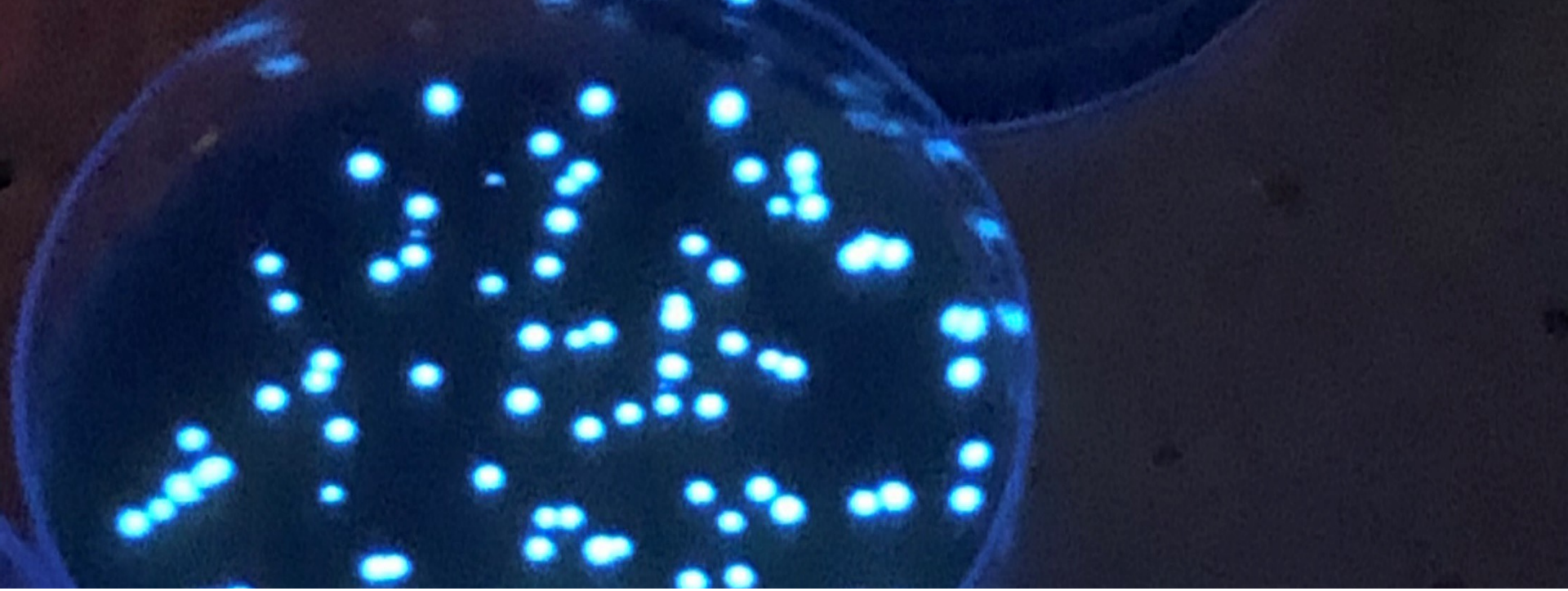

A PRACTICAL APPROACH TO OUTBREAK INVESTIGATION IN CONGREGATE SETTINGS

NPAIHB
Indian Leadership for Indian Health

Washington State Department of HEALTH

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Section 1

OUTBREAK INVESTIGATION STEPS

Steps to investigate an outbreak in a congregate setting

1. What is the (suspected) pathogen? How is it transmitted?
2. Who is your team? Want to phone a friend?
3. How will you collect information?
4. What is the built environment like?
   How are people arranged in this environment?
5. Cases: How will you define and identify cases?
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Modified from: Rasmussen and Goodman (Eds.), *The CDC Field Epidemiology Manual,* 2019 (p. 36). https://www.cdc.gov/eis/field-epi-manual/index.html

1. What is the (suspected) pathogen? How is it transmitted?

CDC Norovirus page screenshot. https://www.cdc.gov/norovirus/index.html

2. Who is your team? Want to phone a friend?

Graphic of a person on the phone (WA DOH stock image).

