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Identifying and Responding to Outbreaks in Long-term Care Facilities (LTCFs)

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The bottom of the slide features the same Texas Health and Human Services logo and Texas Department of State Health Services text as seen in the first slide, positioned in the bottom left corner.

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Learning Objectives

At the end of the webinar, participants should be able to:

- Understand the process of healthcare associated infection (HAI) outbreak investigation and response.
- Describe the infection control measures recommended to prevent and contain HAI outbreaks.



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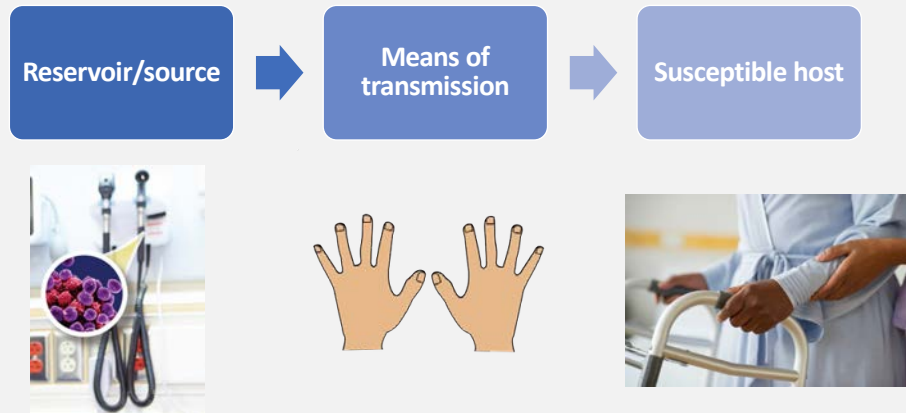
Outbreak Detection



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How Do Infections Occur?

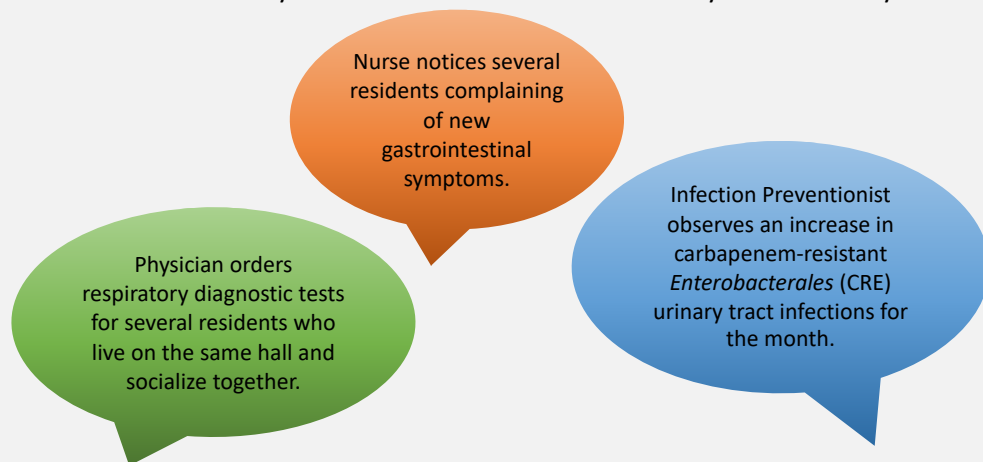
For an infection to occur, three elements are required:



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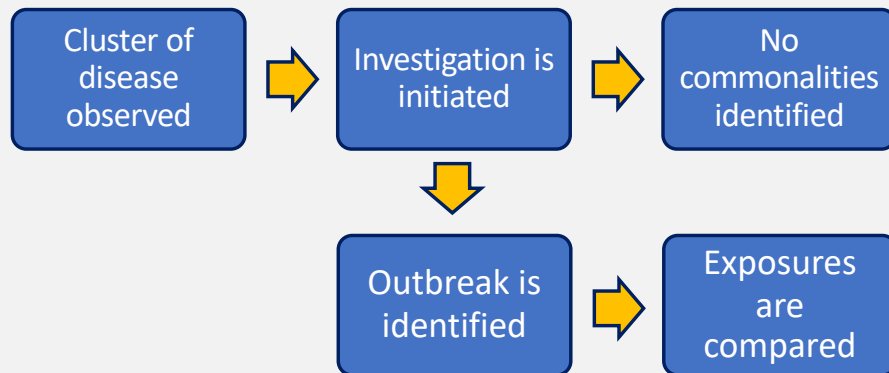
Outbreak Detection

Possible outbreaks may come to the attention of the facility in various ways.



