Rabies (Canine and Human)
  - Scarlet Fever/Syphilis
  - Severe Acute Respiratory Syndrome (SARS)
  - Smallpox (variola)
  - Tuberculosis (Mycobacterium tuberculosis)
  - Unusual or increased case incidence of any suspect infectious illness
  - Viral Hemorrhagic Fever

- **REPORT WITHIN ONE WORKING DAY**
  - Measles (rubella) virus
  - Meningococcal disease
  - Meningitis (Neisseria meningitidis)
  - Mumps
  - Tuberculosis (Mycobacterium tuberculosis)

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**3/11/2019**

**PROTECTING, MAINTAINING AND IMPROVING THE HEALTH OF ALL MINNESOTANS**
Outbreak Investigation Conference Call Before Facility Visit:

- Environmental health supervisor (MDH, MDA or local)
  - Inspector assigned to that establishment
- MDH epidemiologist
- Local health department epidemiologist (Washington County, Hennepin County, Olmsted County)
- Outbreak Liaison
  - Nicole Hedeen or Kim Carlton
Conducting an Environmental Assessment

• The inspector(s) will conduct an environmental assessment at the establishment.
  • An environmental assessment is a science-based evaluation of environmental factors that contributed to transmission of a particular disease in an outbreak.
  • What happened and where?
  • What went wrong?
  • How can we fix/control the problem?

• Response at the establishment is dependent on confirmed or suspected pathogen.
Follow-up for all Outbreaks

- Have patrons complained to the establishment?
- Have any employees been recently ill?
- Patron contact information (receipts, reservations, takeout orders)
- Environmental assessment (pathogen driven response)
- Interventions/Education
Environmental health checklist when responding to Campylobacter illness

1. Ask management if they have received any illness complaints. If they have, and the complaints were not reported to EH, inform them that this is a violation of the food code and that all future complaints need to be reported.

2. Ask management if they are able to provide itemized receipts for the patrons who ate the suspected food item. This will help focus patron calling and help us better understand how many may have consumed the item.

3. Visit the restaurant to conduct an environmental assessment and focus on the preparation of the suspected food item. If they only make the suspected food item a couple times a week, please schedule a time to watch the preparation/cooking process from start to finish (e.g. liver pate).
   - What ingredients go into the suspect food item?
   - Are final cooking temperatures taken?
   - Do they have any temperature logs that include cook temperatures?
   - Verify the final cooking temperature of the suspected food item.
   - Any cross-contamination potential during storage or preparation?
   - Review hand-hygiene: Adequate handwashing? Bare-hand contact with RTE?

Environmental Assessment:
- Food flow
- Final cooking temperatures
- Temperature logs
- Cross contamination potential
- Hand hygiene
Why do Chefs Treat Livers Differently than Chicken?

- Most chefs would never knowingly serve undercooked chicken
- Recipes often call for undercooking of chicken livers
  - Overcooked livers become grainy and bitter

1. Remove any greenish or blackish spots from the livers, as well as any sinew. Cut the livers into 1/2" pieces.
2. Melt butter over medium heat in a sauté pan until foam has subsided. Sauté livers with the shallots in butter for 2 to 3 minutes, until the livers are just stiffened, but still rosy inside. Scrape into the blender jar.
▪ Obtain full menu, including specials
▪ Ask EH to go out and observe the full cooking process
  ▪ An appointment may need to be scheduled
  ▪ Provide corrective actions
▪ Observe if food workers are taking temperatures-Temperature logs?
Environmental health checklist when responding to *Vibrio* infection

1. Ask for completion and times.
2. Identify.
3. If the receipt matches.
4. Obtain date.
5. Obtain invoices.
6. Cond servic.