Washington State Department of HEALTH

Suspect Monkeypox Intake Form

DOH 420-418
Revised 6/13/2022

Date:	Reporting Facility:		
Patient Name:		Patient DOB:	
Patient Address:	County:	State: Zip:	
Patient MRN:	Evaluating Clinician:	Clinician Phone/Fax:	

Consider monkeypox in the differential diagnosis of patients with a characteristic* rash:

	YES	NO	
A) Does the patient have a rash?	○	○	Rash onset date: ___/___/___
B) Rash characteristics:	YES	NO	* Monkeypox lesion characteristics: deep-seated, firm, discrete, umbilicated, typically progresses from macular to papular to vesicular to pustular to scab. Lesions generally are at the same stage in one area or body part.
Deep-seated, firm, discrete, well-circumscribed	○	○	
Similar development stage of lesions on one area or body part	○	○	
Photographs available of lesions	○	○	

Body location(s) of lesions: _____ **Estimated # of lesions:** _____

C) Other symptoms (check all that apply): **First symptom onset date:** ___/___/___

- ☐ Fever (If measured: **Highest temp:** _____)
- ☐ Malaise, fatigue, or exhaustion
- ☐ Myalgia (muscle aches or pains)
- ☐ Cough or sore throat
- ☐ Headache
- ☐ Swollen lymph nodes
- ☐ Rectal pain or swelling
- ☐ Other: _____

D) Other testing completed (select all):

- ☐ **Syphilis** ○ pos ○ neg ○ pending
- ☐ **Herpes** ○ pos ○ neg ○ pending
- ☐ **Other:** _____ ○ pos ○ neg ○ pending

E) Epi Criteria – Within the last 21 days, has the person (select all that apply):

- ☐ Had close or intimate in-person contact with someone diagnosed with monkeypox, or with someone with a rash?
- ☐ Had close or intimate in-person contact with anyone in a social network experiencing monkeypox outbreaks?
- ☐ Traveled to a location with known monkeypox transmission?
- ☐ Had contact with a dead or live wild animal or exotic pet that is an endemic species for monkeypox?

Dates and description of travel and/or contacts:

3. How will you collect information?

Graphic of a person at a computer, looking concerned (WA DOH stock image).

- Physical layout
- Air handling/ventilation
- Water
- Sanitation
- Cooking facilities
- Animals/vectors

4. What is the built environment like? How do people move through it?

Graphic of an apartment building (WA DOH stock image).

5. Cases: How will you define and identify cases?

Graphic of a doctor with a clipboard and paper that says “Symptoms include” (WA DOH stock image).

6. Contacts: Do you need to identify contacts? If so, how will you identify them?

Graphic of people boarding an airplane (WA DOH stock image).

7. Who is being affected? Who is at higher risk?

KUOW, Bunk beds and farm workers: Washington's new housing rules, May 15, 2020 (image of headline and photo of room with bunkbeds). https://www.kuow.org/stories/bunk-beds-farmworkers-why-wa-s-rules-matter

8. What is your outbreak hypothesis?
(How/why is transmission occurring?)

Image of an old-fashioned water pump. UCLA Department of Epidemiology, John Snow Pub. https://www.ph.ucla.edu/epi/snow/snowpub.html

9. What control measures could you use?

Biomedical tools

- Testing
- Post-exposure prophylaxis
- Vaccines
- Treatment

Public health tools

- Contact tracing
- Isolation
- Quarantine (post-exposure)
- Other restrictions/closures
- Individual protective items (soap, masks, condoms)
- Behavior change
- Cleaning and disinfection
- Alter built environment

Rasmussen and Goodman (Eds.), *The CDC Field Epidemiology Manual, 2019* (p. 237). https://www.cdc.gov/eis/field-epi-manual/index.html

10. Communication

Who are your different audiences?

What do you want to tell them?

What is the best way to reach them?

Section 2

OUTBREAK SCENARIO

Initial Situation

You are sitting in your office when you receive a call from the hotel manager at the casino. Three customers staying at the hotel have complained of experiencing profuse diarrhea. One of these patrons was recently taken by ambulance to the local hospital.

The manager asks, “What do we do now?”

Investigation (1)

You interview the 3 individuals with diarrhea. They describe having many episodes of diarrhea per day, with accompanying nausea and fever. One individual reports vomiting as well. One individual reports having blood in their stool.