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Outbreak Investigation



Goal is to identify and remove common exposures from the healthcare facility

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What is the definition of an outbreak?

- Depends on:
 - Organism/disease
 - Baseline of cases in the facility
- Some organisms/diseases do have a specific threshold.
 - For example: 1 facility-onset COVID-19 case would be considered an outbreak.

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Reporting Outbreaks

LTCFs are required
to report
outbreaks to:

1. The Local or Regional Health Department:
<https://www.dshs.texas.gov/rls/localservices/>

and

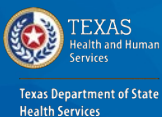
2. HHSC as a self-report incident.



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Reporting Outbreaks

- Why should facilities report outbreaks?
 - Texas Administrative Code (TAC) Chapter 97, Title 25: *“Any outbreak, exotic disease, or unusual group expression of disease that may be of public health concern should be reported by the most expeditious means available.”*
- Health Departments can help!
 - We can provide infection control guidance and help coordinate additional testing.



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Outbreak Response & Containment



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HAI Outbreaks

- Bloodborne Pathogens (BBP)
- COVID-19
- Influenza
- Legionellosis
- Gastrointestinal (GI) Organisms
- Multidrug-Resistant Organisms (MDROs)



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Bloodborne Pathogen (BBP) Outbreaks

- Hepatitis B Virus (HBV)
- Hepatitis C Virus (HCV)
- Human Immunodeficiency Virus (HIV)
- Bacteria



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BBP Outbreak Exposure

- Patient to patient
 - Improper glucometer practices leading to the spread of HBV.
- Patient to staff
 - Transmission of HBV from a patient to a nurse after a sharp's exposure.
- Staff to patient
 - Transmission of a BBP after injectable narcotic drug diversion.



<https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5409a2.htm>

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BBP Outbreak Exposure

Virus	Risk from Percutaneous Injury
Hepatitis B Virus	6-30%*
Hepatitis C Virus	1.8%
Human Immunodeficiency Virus	0.3%

*risk applies to unvaccinated persons



<https://www.cdc.gov/mmwr/PDF/rr/rr5011.pdf>, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4757650/>

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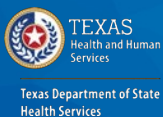
BBP Outbreak Exposure

Do you handle needles at work?

Needlestick accidents are the most common way that bloodborne viruses are spread in healthcare.

Recognize the risks.
Take action to stop the spread of germs.
Learn more at [CDC.GOV/PROJECTFIRSTLINE](https://www.cdc.gov/projectfirstline)

CDC PROJECT FIRSTLINE



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Preventing BBP Outbreaks

- Hand hygiene
- Use of personal protective equipment (gloves, gowns, eye protection)
- Used sharps management
- Safe injection practices
- Sharps engineering controls
- Cleaning and disinfection
- Textile management



Preventing BBP Outbreaks

29CFR 1910.1030 OSHA Bloodborne Pathogen Standard

Require healthcare facilities to:

- Use sharps injury reduction devices
- Educate staff upon hire and annually
- Use a biohazard label where appropriate
- Have puncture-resistant sharps containers
- Keep a Sharps Injury Log
- Have a written Exposure Control Plan
- Etc.

<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030>

NOW YOU SEE IT.

NOW YOU DON'T.

PROTECT YOURSELF AND OTHERS- USE SHARPS WITH SAFETY FEATURES

BE PREPARED. Anticipate injury risks and prepare the patient and work area with prevention in mind. Use a sharps device with safety features whenever it is available.

BE AWARE. Learn how to use the safety features on sharps devices.

DISPOSE WITH CARE. Engage safety features immediately after use and dispose in sharps safety containers.

