




Respiratory Infections in the Nursing Home

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Outline

- 1. General Principles** of geriatric medicine relevant to respiratory infection
- 2. Key Respiratory Infections to Know and Understand**
 - Presentation and Treatment
 - Common Questions and Controversies
- 3. What's Left to Say About COVID-19?**

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A Nursing Home is Like a Cruise Ship

- High population density
- Lots of contact with others and the environment
- Many are old and high risk



Implications

- Infection control very important
- Resistant organisms can spread quickly

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How Common Viruses Spread

<u>Infection</u>	<u>How It Spreads</u>
Influenza	Airway → Air → Airway
Cold Viruses	Face → Hand → Surface → Hand → Face
Norovirus	Butt → Hand → Surface → Hand → Face
COVID-19	Airway → Air → Airway

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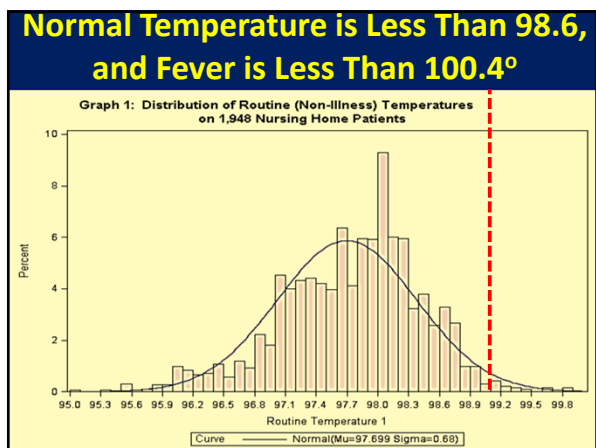
Why We Wear Masks to Combat Airborne Viruses



Choir practice attended by 61 persons. One with "cold" symptoms, and infected 52 with COVID-19.

MMMR Weekly May 15, 2020

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Concern About Antibiotic Overuse

Between 25-75% of antibiotic prescriptions in long term care do not meet evidence-based clinical guidelines

Prescribing antibiotics “just in case” was accepted in the past, but now antibiotics should be given after careful, evidence-based consideration of risks and necessity.

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X-Rays Are Often Unhelpful

- Quality is poor (patients move, often don't take deep breath)
- One view instead of two
- NH residents often have scarring from old infections
- Because of this, radiologists in about 1/3 of cases will provide a vague report (e.g., “cannot rule out infiltrate”)

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Aspiration Happens Frequently



- Up to 68% of NH residents aspirate
- Sign: cough after swallowing
- Usually clears without developing pneumonia
- But....
- Aspiration pneumonia is common in NH

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Can Aspiration Prevented?




- Thickened liquids do not reduce aspiration or pneumonia
- Posture adjustment (e.g. chin tuck) – limited benefit
- Diet modification leads to poor intake and greater use of supplements

Bottom line: Individualize, but do not torture patient with measures that may not work

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Bad Teeth Linked to Pneumonia


- Poor oral health → bacterial pathogens
- Bacteria get inhaled → aspiration pneumonia



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Mouth Care Without a Battle[®]

*Individualized Mouth Care
for Persons with Cognitive and Physical Impairment*



- * Module 1: Basic Techniques
- * Module 2: Managing Behavioral Challenges
- * Module 3: Nurse Supervisor Training
- Module 4: Short Overview for Administrators / Advocates

* Continuing education credit available

More information: mouthcarewithoutabattle.org

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**Cough Scares Providers,
Leading to Overtreatment**

Research Result: Cough Alone
Increases 3x the likelihood of a LTC
Patient Getting Antibiotics

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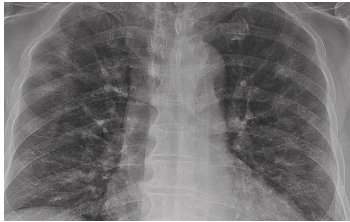

Cough Occurs in All Respiratory Infections

Infection Type	Common Cause	Common Symptoms	Distinguishing Features
Common Cold	Virus	Nasal congestion/sneezing Sore throat Dry cough +/- fever	Nasal symptoms Normal vitals (+/- fever) Unchanged lung exam
Acute bronchitis	Virus	Cough (+/- sputum) +/- Fever	Normal chest X-ray Normal vitals (+/- fever)
Pneumonia	Bacteria or Virus	Cough (+ sputum) Pleuritic chest pain Fever	Abnormal vital signs Abnormal lung exam Infiltrate on chest X-ray Mental status changes
Influenza-like illness	Virus	Sore throat Dry cough Fever	Chills Body aches Malaise
COPD exacerbation	Virus or bacterial	Cough (+/- sputum) +/- Fever	Normal chest X-ray Normal vitals (+/- fever)