All 3 individuals report eating at the same restaurant at the casino within the last few days. However, based on your interviews, they did not order the same items.

Steps to investigate an outbreak in a congregate setting

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Foodborne Illness Complaint Forms

72-hr Food History

Date:

This section is to be used to collect information about what the consumer ate and drank in the 72-hour period prior to the complaint.

Day of Illness Onset:

Breakfast: _____ **Location:** _____ **Time:** _____ AM / PM
_____ _____ **Suspect Meal?** ❑ Yes ❑ No
_____ **Contacts:** _____

Lunch: _____ **Location:** _____ **Time:** _____ AM / PM
_____ _____ **Suspect Meal?** ❑ Yes ❑ No
_____ **Contacts:** _____

Dinner: _____ **Location:** _____ **Time:** _____ AM / PM
_____ _____ **Suspect Meal?** ❑ Yes ❑ No
_____ **Contacts:** _____

Other Foods/Water*: _____ **Location:** _____ **Time:** _____ AM / PM
_____ _____ **Suspect Meal?** ❑ Yes ❑ No

CDC Foodborne Illness Complaint Form: https://www.cdc.gov/nceh/ehs/ehsnet/docs/ehs-net_foodborne_illness_complaint_form.pdf

Investigation (2)

You call the local hospital. The clinician caring for the individual admitted to the hospital reports that the stool culture is positive for *Shigella sonnei.*

What is Shigella?

- Etiology and symptoms: Bacterial illness causing diarrhea and sometimes vomiting. Can cause severe illness
- Incubation period: usually 1-3 days
- Transmission: fecal-oral route, small inoculating dose (10-100 organisms). Can see sexual transmission. People can shed the bacteria in their stool for weeks after infection.
- Treatment: can be treated with antibiotics (might not be needed for milder cases). Often see antibiotic resistance so culture with susceptibilities is useful. Antibiotic treatment can shorten the duration of shedding.
- Important settings for public health: food services, healthcare, childcare, congregate residential settings

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Investigation (3)

After learning about the shared exposure to the restaurant, you visit the restaurant, observe food preparation, and speak with employees and the manager.

You identify one employee who recently experienced a diarrheal illness (but is now asymptomatic).

