

# Outbreak Management in Long Term Care (when the outbreak isn't Covid!)

Presented by: Russ Grant, BS, SLS(ASCP), CIC, LTC-CIP  
Director of Infection Prevention and Control

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## Disclosure

I have NO financial disclosure nor conflicts of interest with any of the content in this presentation.



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## Let's make sure the Chat is working!

► In the chat, please type in the following:

- Your name or nickname/alias
- The total number of years you have been doing infection prevention



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### Why outbreaks are a big deal

- Headlines:**  
Shame and blame, misrepresentation
- Cost:** average cost of Norovirus \$11 per resident, per day  
\$11 x 44 residents x 24 days = \$11,616  
2016 Feb 10;112(10):4926-28. doi: 10.1093/journal.pone.0149226. eCollection2016.
- Staff absenteeism/morale:**  
Work intensifies, fear of transmission
- Resident well being:**  
loneliness, isolation, physical deterioration  
JAMA. 2022;328(10):941-950. doi:10.1001/jama.2022.15071

The New York Times

**Two Nursing Home Residents Die After a Legionnaires' Outbreak**

The New York State Department of Health is investigating eight cases of infection related to a bacterium that can be fatal.

INVESTIGATIONS

**Failure to Protect? Families demand answers after deadly outbreak at Graceland Rehabilitation and Nursing Center**

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### What is an “outbreak” anyway?

- Popular definition:** a flare up, or sudden increase, of anything unwelcome. Examples: increased anxiety, alcoholism, substance abuse, depression (or even non-diseases such as wars, revolts, etc.)
- Infectious disease definition:** an *increase in the incidence* of a particular infectious disease above what is normally expected related to time, place, and observed population.
- Cluster:** just another word for “outbreak”, but can be used in place of the word outbreak early during investigation.
- In NYS Healthcare:**
  - We have NORA reporting
  - Outbreaks are defined on DOH website

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### NORA report - when do I fill this out?

The screenshot shows a web interface for 'Health Electronic Response Data System (HERDS)'. It has a navigation menu on the left with 'Home', 'Data Entry', 'Reports', and 'Outbreaks'. The main content area is titled 'Add New Outbreak' and contains several sections:
 

- Data Entry:** Includes fields for 'Activity' (set to 'NORA Outbreak'), 'Organization' (set to 'New York State Department of Health (NYS)'), and 'Parent Organization' (set to 'New York State Department of Health (NYS)').
- Additional Info:** Includes 'Event Type' (set to 'NORA Outbreak') and 'Data Entry Name' (set to 'NORA Outbreak').
- Add New Entry:** A section for 'Entered By' with a dropdown menu and 'Save' and 'Cancel' buttons.

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## Outbreak reporting in New York State

- ▶ An outbreak or increased incidence of disease due to any infectious agent (e.g. staphylococci, vancomycin resistant enterococci, *Pseudomonas*, *Clostridium difficile*, *Klebsiella*, *Acinetobacter*) occurring in residents or persons working in the facility.
- ▶ Intrafacility outbreaks of influenza, gastroenteritis, pneumonia, or respiratory syncytial virus.
- ▶ Foodborne outbreaks.
- ▶ Infections associated with transfusions, biologics, contaminated medications, replacement fluids or commercial products.
- ▶ Single cases of nosocomial infection due to any of the diseases on the Communicable Disease Reporting list. For example, single cases of nosocomially acquired *Legionella*, measles virus, invasive group A beta hemolytic *Streptococcus*.
- ▶ A single case involving *Staphylococcus aureus* showing reduced susceptibility to vancomycin.
- ▶ Clusters of tuberculin skin test conversions.
- ▶ A single case of active pulmonary or laryngeal tuberculosis in a nursing home resident or employee.
- ▶ Increased or unexpected morbidity or mortality associated with medical devices, practices or procedures resulting in significant infections and/or hospital admissions.
- ▶ Closure of a unit or service due to infections.

Outbreak Reporting in Health Care Facilities (ny.gov)

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## DOH-389

### NEW YORK STATE DEPARTMENT OF HEALTH Communicable Disease Reporting Requirements

Reporting of suspected or confirmed communicable diseases is mandated under the New York State Sanitary Code (19NYCRR 2.102.14). The primary responsibility for reporting rests with the physicians; moreover, laboratories (PHL 2102), school nurses (19NYCRR 2.12), day care center directors, nursing homes/hospitals (19NYCRR 245.3d) and state institutions (19NYCRR 2.10a) or other locations providing health services (19NYCRR 2.17) are also required to report the diseases listed below.