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Not-So-Novel Coronavirus (COVID-19)

- Clinical picture from no symptoms to pneumonia
- 40% of deaths come from nursing home
- Drop in pulse ox usually precedes decompensation

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What "Looks Like the Flu"?

- Starts suddenly
- Fever and chills
- Dry cough
- Mild or moderate sore throat
- Fatigue and muscle aches
- Probability increases in "flu season"

RED = best to distinguish flu from other respiratory viruses.

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When and Whom to Test for Flu

"Influenza testing should occur when any resident has signs and symptoms of influenza-like illness."

CDC defines influenza-like condition as an unexplained illness characterized by:

- Fever > 100°F, 37.8°C
- PLUS
- cough and/or sore throat

for details on lab testing, check CDC website
<http://www.cdc.gov/flu/professionals/infectioncontrol/ltc-facility-guidance.htm>

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Flu Shot Effectiveness Is Mediocre - But It's the Best We Have -


Percent Effectiveness of Flu Vaccines over the Past 15 Years

Season	Percent Effectiveness
2006-2007	21
2007-2008	52
2008-2009	37
2009-2010	41
2010-2011	56
2011-2012	60
2012-2013	47
2013-2014	49
2014-2015	52
2015-2016	19
2016-2017	48
2017-2018	40
2018-2019	38
2019-2020	45

Reference: J Am Med Dir Assoc. 2020 Jan;21(1):25-28.e2.

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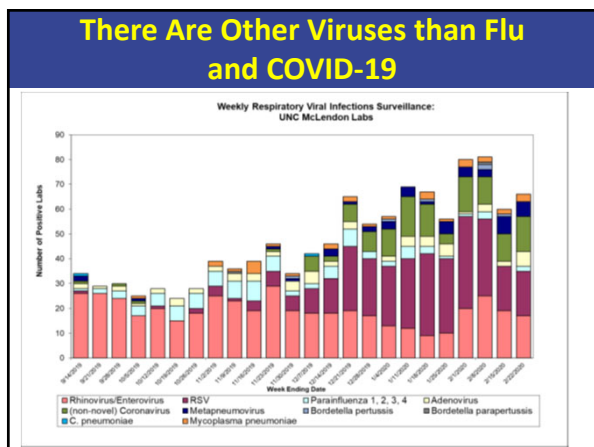
Key Components of an Effective Nursing Home Influenza Program



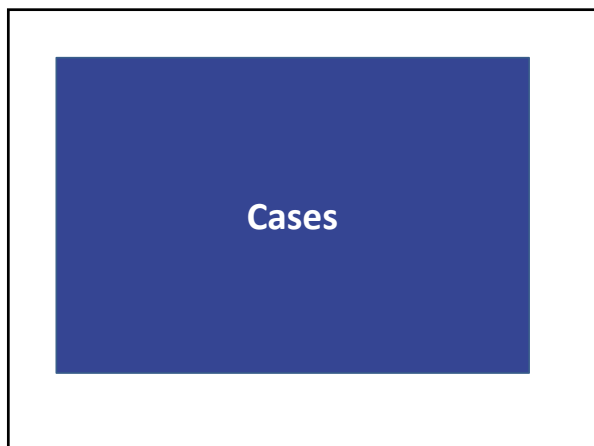
Component	Main Points
Vaccination	<ul style="list-style-type: none"> Offer vaccine to all residents Require staff to be vaccinated
Surveillance and testing	<ul style="list-style-type: none"> In influenza in community, watch for clinical signs suggesting influenza Test any person with suspicious symptoms
Infection prevention and control measures	<ul style="list-style-type: none"> Place ill persons on droplet precautions Outbreak = 2 lab-confirmed cases in 72 hours If outbreak, institute control measures: visitor restrictions, test suspicious cases, notify health department, institute antiviral treatment and chemoprophylaxis
Antiviral treatment	<ul style="list-style-type: none"> Treat all residents with confirmed or suspected influenza
Antiviral chemoprophylaxis	<ul style="list-style-type: none"> If outbreak on a unit (2 cases), offer antiviral prophylaxis to all non-ill residents on that unit Consider prophylaxis for unit staff