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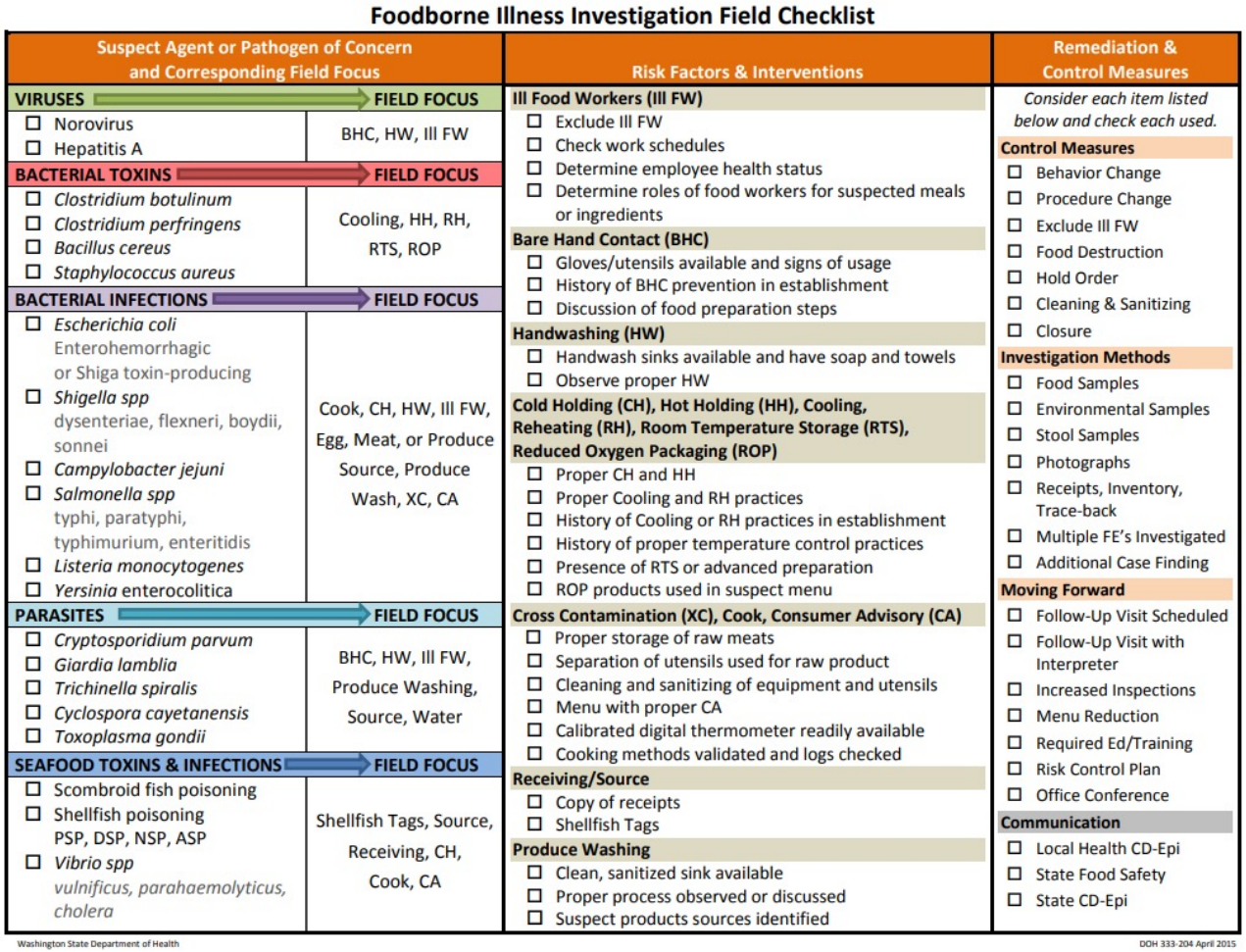
Modified from: Rasmussen and Goodman (Eds.), *The CDC Field Epidemiology Manual,* 2019 (p. 36). https://www.cdc.gov/eis/field-epi-manual/index.html

Foodborne Illness Investigation Checklist



Foodborne Illness Investigation Field Checklist

Suspect Agent or Pathogen of Concern and Corresponding Field Focus		Risk Factors & Interventions	Remediation & Control Measures
VIRUSES → **FIELD FOCUS**		**Ill Food Workers (Ill FW)**	*Consider each item listed below and check each used.*
☐ Norovirus ☐ Hepatitis A	BHC, HW, Ill FW	☐ Exclude Ill FW ☐ Check work schedules ☐ Determine employee health status ☐ Determine roles of food workers for suspected meals or ingredients	**Control Measures** ☐ Behavior Change ☐ Procedure Change ☐ Exclude Ill FW ☐ Food Destruction ☐ Hold Order ☐ Cleaning & Sanitizing ☐ Closure
BACTERIAL TOXINS → **FIELD FOCUS**		**Bare Hand Contact (BHC)**	**Investigation Methods**
☐ *Clostridium botulinum* ☐ *Clostridium perfringens* ☐ *Bacillus cereus* ☐ *Staphylococcus aureus*	Cooling, HH, RH, RTS, ROP	☐ Gloves/utensils available and signs of usage ☐ History of BHC prevention in establishment ☐ Discussion of food preparation steps	☐ Food Samples ☐ Environmental Samples ☐ Stool Samples ☐ Photographs ☐ Receipts, Inventory, Trace-back ☐ Multiple FE's Investigated ☐ Additional Case Finding
BACTERIAL INFECTIONS → **FIELD FOCUS**		**Handwashing (HW)**	**Moving Forward**
☐ *Escherichia coli* Enterohemorrhagic or Shiga toxin-producing ☐ *Shigella spp* dysenteriae, flexneri, boydii, sonnei ☐ *Campylobacter jejuni* ☐ *Salmonella spp* typhi, paratyphi, typhimurium, enteritidis ☐ *Listeria monocytogenes* ☐ *Yersinia* enterocolitica	Cook, CH, HW, Ill FW, Egg, Meat, or Produce Source, Produce Wash, XC, CA	☐ Handwash sinks available and have soap and towels ☐ Observe proper HW	☐ Follow-Up Visit Scheduled ☐ Follow-Up Visit with Interpreter ☐ Increased Inspections ☐ Menu Reduction ☐ Required Ed/Training ☐ Risk Control Plan ☐ Office Conference
PARASITES → **FIELD FOCUS**		**Cold Holding (CH), Hot Holding (HH), Cooling, Reheating (RH), Room Temperature Storage (RTS), Reduced Oxygen Packaging (ROP)**	**Communication**
☐ *Cryptosporidium parvum* ☐ *Giardia lamblia* ☐ *Trichinella spiralis* ☐ *Cyclospora cayetanensis* ☐ *Toxoplasma gondii*	BHC, HW, Ill FW, Produce Washing, Source, Water	☐ Proper CH and HH ☐ Proper Cooling and RH practices ☐ History of Cooling or RH practices in establishment ☐ History of proper temperature control practices ☐ Presence of RTS or advanced preparation ☐ ROP products used in suspect menu	☐ Local Health CD-Epi ☐ State Food Safety ☐ State CD-Epi
SEAFOOD TOXINS & INFECTIONS → **FIELD FOCUS**		**Cross Contamination (XC), Cook, Consumer Advisory (CA)**	
☐ Scombroid fish poisoning ☐ Shellfish poisoning PSP, DSP, NSP, ASP ☐ *Vibrio spp* *vulnificus, parahaemolyticus, cholera*	Shellfish Tags, Source, Receiving, CH, Cook, CA	☐ Proper storage of raw meats ☐ Separation of utensils used for raw product ☐ Cleaning and sanitizing of equipment and utensils ☐ Menu with proper CA ☐ Calibrated digital thermometer readily available ☐ Cooking methods validated and logs checked	
		Receiving/Source	
		☐ Copy of receipts ☐ Shellfish Tags	
		Produce Washing	
		☐ Clean, sanitized sink available ☐ Proper process observed or discussed ☐ Suspect products sources identified	

