

Respiratory Infections in Older Persons

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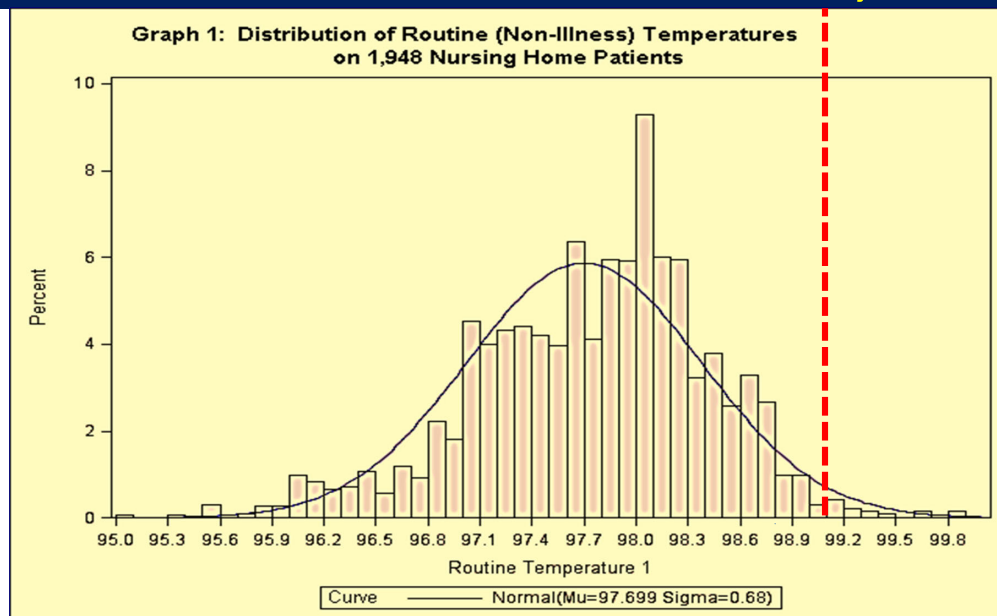


Topics to Be Covered

- 1. General Principles of geriatric medicine relevant to respiratory infection**
- 2. How The COVID-19 Pandemic Has Changed the Way We Think About Respiratory Infections**
- 3. Other Common Respiratory Infections to Know and Understand**
 - Presentation and Treatment
 - Common Questions and Controversies

Basic Principles of Geriatric Medicine of Importance in Understanding, Diagnosing, and Managing Respiratory Infection

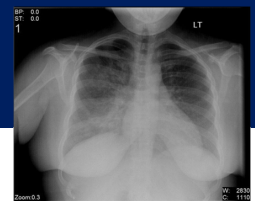
**Average “Normal” Temperature is 97.7, not 98.6,
and the Fever Threshold Should Be 99.0, not 100.4°**



Antibiotic Stewardship is Important

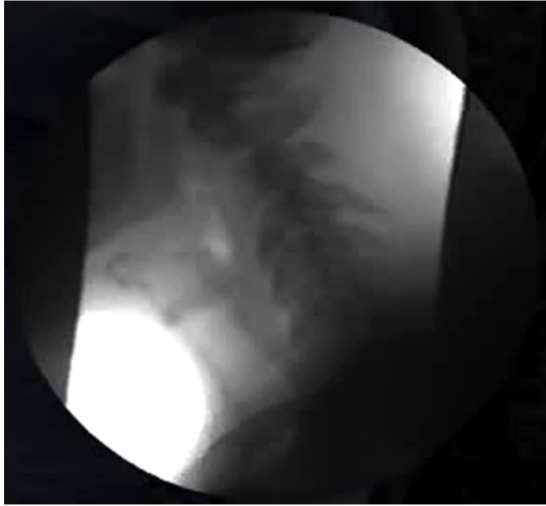
- Nursing homes have a higher prevalence of multi-drug resistant organisms than hospitals
- Prescribing antibiotics “just in case” is no longer accepted practice
- Major targets for antibiotic stewardship:
 1. “Urine infection” this isn’t an infection
 2. “Bronchitis” and “sinusitis” that isn’t bacterial
 3. “Cellulitis” that isn’t cellulitis
 4. Antibacterial treatment of COVID

Mobile Chest-X-ray Limitations



- Many residents can’t sit up or stay stable
- Portable cameras don’t take great pictures
- Lack of previous films for comparison
- Radiologists disagree frequently on
 - the presence or absence of infiltrates ($K = 0.54$)
 - pleural effusions ($K = 0.8$)
 - hilar lymphadenopathy ($K = 0.54$)
 - mediastinal lymphadenopathy ($K = 0.49$)

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

Thickened Liquids Often Can't Prevent Aspiration



- Evidence does not support belief that thickened liquids 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

Bad Teeth Are Linked to Pneumonia

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



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

Cough Scares Nurses, Providers, and Families, Leading to Overtreatment

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

But.....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)