CDC

sharps

https://www.cdc.gov/sharpsafety/pdf/sharps_safety_poster3.pdf

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Responding to BBP Outbreaks

- Conduct baseline and ongoing testing
- Administer postexposure prophylaxis (PEP) as needed
 - PEP hotline for providers: 1-888-448-4911
- Access and use CDC’s Patient Notification Toolkit

Sample Patient Letter B – Disease Transmission Identified, Issued by Health Department

Dear Sir or Madam,

In DATE the HEALTH DEPARTMENT NAME began investigating reports of recent NAME OF INFECTION among several people who had undergone procedures at the MEDICAL CENTER NAME, located at ADDRESS. Through the investigation, we identified an unsafe practice, which may have exposed patients to the blood of other clinic patients.

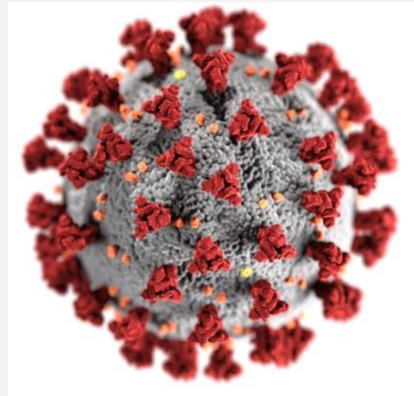
This letter serves as notification that you have been identified in clinic records as a former patient of the clinic who was placed at risk for possible exposure to bloodborne pathogens. **As a precaution, and in order to take appropriate steps to protect your health, we recommend that you get blood tests for hepatitis C, hepatitis B, and HIV.** We are committed to providing you with support through every step of this process.

<https://www.cdc.gov/injectionsafety/pntoolkit/section1.html>

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COVID-19 Outbreaks

CMS and Texas HHSC
definition of an outbreak:
A new, facility-onset case of
COVID-19 among residents
or staff.



Preventing COVID-19 Outbreaks

- Vaccinate
- Perform ongoing surveillance testing of staff
- Implement source control and universal use of eye protection
- Screen staff and visitors
- Identify location of the COVID-19 unit prior to first case



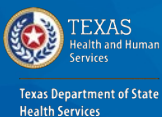
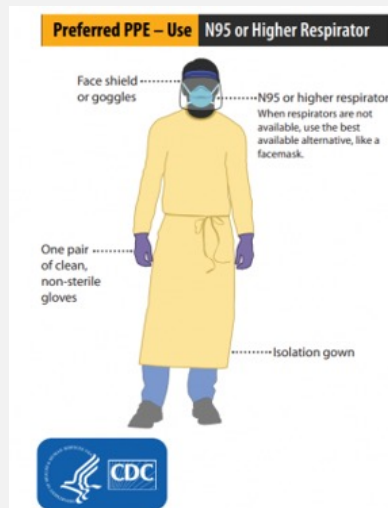
Responding to COVID-19 Outbreaks

- Isolate positive cases
 - Open the dedicated COVID-19 unit
 - Use airborne and contact precautions (N-95 respirator, gown, gloves, and eye protection)
- Quarantine exposed residents and staff as needed
- Implement outbreak testing
 1. Contact tracing with targeted testing
 2. Broad-based testing
- Ensure appropriate disinfection and cleaning practices
 - EPA List N: Disinfectants for Coronavirus (COVID-19)
<https://www.epa.gov/coronavirus/about-list-n-disinfectants-coronavirus-covid-19-0>



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Responding to COVID-19 Outbreaks