- How are the oysters received? Any receiving temperatures taken?
- Review storage practices: Any temperature issues observed during storage? Any comingling issues observed? Are oysters kept in live tanks?
- Are they maintaining temperature logs for cold-holding?
- Any bare-hand contact observed? Adequate handwashing observed?
- Are tags and invoices kept for at least 90 days?
Vibrio spp. Cases in Minnesota 1996 to 2018
Lessons Learned

- Obtain oyster menu including happy hour menu
- If we can get permission from the case to share their name with the restaurant, we can obtain their receipt and determine oyster type
- Collect correct invoices and tags for the oysters that were served on the meal date
Environmental health checklist when responding to a norovirus outbreak

1. Contact the establishment and have them begin gathering a contact list for all employees and credit card receipts, reservation lists, or takeout orders for the meal date in question. In addition, ask the following questions:
   - Has the business received any complaints? If they have and the complaints were not reported, inform them that this is a violation of the food code.
   - How many food service workers does the business employ?
2. Gather employee screening forms and copy enough interview forms. A unique form is developed by epi for each outbreak. The Tennessen warning is included on the form and must be read to each employee before the interview. Head out to restaurant as soon as possible.
3. Ask management what their illness policy is. Ask to see their illness log and assess recent employee illness.
4. Interview all employees, including management. If employees have been ill, they must be excluded for at least 72 hours after their last symptom of vomiting and diarrhea.
5. Ask ill employees if they would be willing to submit a stool sample. If so, obtain their name, address, and telephone number and coordinate with epi on getting stool kits out to employee.
Outbreak of Norovirus Associated with a MN Brewery

December 14, 2017
- Executive Chef contacts Minnesota Department of Agriculture (MDA) inspector to notify him of a complaint of patron illness in a private party held on December 11.
- Inspector refers manager to the hotline

December 18, 2017
- Executive Chef calls into the hotline
  - Reports complaints of illness in 2 separate parties
  - Reports multiple ill employees over the weekend
- MDA and Hennepin County Epi notified and an investigation initiated
18 cases, 1 control (Four separate parties)
  ▪ December 14 (16 cases)
  ▪ December 16 (2 cases, 1 control)

Median incubation 33 hours

Median duration 34.5 hours

16 (89%) reported diarrhea, 14 (78%) abdominal cramps, 13 (72%) vomiting, and 4 (22%) fever

3 stool kits received, all positive for norovirus GII.P16-GII.2
Multiple ill employees identified
  - Three employees were sent home as they had not been excluded for a full 72 hours
  - MDA required that all employees must be interviewed prior to working

- Full cleaning and sanitizing had not yet been done
- Illness logs only were only partially maintained for kitchen and wait staff
- Improper handwashing and bare-hand contact noted
December 20
- 62 of approximately 200 employees interviewed
- Employees were working even though they had not yet been interviewed - 1 ill

December 21
- MDA review scheduled shifts through the weekend to target those employees not yet interviewed
- Production staff sent home ill
- Additional discussion about the importance of proper screening
- Cleaning schedule in place for all areas of the restaurant (kitchen, FOH, event)
- Inspector noted blocked handsinks in the dishwashing area and on the cookline
- Communal chips & snacks discovered in the employee breakroom
December 22

- 154 interviews completed, interviews still on-going
- Patron vomits at the host stand
- MDA issues order for the facility not to allow anyone to work unless they have been interviewed and cleared by MDH or MDA
- Later in the evening, management contacts MDA to report a line cook vomiting while at work in the restroom
- Facility voluntarily closed on December 22 and reopened on December 26
  - Additional cleaning and sanitizing while closed
December 26
- Facility reopens
- No new illness reported during closure
- Facility ordered to continue screening employees
- Employee interviews continued

- January 2: all 194 employees interviewed, 44 (23%) report recent illness
- 2 stool kits submitted by employees: 1 positive for noro GII.P16-GII.2
Date of Illness Onset for Employees, December 2017 to January 2, 2018