<ul style="list-style-type: none"> <li>• Anaplasmosis</li> <li>• Amebiasis</li> <li>• Animal bites for which rabies prophylaxis is given</li> <li>• Anthrax</li> <li>• Bacterial infection</li> <li>• Babesiosis</li> <li>• Botulism</li> <li>• Campylobacteriosis</li> <li>• Chancroid</li> <li>• Chlamydia trachomatis infection</li> <li>• Cholera</li> <li>• Coronavirus COVID-19 (SARS-CoV-2)</li> <li>• Severe Acute Respiratory Syndrome (SARS)</li> <li>• Middle East Respiratory Syndrome (MERS)</li> </ul>	<ul style="list-style-type: none"> <li>• Cryptosporidiosis</li> <li>• Cyclosporiasis</li> <li>• E.coli O157H7 infection</li> <li>• Echinococcosis</li> <li>• Encephalitis</li> <li>• Foodborne illness</li> <li>• Giardiasis</li> <li>• Glaucoma</li> <li>• Gonococcal infection</li> <li>• Haemophilus influenzae (invasive disease)</li> <li>• Hantavirus disease</li> <li>• Hemolytic uremic syndrome</li> <li>• Hepatitis A</li> <li>• Hepatitis A in a food handler</li> <li>• Hepatitis B (specific acute or chronic)</li> <li>• Hepatitis C (specific acute or chronic)</li> </ul>	<ul style="list-style-type: none"> <li>• Pregnant hepatitis B carrier</li> <li>• Herpes infection, infants aged 90 days or younger</li> <li>• Hospital associated infections (as defined in section 2.2 19NYCRR)</li> <li>• Influenza, laboratory-confirmed</li> <li>• Legionellosis</li> <li>• Listeriosis</li> <li>• Lyme disease</li> <li>• Lymphogranuloma venereum</li> <li>• Malaria</li> <li>• Measles</li> <li>• Meningitis</li> <li>• Meningitis, aseptic or viral</li> <li>• Haemophilus meningitis</li> <li>• Other (specify type)</li> <li>• Meningococcal meningitis</li> </ul>	<ul style="list-style-type: none"> <li>• Monkeypox</li> <li>• Mumps</li> <li>• Pertussis</li> <li>• Plague</li> <li>• Psittacosis</li> <li>• Q fever</li> <li>• Rabies</li> <li>• Rocky Mountain spotted fever</li> <li>• Rubella (including congenital rubella syndrome)</li> <li>• Scabies</li> <li>• Shiga toxin-producing E.coli (STEC)</li> <li>• Shigellosis</li> <li>• Smallpox</li> <li>• Staphylococcus aureus (due to strains showing reduced susceptibility or resistance to vancomycin)</li> </ul>	<ul style="list-style-type: none"> <li>• Staphylococcal enterotoxin B poisoning (invasive disease)</li> <li>• Group A beta-hemolytic strep</li> <li>• Group B strep</li> <li>• Streptococcus pneumoniae</li> <li>• Syphilis, specify stage</li> <li>• Tetanus</li> <li>• Toxic shock syndrome</li> <li>• Transmissible spongiform encephalopathies (TSE)</li> <li>• Trichinosis</li> <li>• Tuberculosis current (specify site)</li> <li>• Typhoid</li> <li>• Typhoid (vaccine disease)</li> <li>• Vibriosis</li> <li>• Viral hemorrhagic fever</li> <li>• Yersiniosis</li> </ul>
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## Which of these requires a NORA?

- A single case of HAI:
- influenza
  - parainfluenza
  - Salmonella
  - Norovirus
  - Vancomycin-Resistant Staph aureus (VRSA)
  - MRSA



- What is the correct answer?
- A, C and E
  - B, D and F
  - All of the above
  - None of the above

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### Incidence vs. Prevalence

- ▶ **Prevalence:** Number of people in a population who have a disease or other health outcome at one point in time (or, if your time is a range of dates, then the total number of cases during that period including chronic and resolved).
- ▶ **Incidence:** Number of people in a population who develop a disease or other health outcome over a period of time (i.e. *new* cases over a period of time).
- ▶ **What's the difference?** Prevalence includes all cases, both new and pre-existing, in the population at the specified time, whereas incidence is limited to new cases only.
- ▶ **Why do we need to track this?** These help us understand and plan for the impact of a disease or health outcome in our nursing home facility.

