
Common Outbreak Organisms

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January – Bug of the Month

Outline of Presentation

- Review basics on the respiratory and enteric organisms that occur most commonly in facility outbreaks
 - How commonly do they occur in SCHR
 - Features of the organisms
 - Review facility resources

- Questions and Answers

Common Respiratory Organisms

- See Appendix C of the Respiratory Outbreak Protocol (orange binder)
 - Influenza
 - Human Metapneumovirus (hMPV)
 - Parainfluenza Virus
 - Respiratory Syncytial Viruses (RSV)
 - Coronavirus
 - Enterovirus/Rhinovirus

How Common are Outbreaks in SCHR Health Care Facilities?

ORGANISM	Number of Outbreaks
Influenza	11 outbreaks since 2006. The last Influenza outbreak was in May 2008
hMPV (Human metapneumovirus)	7 outbreaks since 2008 The last hMPV outbreak was in April 2010
Parainfluenza virus	10 outbreaks since 2006 The last Para outbreak was in January 2011
RSV (Respiratory Syncytial virus)	10 outbreaks since 2007 The last RSV outbreak was in February 2010
Coronavirus	7 outbreaks since 2008. The last outbreak was in December 2010
Entero/Rhinovirus	14 outbreaks since 2008. The last outbreak was in November 2010

Common Respiratory Organisms – Clinical Presentations

- All of the common respiratory organisms present with similar symptoms

- Definition of ILI – Acute onset of respiratory illness with *fever and cough* and **one or more** of the following:
 - Arthralgia (aching joints)
 - Myalgia (aching muscles)
 - Sore throat
 - Prostration (extreme tiredness)
 - Which could be due to an influenza virus.

- See table on next slide for common signs and symptoms

Clinical Presentation

ORGANISM	CLINICAL PRESENTATION
Influenza	Fever, cough – dry, harsh, or productive, nasal congestion, sore throat, aching muscles/joints (myalgia), general malaise, chest discomfort (usually severe), headache
Human metapneumovirus	Fever, cough – dry, harsh, or productive, nasal congestion, sore throat, aching muscles/joints (myalgia), general malaise.
Parainfluenza virus	Fever, cough – dry, harsh, or productive, nasal congestion, sore throat, aching muscles/joints (myalgia), general malaise.
RSV (Respiratory Syncytial virus)	Fever, cough – dry, harsh, or productive, nasal congestion, sore throat, aching muscles/joints (myalgia), general malaise.
Coronavirus	Cough, nasal congestion, sore throat, general malaise, low grade fever may occur.
Entero/Rhinovirus	Fever, malaise, nasal congestion, myalgia, headache, diarrhea, vomiting.

Definition of ILI – Acute onset of respiratory illness with *fever and cough* and **one or more** of the following: Arthralgia, Myalgia, Sore throat, Prostration

Incubation Period

ORGANISM	Incubation Period
Influenza	1-3 days
Human metapneumovirus	3-5 days
Parainfluenza virus	1-10 days
RSV (Respiratory Syncytial virus)	2-8 days
Coronavirus	2-4 days
Entero/Rhinovirus	2-6 days

From exposure to an organism (bug) until the time symptoms of the disease present.

Period of Communicability

ORGANISM	Period of Communicability
Influenza	Adults: 3-5 days Children: up to 7 days
Human metapneumovirus	Has not been determined but thought to be for duration of illness.
Parainfluenza virus	Shortly before onset of disease and for the duration of active disease.
RSV (Respiratory Syncytial virus)	From onset of symptoms and for duration of illness
Coronavirus	For duration of illness
Enterovirus/Rhinovirus	For duration of illness

Is the period of time the infectious agent (bug) may transmit the infection either directly or indirectly from an infected person to another person.

Infection Control Precautions

ORGANISM	Infection Control Precautions
Influenza	Droplet and Contact Precautions- spread by droplets and by contact with fomites.
Human metapneumovirus	Same as for influenza
Parainfluenza virus	Same as for influenza
RSV (Respiratory Syncytial virus)	Same as for influenza
Coronavirus	Same as for influenza
Entero/Rhinovirus	Same as for influenza Can also be spread by fecal-oral route.