Employee vomited

Employee vomited, Facility Closed

Number of Cases

Onset Date
Lessons Learned

▪ Don’t rely on a manager to report a complaint to the hotline, follow-up with MDH
▪ Make sure the establishment conducts a full cleaning and sanitizing immediately
▪ Get all managers/PIC on board with employee screening and exclusions
▪ Private place to conduct interviews
▪ Communal snacks/shared meals for staff?
▪ Have a plan in place in case an establishment needs to be closed
Bacterial Intoxications & Cryptosporidium

Environmental health checklist when responding to a suspected bacterial intoxication

1. Ask management if they have received any illness complaints. If they have, and the complaints were not reported to EH, inform them that this is a violation of the food code and that all future complaints need to be reported.

2. Because bacterial intoxications are not spread by person-to-person transmission but rather by ingesting a food that has been time/temperature abused and has developed toxins, employee interviews are not necessary. However, it is still important to ask management about any recent illness among employees, as employees may have eaten the same food item.

3. Obtain credit card receipts, reservation lists, online reservation lists (ex: Open Table) and/or takeout/carry out orders for the meal date in question. Provide these to Epi.

4. Obtain restaurant menu (if different from online menu) and ask if the establishment had any specials on the date in question.

5. Provide education on bacterial intoxications to management.

6. While on-site, conduct an Environmental Assessment and provide findings to Epi:
   - Review food flows of particular item(s) of interest and determine the potential for time/temperature abuse of those food items.
   - Does the establishment maintain temperature logs? Review available logs.
   - Take temperatures of foods both in hot and cold holding.
   - Any cooling violations observed-issues with temperature or cooling methods?
   - Any reheating issues?
   - Review hand-hygiene: Adequate handwashing? Bare-hand contact with RTE?
   - Note violations and provide appropriate corrective actions

Environmental health checklist when responding to a Cryptosporidium outbreak

1. Pool should be closed immediately and hyperchlorinated per CDC guidelines:
   a. If stabilizer is NOT used in the pool, hyperchlorinate to 20 parts per million (ppm) for 12.75 hours (13 hours).
      i. See Hyperchlorination to Kill Cryptosporidium When Chlorine Stabilizer is NOT in Water (www.cdc.gov/healthywater/swimming/pdf/hyperchlorination-to-kill-crypto-when-chlorine-stabilizer-is-not-in-the-water.pdf) for more information.
   b. If stabilizer is used in the pool, and the cyanuric acid concentration is 1–15:
      i. Raise the free chlorine to 20 ppm and maintain for 28 hours, or
      ii. Raise the free chlorine to 30 ppm and maintain for 18 hours, or
      iii. Raise the free chlorine to 40 ppm and maintain for 8.5 hours
      1. See Hyperchlorination to Kill Cryptosporidium When Chlorine Stabilizer is in Water (www.cdc.gov/healthywater/swimming/pdf/hyperchlorination-to-kill-crypto-when-chlorine-stabilizer-is-in-the-water.pdf) for more information.
   c. If the cyanuric acid concentration is more than 15 ppm, lower the concentration to 1–15 ppm by draining partially and adding fresh water without chlorine stabilizer before attempting to hyperchlorinate.
   d. Pools must be held at the appropriate concentration for the entire length of time (e.g., 20 ppm for a full 12.75 hours) and someone should monitor the pool to ensure this level is maintained.
   e. All pools effected should be held at this level (e.g., kiddie pool, slides, lazy river). Keep slides running, and leave toys and floats in the pool to sanitize as well.
   f. A 2-3 day shut down time during hyperchlorination should be expected. Normal chlorination kills cryptos naturally in 10.6 days.
   g. Discourage the use of dechlor to bring down chlorine levels after the appropriate length of time has been reached. Dechlor doesn’t work immediately, so often times more and more is dumped in until there is no chlorine left. Either let the chemical levels come down naturally or add more water to the pool before reopening.
Thank you.

http://mnfoodsafetycoe.umn.edu/resources/