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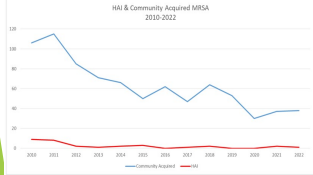
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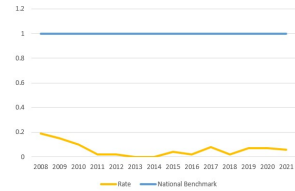
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### Examples of tracking incidence

**Incidence: Community vs. Hospital-acquired cases**  
 The graph below contains several numbers of MRSA cases. Historically, community MRSA cases have exceeded healthcare cases. Hospital cases have been continuing to decrease.



**C. difficile Rate**




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### Initial detection of an "Outbreak"

- ▶ Surveillance (passive):  
 Lab reports, new antibiotic starts, daily communication
- ▶ Confirm that the "outbreak" exists!  
 Verify the diagnosis (symptoms and/or lab-results)
- ▶ Is there an *increased incidence*?  
 Requires ongoing surveillance to know
- ▶ 'Rule of thumb' for non-DOH389 outbreaks (those diseases that aren't on NY Communicable Disease Reporting list) :
  - ▶ 3 or more epidemiologically-linked cases occurring within the duration of illness (contagious period + incubation period)
  - ▶ 3% of resident population

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### Developing a case definition

- ▶ Revised McGeer
- ▶ NHSN
- ▶ **MMWR: Case Definitions for public health Surveillance, October 19, 1990 / 39(RR-13):1-43**
- ▶ Review Article:

Epidemiol. Infect. 2020; 148(3): 40229911  
 Published online 2020 Mar 19; doi: 10.1017/S0950268820000911

PMCID: PMC7084182  
 PMID: 32155208

A systematic review on the causes of the transmission and control measures of outbreaks in long-term care facilities: Back to basics of infection control

M. D. L. L. Data curation, Formal analysis, Investigation, Methodology, Visualization, Writing – original draft, Writing – review & editing, \*; G. S. Data curation, Investigation, Validation; \*; S. Data curation, Investigation; \*; S. Data curation, Investigation; \* and J. H. Conceptualization, Formal analysis, Funding acquisition, Project administration, Supervision, Validation; \*  
 Louise Elizabeth Lansbury, Editor

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### Examples: Case definitions for GI Outbreak

- ▶ Kaplan's criteria
- ▶ Lab confirmation

#### Diagnostics

In the absence of clinical laboratory diagnostics or in the case of delay in obtaining laboratory results, use Kaplan's clinical and epidemiologic criteria to identify a norovirus gastroenteritis outbreak.

#### Kaplan's Criteria:

1. Vomiting in more than half of symptomatic cases, and
2. Mean (or median) incubation period of 24 to 48 hours, and
3. Mean (or median) duration of illness of 12 to 60 hours, and
4. No bacterial pathogen isolated from stool culture

Test	Result	Interpretation
<b>Rotavirus</b>		
Rotavirus (Antigen)	Not Detected	Rotavirus (Antigen) Not Detected
Rotavirus (IgG)	Not Detected	Rotavirus (IgG) Not Detected
Rotavirus (IgM)	Not Detected	Rotavirus (IgM) Not Detected
<b>Norovirus</b>		
Norovirus (Antigen)	Not Detected	Norovirus (Antigen) Not Detected
Norovirus (IgG)	Not Detected	Norovirus (IgG) Not Detected
Norovirus (IgM)	Not Detected	Norovirus (IgM) Not Detected
<b>Shigella</b>		
Shigella (Antigen)	Not Detected	Shigella (Antigen) Not Detected
Shigella (IgG)	Not Detected	Shigella (IgG) Not Detected
Shigella (IgM)	Not Detected	Shigella (IgM) Not Detected

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### Examples: Case definitions for Resident

- ▶ Norovirus case (during an cluster of cases that already meet Kaplan's criteria):
- ▶ Influenza-like illness case (McGeer):