What We Learned from COVID-19

Different Viruses Spread Differently

<u>Infection</u>	<u>How It Spreads</u>	<u>Key to Prevention</u>
Influenza	Cough → Droplets	- Droplet precautions
Cold Viruses	Face → Hand → Surface; Sneeze → Droplets	- Hand washing, surgical mask
Norovirus	Butt → Hand → Surface	- Hand washing
COVID-19	Breath → Microdroplets	- Airborne precautions

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

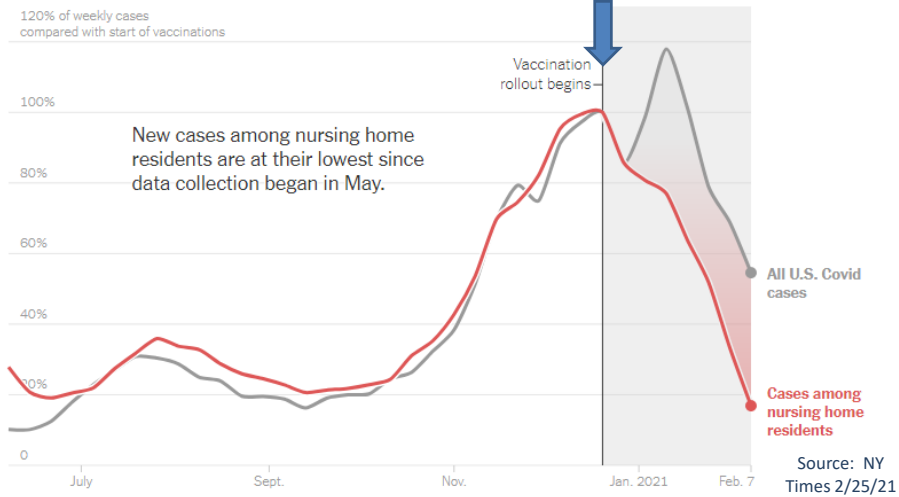
- Infection control very important
- Infections can spread quickly

The R_0 and Mortality Rate Determine Seriousness of an Infection

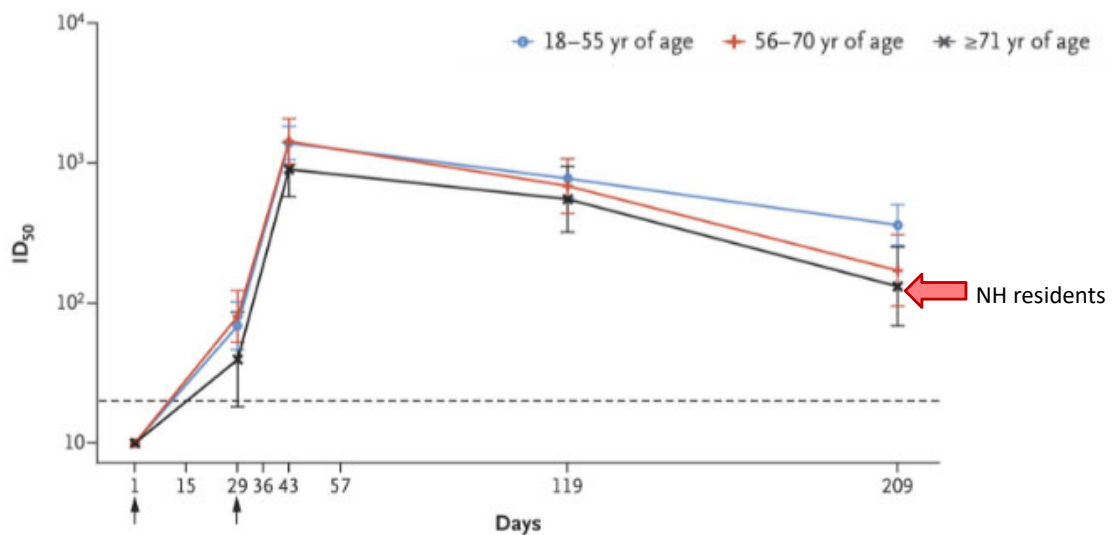
	Common Cold
Contagiousness (R_0)	6.0
Deadliness (Mortality)	0%

The Incredible Impact of Vaccination

New COVID-19 Cases Among Nursing Home Residents May 2020 – February 2021



Drop-Off in Antibody Levels after Immunization Is Steeper in Older Persons



We Can Treat COVID-19 in the Nursing Home

- Diagnose, monitor and support all patients with COVID-19 illness
- Monoclonal antibodies for mild to moderate COVID-19 in high-risk patients
- Prophylactic anticoagulation (e.g., with enoxaparin [Lovenox]) is NOT generally recommended for nursing home residents.
- Indications for hospitalization
 - Oxygen requirement increasing (typically beyond 6 L/min)
 - Testing needed that is not available in the NH

Most NH Residents Meet Monoclonal Antibody Criteria

- **Candidates – Persons with Early COVID-19 High Risk for Hospitalization and Death**
- Age 65+
- Obesity (BMI >30)
- Chronic diseases (e.g., diabetes, heart disease, COPD, renal disease)
- Device use (not COVID related) such as tracheostomy, gastrostomy, or positive pressure ventilation

Exclusions

- Require oxygen therapy due to COVID-19; or
- On chronic oxygen therapy and require increase from baseline because of COVID-19.