Reference: <http://www.cdc.gov/flu/professionals/infectioncontrol/ltc-facility-guidance.htm>

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Case 1: Mr. Jackson



- 82 year old, never smoked
- 4 days of illness
- Prominent symptoms are runny nose and sneezing.
- Had sore throat on first two days, now gone.
- Mild, dry cough
- No dyspnea
- Energy level normal

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More about Mr. Jackson

Temperature:	98.4°F
Blood Pressure:	145/85
Respiratory rate:	18
Pulse:	75
Pulse ox:	97%
Mental status:	Baseline
Lung exam:	Clear

1. What is the most likely diagnosis?
2. What treatment(s) are indicated?

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What to do for Mr. Jackson's viral respiratory infection?

TO DO:

- Obtain COVID test
- Respiratory isolation until COVID test is back
- Reassure patient and/or family
- Monitor vital signs and worsening signs or symptoms
- Encourage fluids and rest
- Acetaminophen or NSAIDS for fever/pain
- Nasal saline spray/humidified air for congestion
- Consider cough medicine


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“Sinus” and “Sinusitis”

- When people say they have “sinus” they don’t usually mean acute sinusitis.
- Acute sinusitis requires: purulent nasal drainage plus nasal obstruction and/or facial pain, pressure, or fullness, and (usually) fever.
 - Most is viral, a minority are bacterial
 - Proven effective: nasal steroids
 - Unproven effectiveness: antibiotics [but still they are overused]

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Case 2: Mr. Leonard



- 76 year old non-smoker
- 5 days of illness
- Began with nasal congestion, sore throat
- Soon cough became main symptom, worse at night
- Small amount of sputum
- Decreased appetite, more tired but up and about

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More about Mr. Leonard

Temperature:	99.4°F
Blood Pressure:	130/75
Respiratory rate:	18
Pulse:	75
Pulse ox:	97%
Mental status:	Baseline
Lung exam:	Scattered wheezes

1. What is the most likely diagnosis?
2. What treatment(s) are indicated?

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What is Mr. Leonard's Diagnosis?



Upper Respiratory Infection	
<input checked="" type="checkbox"/>	Nasal congestion
<input checked="" type="checkbox"/>	Sore throat
<input checked="" type="checkbox"/>	Sneezing
Acute Bronchitis	
<input checked="" type="checkbox"/>	Cough
<input checked="" type="checkbox"/>	Low grade fever
<input checked="" type="checkbox"/>	Normal other vital signs/non-focal lung exam (often with expiratory wheezes)

Could this be COVID-19?

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What can be done for acute bronchitis?

TO DO:

- Obtain COVID test
- Respiratory isolation until COVID test is back
- Reassure patient and/or family
- Monitor vital signs and worsening signs or symptoms
- Encourage fluids and rest
- Acetaminophen or NSAIDS for fever/pain
- Nasal saline spray/humidified air for congestion
- Cough medicine or inhaled bronchodilator

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What About Antibiotics?

Most cases of bronchitis are VIRAL and won't improve with antibiotic treatment.

65% of acute bronchitis cases in nursing homes did not follow evidence-based antibiotic treatment guidelines

2d most common reason for inappropriate antibiotic use in NHs

J Am Geriatr Soc. 2011 Jun;59(6):1093-8

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“...But the Family Expects an Antibiotic”

Studies show:

- Patient/family expectations for antibiotics are overestimated
- Satisfaction is not severely impacted when antibiotics not given
- Communication and education are key

Nursing staff have the opportunity to educate and reassure

BMJ, 1998 Sep 5;317(7159):637-42.
Cochrane Database Syst Rev, 2013 Apr 30:4.
J Gen Intern Med, 2014 Nov 6

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How To Talk To Patients And Families About Viral Respiratory Illness

- **Inform** that resident is ill and staff is helping them – by providing symptom relief and monitoring

- **Advise** on illness course
 - Colds: up to 1.5 weeks
 - Bronchitis: up to 3 weeks

- **Respond** to concerns

- **Reassure** that antibiotics not needed
 - explain risks
 - explain that you will monitor



BMJ, 2008;337:a437

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What Could You Tell Mr. Leonard's Concerned Family?