A resident having both vomiting and diarrhea within a 24 hour period, with or without fever

or

A resident having three or more episodes of loose stool within a 24 hour period, with or without fever

- AND
- At least 3 of the following:
- ▶ Cough
  - ▶ Sore throat
  - ▶ Headache
  - ▶ myalgia
  - ▶ Inc. Sputum production
  - ▶ Chills

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### Line list

Case Initials	Pt. Room	Symptom onset date	Fever Y/N	T-trend*	Cough Y/N	Sore throat Y/N	Headache Y/N	Myalgia Y/N	Hospitalized			Parainfluenza Lab Testing			
									Y/N	Admit Date	Disch Y/N	Collect Date	Type of test	Result	
AA	426	18-Dec	Y	101	N	Y	Y	Y	N		N	N	12/18/2022	PCR	POSITIVE
BB	430	17-Dec	N	97	Y	N	Y	N	N		N	Y	12/18/2022	PCR	NEGATIVE
CC	534-a	17-Dec	Y	102	Y	N	N	N	N		N	Y	12/18/2022	PCR	NEGATIVE
DD	502	17-Dec	Y	101	Y	N	Y	Y	N		N	Y	12/18/2022	PCR	NEGATIVE
EE	428	18-Dec	N	98	Y	N	N	N	N		N	Y	12/18/2022	PCR	NEGATIVE
FF	535-B	20-Dec	N	100	Y	N	N	N	N		N	Y	12/20/2022	PCR	NEGATIVE
GG	512-B	19-Dec	N	98	N	N	N	Y	N		N	Y	12/18/2022	PCR	NEGATIVE
HH	409	20-Dec	N	97	Y	N	N	Y	N		N	Y	12/20/2022	PCR	NEGATIVE
JJ	430	18-Dec	Y	101	Y	Y	Y	N	N		N	Y	12/20/2022	PCR	NEGATIVE
KK	507	20-Dec	Y	104	Y	Y	Y	Y	N		N	Y	12/20/2022	PCR	NEGATIVE

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### One last thought on case definitions!



- ▶ **Confirmed case** - resident meets the clinical criteria of the case definition AND has lab-confirmation.
- ▶ **Probable case** - resident meets the clinical criteria of case definition.
- ▶ **Possible case** - resident exhibits some characteristics of the clinical criteria but not enough to meet case definition.

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### Heat map example

From An Illustration of SARS-CoV-2 Dissemination Within a Skilled Nursing Facility Using Heat Maps - Blackman - 2020 - Journal of the American Geriatrics Society - Wiley Online Library




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### Implementing Control Measures

- ▶ Isolation/Quarantine
- ▶ Enhanced environmental cleaning
- ▶ Suspending activities
- ▶ Limit floating staff
- ▶ Residents eat in their rooms
- ▶ Stay in room for PT
- ▶ Dental/hair-dresser cancelled
- ▶ PPE
- ▶ Limit visitation
- ▶ Cohorting
- ▶ Hand hygiene
- ▶ Staff leave policies



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### Outbreak: Communication

- ▶ Huddles
- ▶ Memo/emails
- ▶ Flyers in staff breakroom
- ▶ Q+A clarifications
- ▶ Repetition
- ▶ In the moment education
- ▶ Clear and concise
- ▶ Give staff the tools to talk with their residents about the outbreak in a meaningful way



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### Sample breakroom flyers

SUBJECT: Increased GI Illness

Please be advised that effective immediately, the guidelines listed below must be followed for **Unit 3B of the Nursing Home**. These guidelines will remain in effect until further notice. Infection Control will daily monitor the situation and will determine when changes need to be made and when restrictions will be lifted.

GI Virus Guidelines

1. Confine symptomatic residents to their rooms and place them on Contact Precautions (single dining rooming) during the time period that they are symptomatic and for a minimum of 48 hrs after symptoms disappear.
2. Symptomatic residents are to be excluded from activities/hair dressers visits.
3. Increased hand hygiene for all staff **using sanitizer and soap**.
4. Keep floating of staff minimized. Bed assignments should be grouped together.
5. Enhanced cleaning: frequent cleaning **with 1:10 bleach solution**.