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COVID-19 Line List

Reporting Facility: _____

Facility Point of Contact (name, email, phone): _____

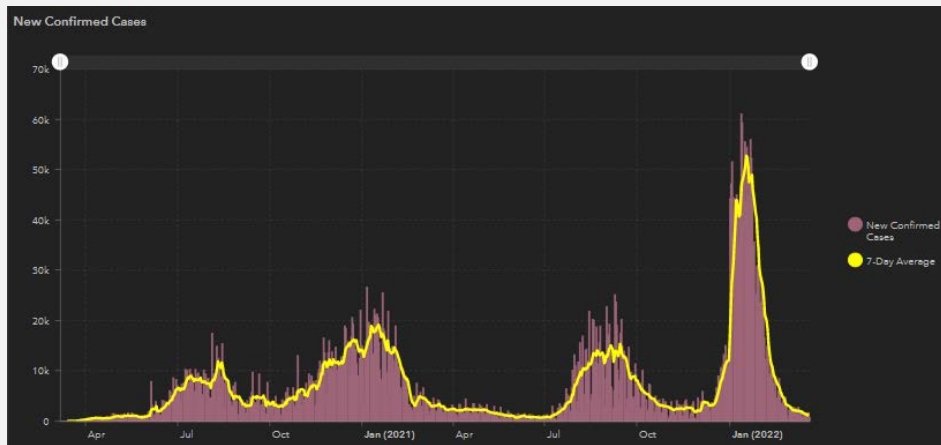
Case Status *for DSHS to complete*	Demographics								Testing Information					
	Last Name	First Name	Date of Birth (MM/DD/ YYYY)	Gender (M or F)	Street Address	Zip Code	Phone Number	*Staff* or *Resident*	Resident date of admission to your facility	Unit/Room (If staff, include assigned areas)	COVID-19 Test Date	COVID-19 Test Result	Type of COVID-19 Test	Any additional COVID- 19 testing done? (If yes, write the type of test, date.

Vaccine Information					Symptoms				Status of Individual				
COVID-19 Vaccinated (Y/N)	Vaccine Manufacturer	COVID-19 Vaccine Date #1	COVID-19 Vaccine Date #2 (if applicable)	COVID-19 Vaccine Date #3 (if applicable)	Flu Vaccine for Current Season (Y/N)	Symptom Onset Date	Cough (Y/N)	Fever (Y/N)	Shortness of breath (Y/N)	Other symptoms (list)	Hospitalized (Y/N)	Did Individual Die? (Y/N)	Date of Death

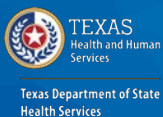


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Texas COVID-19 Epi Curve



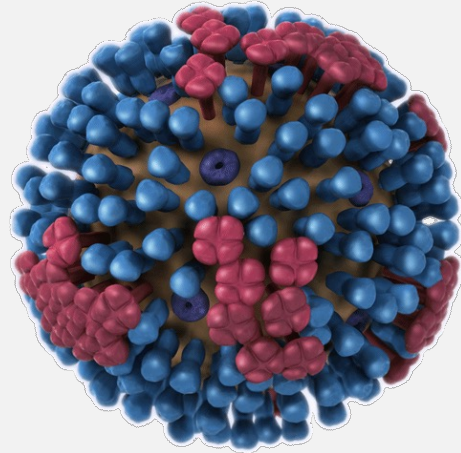
Source: DSHS COVID-19 Dashboard
<https://www.arcgis.com/apps/dashboards/45e18cba105c478697c76acbbf86a6bc>



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Influenza Outbreaks

- Be aware of flu circulation in your community.
- Watch for symptoms in residents and staff.
- Promptly report clusters of influenza-like illness (ILI) in staff and residents for investigation.



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Preventing Influenza Outbreaks

- Vaccinate staff and residents
- Screen staff and visitors
- Have sick leave policies in place that encourage staff to stay home when sick
- Post signs and make respiratory hygiene supplies available



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Responding to Influenza & COVID-19 Outbreaks