Common Gastric Organisms

- See Appendix B – Gastric Outbreak Protocol (orange binder)
 - Norovirus
 - Other organisms
 - *Salmonella* species
 - Rotavirus
 - *Shigella* species
 - *Staphylococcus aureus*
 - *Yersinia enterocolitica*

Number of SCHR Outbreaks

ORGANISM	Number of Outbreaks
Norovirus	31 outbreaks since 2006
<i>Clostridium difficile</i>	Identified in 2 outbreaks since 2008. Norovirus was identified in 1 of these outbreaks.
Rotavirus	Identified in 1 outbreak in 2010
<i>Staphylococcus aureus</i> – food-borne	Identified in 1 outbreak in 2010
<i>Yersinia enterocolitica</i>	Identified in 1 outbreak in 2010
No organism identified during enteric outbreak	11 outbreaks since 2006

Common Gastrointestinal Organisms— Clinical Presentations

- All of the common gastrointestinal organisms present with similar symptoms (see table on next slide for common signs and symptoms)
- **Definition of GI Illness –**
 - Two or more episodes of loose watery stool, above what are considered normal for the resident/client/staff member, in a 24-hour period, or
 - two episodes of vomiting in a 24-hour period, or
 - one episode of vomiting and one episode of loose watery stool in a 24-hour period, or
 - one episode of bloody diarrhea in a 24-hour period, or
 - one episode of explosive diarrhea in a 24-hour period.

Clinical Presentation

ORGANISM	CLINICAL PRESENTATION
Norovirus	Nausea, vomiting, loose watery stools, abdominal cramps, low grade fever, myalgia, general malaise.
Clostridium difficile	Diarrhea, abdominal cramps, abdominal tenderness and fever.
Rotavirus	Nausea, vomiting, loose watery stools, abdominal cramps, low grade fever, myalgia, general malaise.
<i>Staphylococcus aureus</i> – food-borne	Nausea, vomiting, loose watery stools, abdominal cramps, low grade fever, myalgia, general malaise.
<i>Yersinia enterocolitica</i>	Nausea, vomiting, loose watery stools, abdominal cramps, low grade fever, myalgia, general malaise.
Unidentified Gastric Organisms	Nausea, vomiting, loose watery stools, abdominal cramps, low grade fever, myalgia, general malaise.

Incubation Period

ORGANISM	Incubation Period
Norovirus	12 - 48 hours
<i>Clostridium difficile</i>	Variable
<i>Rotavirus</i>	24 - 72 hours
<i>Staphylococcus aureus</i> – food-borne	30 minutes - 8 hours
<i>Yersinia enterocolitica</i>	3 - 7 days
<i>Salmonella</i> species	Usually 12 - 36 hours May be from 6 - 72 hours <i>S. typhi</i> is 5 - 28 days

Period of Communicability

ORGANISM	Period of Communicability
Norovirus	During acute symptoms and up to 48 hours after symptoms resolve
<i>Clostridium difficile</i>	Duration of shedding and up to 72 hours after symptoms resolve.
<i>Rotavirus</i>	During acute symptoms and shed in feces up to 8 days after symptoms subside.
<i>Staphylococcus aureus</i> – food-borne	N/A
<i>Yersinia enterocolitica</i>	Rare
<i>Salmonella</i> species	Throughout the course of infection - several days to several weeks. A carrier state can occur and persist for months.

Infection Control Precautions

ORGANISM	Infection Control Precautions
Norovirus	Contact Precautions. Droplet Precautions should be in place if projectile vomiting and diarrhea are present
<i>Clostridium difficile</i>	Contact Precautions
<i>Rotavirus</i>	Contact Precautions
<i>Staphylococcus aureus</i> – food-borne	Standard Precautions
<i>Yersinia enterocolitica</i>	Contact Precautions
<i>Salmonella species</i>	Contact Precautions until diarrhea has ceased.

Facility Preparation and Response:

- Pre-season Planning and Prevention:
 - Review policies and procedures
 - Review laboratory procedures and supplies
 - Assemble materials and supplies
 - Plans for transportation of laboratory specimens on weekends and holidays.
- Early recognition and reporting
- Create list of key people and contact information for notification purposes
- Hand Hygiene education and audits

Facility Preparation and Response:

- Prompt submission of laboratory specimens to SDCL as per MHO's orders (especially for respiratory).
- Daily line listing of residents and staff.
- Daily contact with Infection Control to review line listings and questions.
- Enhanced cleaning of high touch spots (HTS) and switch of cleaning products to Percept for gastric outbreaks.