#### An important message from Infection Control:

Viral gastroenteritis is circulating widely in the community. Often called **stomach flu**, this intestinal infection is marked by watery diarrhea, abdominal cramps, nausea and/or vomiting, and sometimes the **gravid flu**. Stomach flu is highly contagious and is typically spread by contact with an infected person, contaminated food, or by touching a contaminated surface (sink or doorknob). Symptoms are to be followed using the guidelines of State.

Please follow Contact Precautions (enteric brown):



If you have a patient with the above symptoms, initiate Contact (enteric) Precautions immediately.

Wear gloves, gown, frequent hand-washing (with soap and water).



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### Sample breakroom “Thank you”

DATE: May 28, 2019  
SUBJECT: GI Outbreak

The outbreak is officially complete as of today, May 28<sup>th</sup>. Thanks to all of you who did a great job of containing this illness. Procedures and activities may resume as normal. Please continue to follow good hand-hygiene and cough-etiquette.

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### Helpful hints

- ▶ Create your own personalized outbreak checklist:
  - ▶ List of persons you will share initial communication
  - ▶ Where to find special supplies (signage/PPE/lab-supplies)
  - ▶ Reminders about specific interventions



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### Review Article on Leadership



*International Journal of Public Health and Clinical Sciences*  
e-ISSN : 2289-3277, Vol. 5, No. 2  
March/April 2018

#### LEADERSHIP THEORIES IN DISEASE OUTBREAK MANAGEMENT

Arifah A.R.<sup>1</sup>, Mohd Tariq <sup>1</sup>, Mohd Fikri R.<sup>1</sup>, Syahira S.<sup>1</sup>, \*Rosliza A.M.<sup>2</sup>,  
Muhamad Hanafiah Juni<sup>2</sup>

<sup>1</sup>Master in Public Health Candidates, Department of Community Health, Faculty of Medicine, University Putra Malaysia.

<sup>2</sup>Department of Community Health, Faculty of Medicine, University Putra Malaysia

\*Corresponding author: Rosliza Abdul Manaf  
Email: rosliza\_abmanaf@upm.edu.my

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### Summary of Authors' Observations

- ▶ Searched and reviewed over 100 articles
- ▶ Conclusion: "good leadership is an important factor in successfully managing outbreaks"
- ▶ Leadership traits:
  - ▶ Effective decision making
  - ▶ Good communication
  - ▶ Effective delegation and coordination
  - ▶ Developing partnerships with stakeholders
- ▶ 3 categories of Leadership Styles



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### Contingency Leadership or "Authoritative"

- ▶ "Positional-power" - leader influences people merely because of their position.
- ▶ Productivity is increased by giving recognition or rebuffering
- ▶ Followers are motivated if they have trust and confidence in their leader
- ▶ Works best when a fast response is needed in a local outbreak



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### Transformational Leadership or "Collaborative"

- ▶ Both leaders and followers help each other to advance a common cause
- ▶ Productivity is increased when leaders pay attention to the individual needs and concerns of followers
- ▶ Followers are motivated when leaders demonstrate problem awareness and act as role-models
- ▶ Works best when followers feel overwhelmed because of seemingly unsurmountable challenges



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### Participative Leadership or "Facilitative"



- ▶ Leader focuses on building partnerships and encouraging participation of followers through empowerment
- ▶ Productivity is enhanced when leaders emphasize collective-decision-making. Accountability of the decisions is shared by the group
- ▶ Followers are motivated when the leader facilitates good communication and participation of *all* members
- ▶ Works best when several 'experts' are working together to solve a problem, or, when addressing long-standing complex issues

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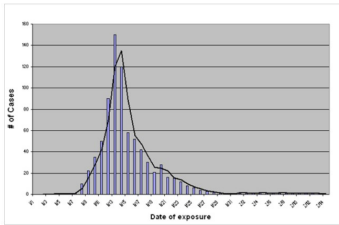
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### Epidemiologic curve



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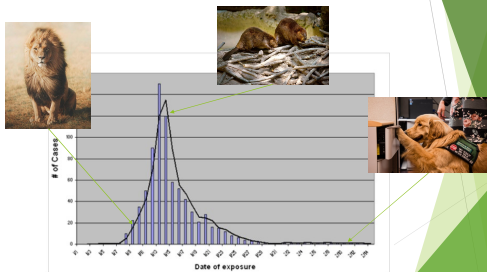
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### Epidemiologic curve



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Thank you!!

Questions???

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