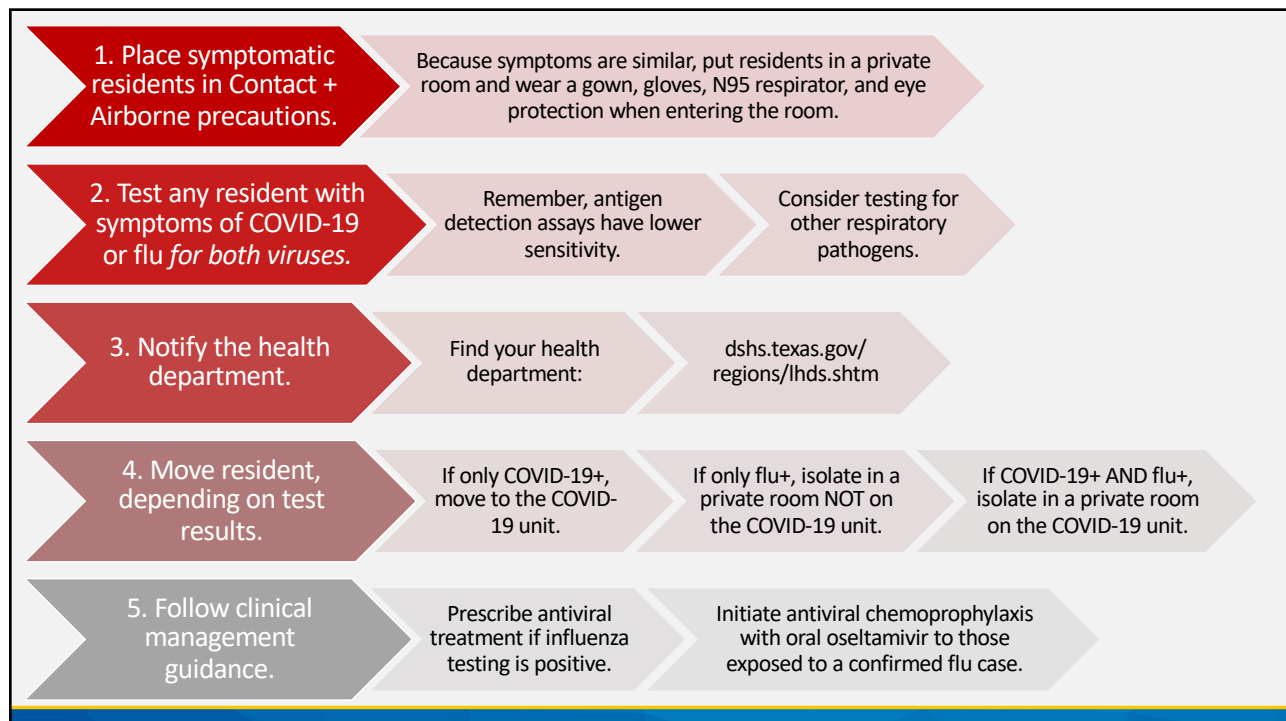
CDC guidelines:

Testing and Management Considerations for Nursing Home Residents with Acute Respiratory Illness Symptoms when SARS-CoV-2 and Influenza Viruses are Co-circulating

<https://www.cdc.gov/flu/professionals/diagnosis/testing-management-considerations-nursinghomes.htm>



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Legionellosis Outbreaks

Legionnaires' Disease:
fever, cough, myalgia,
pneumonia

Pontiac Fever:
Fever, myalgia, cough

Spread through
inhalation of water
droplets containing
Legionella bacteria



Outbreak definition:

1 definitely healthcare-associated,
OR
2+ possibly healthcare-associated with the same facility within 1 year

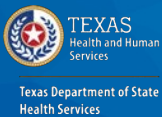


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There's more to water than meets the eye.

Germs can grow in water and wet places, like sinks. Those germs can spread to other surfaces, devices, and people.

Recognize the risks.
Take action to stop the spread of germs.
Learn more at [CDC.GOV/PROJECTFIRSTLINE](https://www.cdc.gov/projectfirstline)



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Preventing Legionellosis Outbreaks

- Water Management Program required by CMS
 - QSO-17-30- Hospitals/CAHs/NHs
- Correct any gaps identified in water management procedures

Developing a Water Management Program to Reduce *Legionella* Growth & Spread in Buildings

A PRACTICAL GUIDE TO IMPLEMENTING INDUSTRY STANDARDS

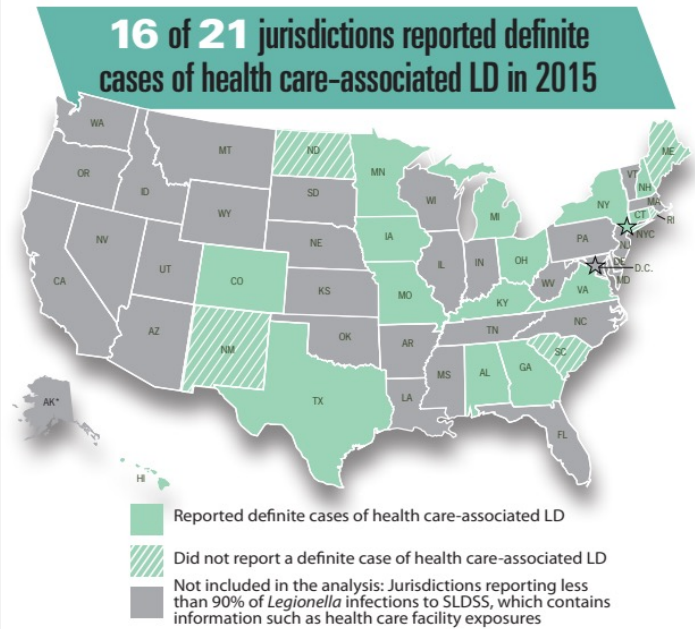
CDC's Legionella Toolkit: <https://www.cdc.gov/legionella/wmp/toolkit/index.html>