Washington State Department of Health — DOH 333-204 April 2015

Washington Department of Health Foodborne Illness Investigation Field Checklist: https://doh.wa.gov/sites/default/files/legacy/Documents/Pubs//333-204.pdf

Investigation (4)

The hotel manager informs you that 2 more individuals have called to complain that they are experiencing profuse diarrhea.

Additionally, there are rumors among hotel guests and casino staff about an outbreak. The hotel manager asks you what to do.

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Outbreak scenario wrap-up

FSN | Food Safety News

Breaking news for everyone's consumption

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The Seattle Skyline

Number of sick people in outbreak linked to Seattle restaurant nearly doubles

By Coral Beach on February 14, 2023

University of Minnesota

CIDRAP

NEWS TOPICS & PROJECTS PODCASTS NEWSLETTERS ABOUT

Shigellosis outbreak reported in travelers returning from Cabo Verde

News brief | February 17, 2023

Chris Dall, MA

Topics: Antimicrobial Stewardship , Shigella

SHARE

The European Centre for Disease Prevention and Control (ECDC) **said today** that more than 250 shigellosis cases among travelers returning from Cabo Verde have been reported in an outbreak that began in November 2022.

In a **rapid risk assessment**, the ECDC said there have been 221 confirmed *Shigella sonnei* infections and 37 possible cases from the European Union/European Economic Area (EU/EEA), United Kingdom, and United States with links to Cabo Verde, an archipelago and island country off the western coast of Africa. Many of the case-patients are reported to have stayed in all-inclusive hotels located in the region of Santa Maria on the island of Sal. The most recent cases were reported in Sweden on Jan 19.

Questions?

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References and resources

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Rasmussen, Sonja A., Richard A. (Richard Alan) Goodman, and issuing body Centers for Disease Control and Prevention (U.S.). 2019. *The CDC Field Epidemiology Manual*. Fourth edition. New York, NY: Oxford University Press.

CDC Foodborne Illness Complaint Form:
https://www.cdc.gov/nceh/ehs/ehsnet/docs/ehs-net_foodborne_illness_complaint_form.pdf

Washington Department of Health Foodborne Illness Investigation Field Checklist:
https://doh.wa.gov/sites/default/files/legacy/Documents/Pubs//333-204.pdf

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