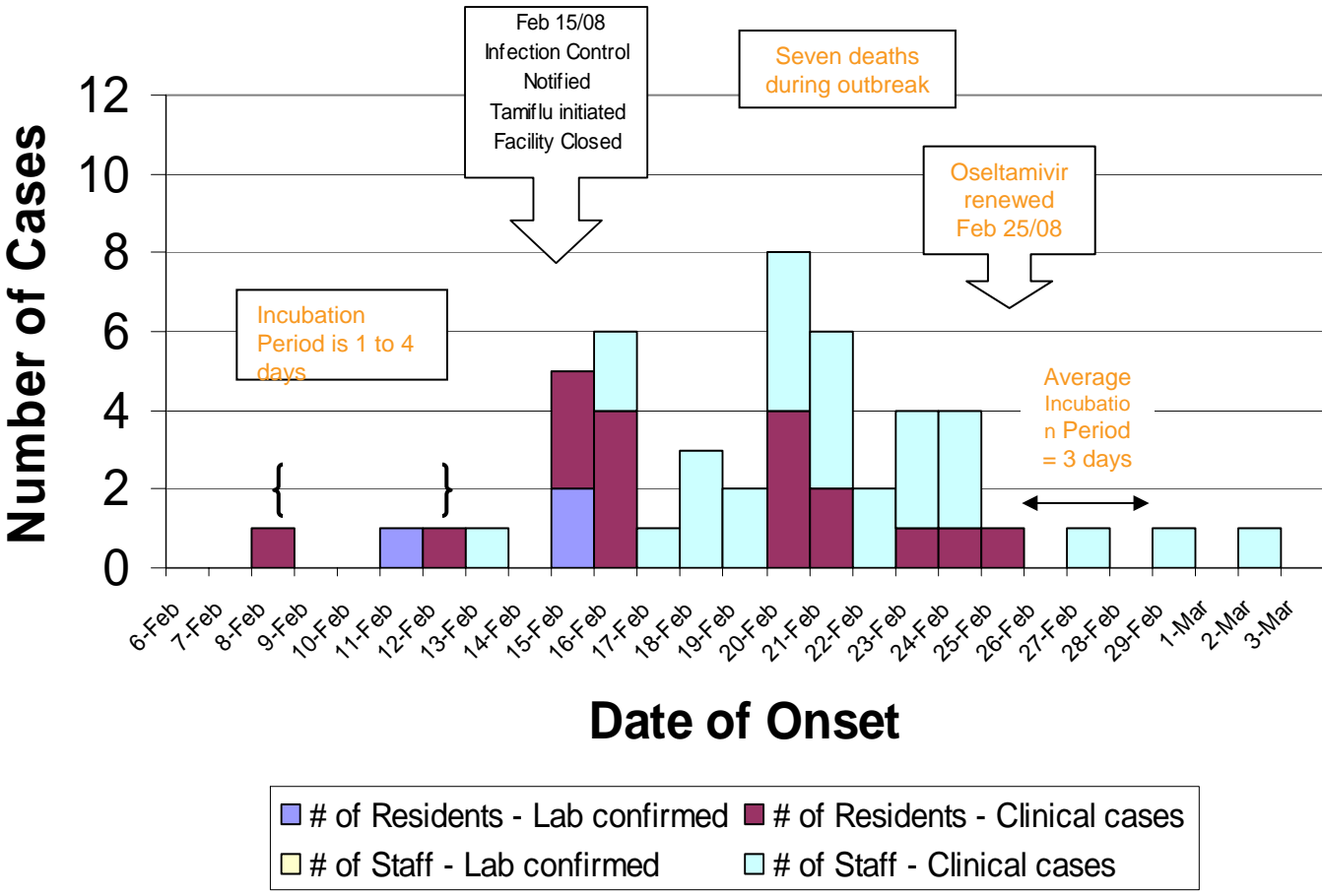
Questions?