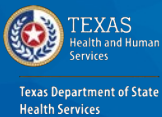
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CDC 2017 Vital Signs

- LD = Legionnaires' Disease
- 76% of U.S. jurisdictions reported a definitely-healthcare-associated (HA) case of LD in 2015
- Case fatality rate for HA-LD was 25%, compared with 10% non-HA



SOURCE: Supplemental Legionnaires' Disease Surveillance System (SLDSS), CDC, 2015.



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Responding to a Legionellosis Outbreak

- A single case of legionellosis should be reported to public health
- Conduct retrospective and prospective surveillance
 - Test patients with compatible symptoms and/or onset of pneumonia after day 2 of admission
 - Also consider clinically compatible illness in staff
- Assess the facility water system
 - Follow water management plan
 - Environmental assessment and sampling
 - Hire water management consultant



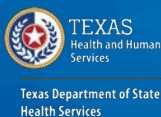
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Responding to a Legionellosis Outbreak

- Immediate remediation measures
 - Restrictions on showering
 - Use of sterile water for cleaning respiratory equipment, tube feedings, bathing, drinking, oral hygiene, wound care, and dilution of drinks
 - Installing point-of-use filtration at faucets and showerheads
- Implement the recommendations given to you by the health department



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Legionellosis Outbreak: Case Study



**Legionnaires' Disease
Outbreak at a Long-Term
Care Facility Caused by
a Cooling Tower Using an
Automated Disinfection
System—Ohio, 2013**



[Journal of Environmental Health](#) (J ENVIRON HEALTH), Dec2015; 78(5): 8-13. (6p)

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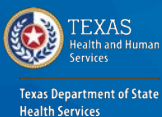
Gastrointestinal (GI) Outbreaks

Symptoms can include
diarrhea, vomiting,
nausea, stomach pain,
dehydration

Nursing home population
is vulnerable to infection

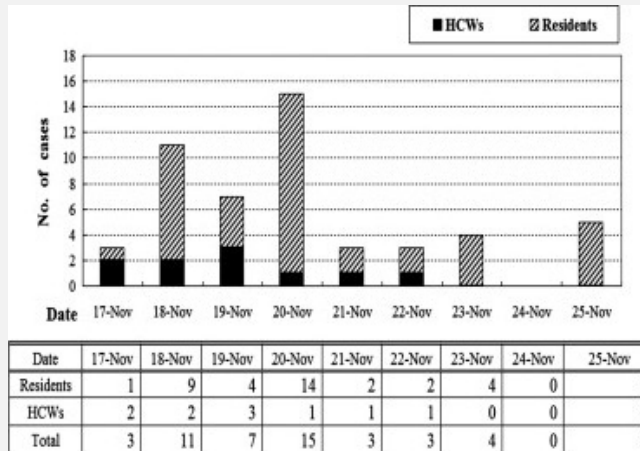
Common organisms
include *Clostridioides
difficile* (*C. diff*) and
Norovirus

Outbreak:
2 or more cases with
symptoms clustered in
time and space



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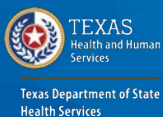
Gastrointestinal Outbreak: Norovirus Case Study



<https://doi.org/10.1016/j.jamda.2009.12.089>



Preventing Gastrointestinal Outbreaks



Responding to Gastrointestinal Outbreaks

- A single case of *C. diff* or norovirus is not reportable in Texas, but any suspected outbreaks should be reported.
- Submit specimens for testing.
- Track cases on a line list:

LTC Acute Gastroenteritis Surveillance Line List

Date: _____ (mm/dd/yyyy)

This worksheet was created to help nursing homes and other LTC facilities detect, characterize and investigate a possible outbreak of respiratory illness.