Advise on illness course:

“His cough might last several more days to several weeks, and it may take him a while to feel better.”

Respond to concerns about symptoms:

“We’re going to help him feel more comfortable so his body can fight this virus. He’ll need plenty of fluids and rest. Also, we’ll give medicine for his fever and cough, and keep an eye on him.”

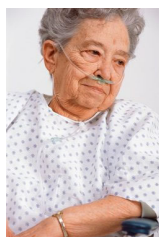
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If the Family Asks Specifically About Antibiotics

"Mr. Leonard's chest cold is caused by a virus, and antibiotics won't help viruses. Giving him antibiotics when they aren't needed can cause side effects and make it so that antibiotics won't work when he really needs them. We will monitor him closely for any change in condition that might indicate a need for antibiotics."

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Case 3: Mrs. Gallagher



- 78-year-old, smoker, COPD, on oxygen (2 L/min)
- 5 days of productive cough
- Increased dyspnea
- Pulse ox 93% (normal 93-95%)
- Temperature 100.0 °F
- Exam: rhinorrhea, nasal congestion, anterior wheezes.
- X-ray: no acute changes

1. What is the most likely diagnosis?
2. What treatment(s) are indicated?

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Are Antibiotics Indicated for COPD Exacerbations?

- Cochrane systematic review:
 - large beneficial effects patients admitted to an ICU
 - For outpatients and inpatients, results inconsistent
- Guidelines for COPD exacerbation:
 - Mild disease: start with inhaled bronchodilator, consider oral steroids. If inadequate relief, consider antibiotic
 - Moderate / severe disease → inhaled bronchodilator, oral steroids, and antibiotics
 - Monitor for signs of pneumonia


Cochrane Database Syst Rev. 2012 Dec 12;12:CD010257.
Ann Intern Med 2001;134:521-529.

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Pneumonia

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What Clinical Signs Suggest Pneumonia?




- Abnormal vital signs
 - Fever
 - Respiratory rate > 25 (90% sensitive, 90% specific)
 - Tachycardia
- Pulse ox drop of >3% (about 75% sensitive and 75% specific)
- New localized rales on physical exam
- Acute delirium

Clin Endocrinol 1984; 20:451-6.
Am J Med Sci 2002; 324:237-42.

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Three Main Types of Pneumonia



- Aspiration pneumonia
 - Most common type of pneumonia in NH patients
 - Affects 300,000 – 600,000 Americans annually
 - Oral bacteria predominate

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- **Other bacterial pneumonia**
 - Often spontaneous, can follow viral infection
 - Variety of organisms

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Three Main Types of Pneumonia



- Aspiration pneumonia
 - Most common type of pneumonia in NH patients
 - Affects 300,000 – 600,000 Americans annually
 - Oral bacteria predominate
- **Other bacterial pneumonia**
 - Often spontaneous, can follow viral infection
 - Variety of organisms
- **Viral pneumonia**
 - Common Causes: Flu and COVID-19
 - Develops more slowly

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Aspiration Pneumonitis vs Pneumonia



- Controversial area
 - When to diagnose?
 - When to treat?
 - How to prevent?
 - How best to treat?
- **Pneumonitis** – inflammation without infection
- **Pneumonia** – infection by a microorganism

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Monitoring For Signs And Symptoms of Pneumonia

- Fever (especially if >100.4 °F)
- Respiratory rate \geq 25 breaths/minute
- Elevated pulse (>100 beats per minute)
- Oxygen saturation <94% on room air or >3% reduction baseline
- New or worsening shortness of breath
- Lung exam with focal changes

If pneumonia is suspected, contact the provider.

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Should We Prescribe Antibiotics for Pneumonia at the End of Life?

- Sir William Osler – pneumonia as the “old man’s friend”
- Terminal bronchopneumonia occurs in most dying patients
- Relieving dyspnea is crucial to quality of dying
 - Most effective treatments include positioning, oxygen/humidification, sedatives / opioids
 - Antibiotics are NOT effective treatment for dyspnea; can cause nausea and diarrhea
 - Consider alternatives when comfort is main goal of care

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To Sum it Up

“In some ways we feel we are as confused as ever, but we believe we are confused on a higher level and about more important things.”

Earl C. Kelley, Professor of Secondary Education, Wayne State University.

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