There are more slides following with additional information on several different organisms

Outbreak Summary Epidemiologic Curve

Staff Influenza Vaccine
Coverage Rate = 69%
(Regional Goal = 85%)

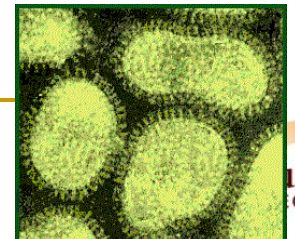


Parainfluenza Viruses

- Common lower respiratory illness in children.
- Can cause pneumonia, croup and bronchitis. Can be severe disease in elderly and compromised immune individuals.
- Parainfluenza Type 1 & 2 viruses are often associated with croup while Parainfluenza Type 3 is often associated with bronchiolitis and pneumonia. Type 4 rarely causes severe disease.
- Incubation period is generally 1-7 days

Influenza

- Influenza is a highly contagious disease that is spread by coughing and sneezing
- Individuals are most contagious 24 hours before the onset of symptoms up to 5 days *after* the first symptoms
- Many infected individuals (up to ½ of HCW in the British study) do not develop symptoms but can still be contagious



Influenza isn't serious, it's just a cold?

- Influenza transmission between HCWs and patients is a serious problem in acute & long-term health care facilities.
- Low HCW immunization rates significantly increase the health impacts experienced by residents and the expenses associated with employee absenteeism and health care costs.

Human Metapneumovirus (hMPV)

- Discovered in 2001 and belongs to the same family as RSV or Paramyxoviridae.
- Causes acute respiratory tract illness in patients of all ages. Serologic studies suggest that all children are infected at least once by 5 years of age.
- Symptoms are similar to RSV including bronchiolitis, croup, asthma exacerbation, and pneumonia.

hMPV

- Incubation period is 3-5 days.
- Causes significant morbidity and mortality in the elderly.
- Treatment is supportive and if secondary bacterial infections develop a/b may be necessary.
- In addition to Standard Precautions patients are placed on droplet and contact precautions.

Respiratory Syncytial Virus

- RSV is a member of the family Paramyxoviridae, genus family Pneumovirus.
- Belong to the same family as mumps, measles and parainfluenza viruses.
- It was first isolated in 1956 from chimpanzees. RSV quickly became recognized as major cause of lower respiratory infection in infants.

Respiratory Syncytial Virus

- It wasn't until the last 10 years it has been recognized for the seriousness it can cause in adults and the elderly.
- It is transmitted by large droplet spread (3 foot distance) and by indirect contact from hands or fomites (environment) that are contaminated by RSV.
- Is quickly inactivated by detergents.

Respiratory Syncytial Virus

- Can survive on your hands for less than 1 hour and can survive on environmental surfaces for up to 30 hours.
- The risk factors with RSV increase for infants or the elderly who are immunocompromised, have chronic heart disease and lung disease.

Norovirus

- Are a group of viruses that cause the “stomach flu” or gastroenteritis
- Sometimes referred to as “winter vomiting disease”
- Norovirus belongs to the virus family Caliciviridae.
- Small round structured non-enveloped viruses.
- First outbreak identified in Norwalk Ohio in 1972.

Norovirus

- Incubation period of Norovirus is 24-48 hours with a range of 10-50 hours.
- Illness is characterized by acute onset of vomiting (often projectile), frequent watery non bloody diarrhea, abdominal cramps, nausea, malaise, headache and slight fever.
- The mode of transmission is by fecal-oral route, fomites, contaminated food or water and there is some evidence of droplet transmission from vomitus.

Clostridium difficile (C.difficile)

- Is a bacteria that causes diarrhea and more serious intestinal conditions such as colitis (inflammation of the colon).
- This bacteria is mainly acquired following antibiotic therapy and represents one of the most common hospital infections around the world.

C. difficile

- This bacteria is capable of forming spores which are very difficult to eliminate in the environment.
- Treatment with A/B alters the normal levels of good bacteria found in the intestines and colon. *C. difficile* can thrive when there are fewer good bacteria.

Risk Factors for *C. difficile*

- History of a/b usage
- Bowel surgery
- Chemotherapy
- Prolonged hospitalization
- Increased age
- Serious underlying condition