Yellow boxes indicate a drop-down list.

Line List Table 1

#	A. Case Demographics				B. Case Location				C. Signs and Symptoms (s/s)					
	Name	Age	Gender	Resident / Staff	Residents Only (Stay)	Residents Only (Building / Floor)	Residents Only (Room / Bed)	Staff Only (Primary floor assignment)	Staff Only (Food handler)	Symptom onset date (mm/dd)	Abdominal pain or tenderness	Diarrhea	Vomiting	Additional documented s/s (select all that apply)
1														B
2														

N: Nausea
F: fever
B: blood in stool
LA: loss of appetite
O: other (specify)



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Responding to Gastrointestinal Outbreaks

Isolate

- Contact precautions; private room

Clean

- Use an EPA-registered disinfectant effective against *C. diff* or norovirus (List K, List G, bleach)

Limit

- Limit group activities, remove shared food items from communal spaces

Restrict

- Restrict ill healthcare workers

Assess

- Infection control assessment to assess lapses in IC measures

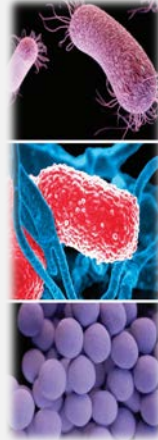


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Multidrug-Resistant Organism (MDRO) Outbreaks

Symptoms depend on the type of infection (wound, respiratory, urine, blood).

carbapenem-resistant *Enterobacteriales* (CRE), multidrug-resistant *Acinetobacter* (MDRA), Carbapenem-resistant *Pseudomonas aeruginosa* (CRPA)



Spread by direct and indirect contact

No defined criteria for an outbreak; typically 2+ cases clustered in space and time



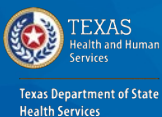
Preventing MDRO Outbreaks

- Proactive ICAR can identify lapses in IC protocols
- Adhere to infection control measures
- Communicate infection status with receiving facilities
 - DSHS Inter-Facility Infection Prevention Transfer Form: <https://www.dshs.texas.gov/IDCU/health/Healthcare-Safety/Interfacility-Transfer-Form-final-Revised-AM-111221.pdf>

INTER-FACILITY INFECTION PREVENTION TRANSFER FORM

This form must be completed for transfer of a patient to the receiving facility. Information should be communicated prior to and during the transfer.

TRANSFER INFORMATION	
Transfer Date:	Sending Facility Name, City/State:
Sending Facility Point of Contact and Phone Number (for follow up q	
Receiving Facility Name, City/State:	
ISOLATION STATUS	
Currently in Isolation? <input type="checkbox"/> Yes <input type="checkbox"/> No (standard precautions only)	
If Yes, Check Type(s) of Isolation:	
<input type="checkbox"/> Contact	<input type="checkbox"/> Contact plus Hand Hygiene with Soap/Water

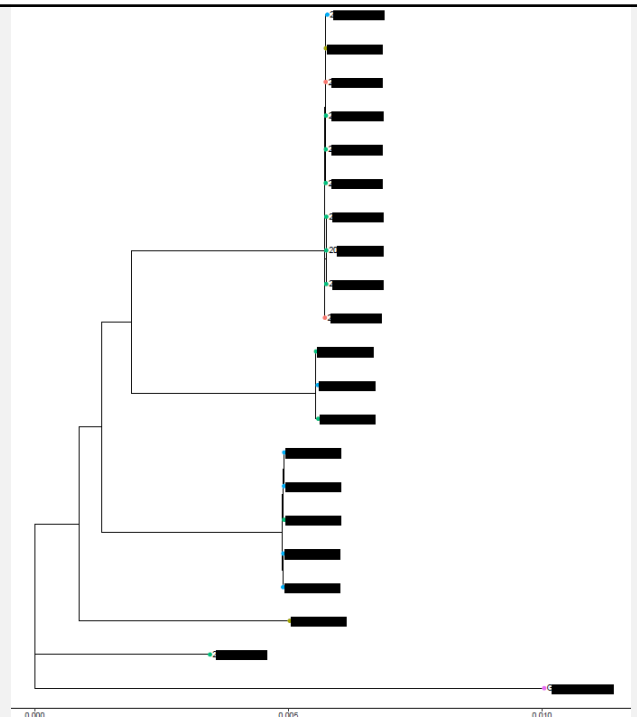


Responding to MDRO Outbreaks


- Single case of CRE, VISA, VRSA and *C. auris* must be reported
- Transmission-based precautions
 - Contact vs enhanced barrier
- Review medical records for commonalities
- Colonization screening may be necessary
- Whole genome sequencing (WGS) or pulse-field gel electrophoresis (PFGE)



Whole Genome Sequencing: Phylogenetic Tree

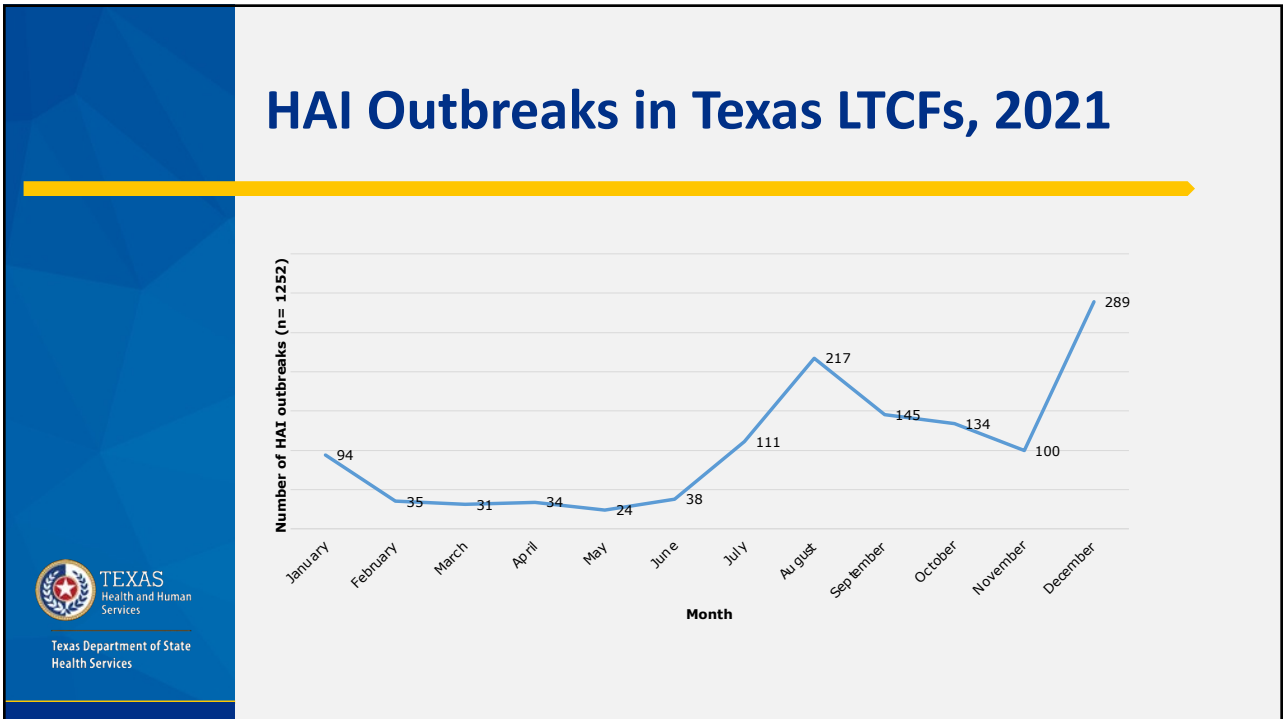


HAI Outbreaks 2021



TEXAS Health and Human Services
Texas Department of State Health Services


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In Summary...

- Infection Prevention and Control (IPC)**
 - Adhere to IPC best practices
- Awareness**
 - Perform surveillance for HAIs in your facility
 - Know about common causes of outbreaks in long term care
- Reporting**
 - Report outbreaks and notifiable conditions to public health
- Assessment & Mitigation**
 - Assess and monitor IPC practices in your facility
 - Follow recommendations given by public health



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Thank you!



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