Shifting Criteria for Monoclonal Antibody Treatment

- December 2021 - bamlanivimab plus etesevimab or casirivimab plus imdevimab
- January/February – Omicron became dominant COVID-19 variant, and they were much less effective
- Recommendations switched to Sotovimab (\$2,100 per dose)

Antiviral Pills for COVID-19: The New “Tamiflu”

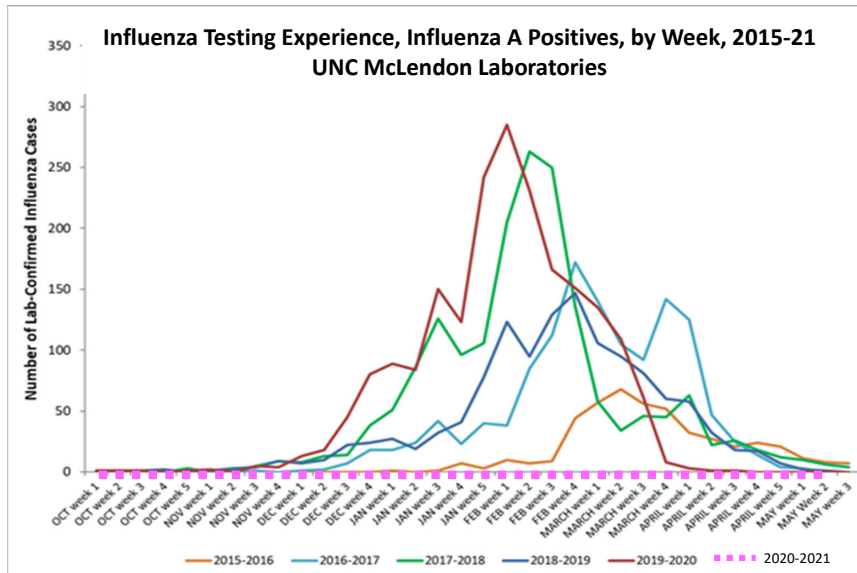
2 are now available:

- Paxlovid (Pfizer)
- Molnupiravir (Merck)

Cost for 5 day course of paxlovid is between \$500 and \$600

There are others (depending on variant susceptibilities) are likely to be regarded in the future as we have come to regard Tamiflu for influenza

The Amazing Disappearing Seasonal Flu Spikes Because of Mask Use and Social Distancing



Too Many COVID-19 Patients Got Antibiotics



24 Studies
included



3338 COVID-19
Patients



December 2019
to March 2020

3.5%
Co-Infection

On presentation

14.3%
Secondary
Infection

After presentation

71.8% Antibiotic
Prescribing

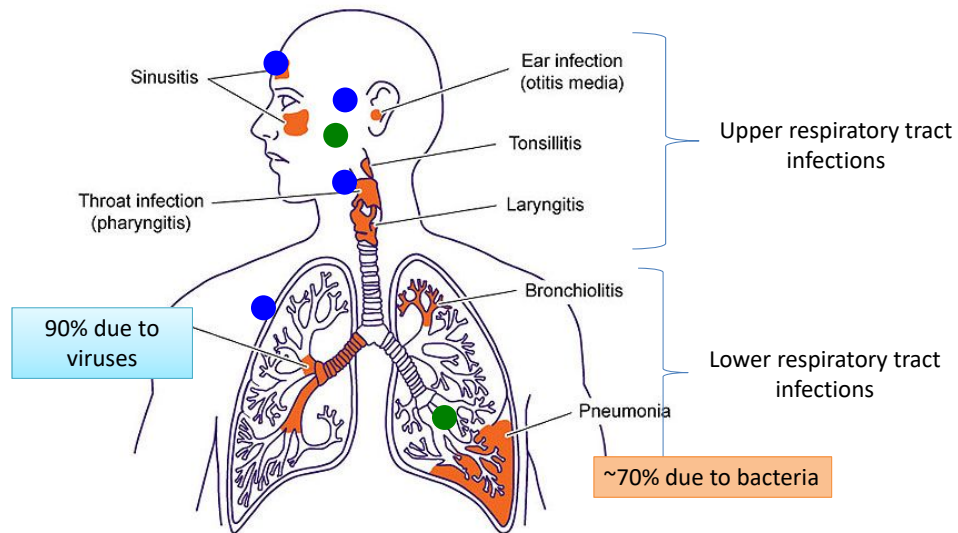
Possible Lessons from COVID to Apply in the Future

- Infection control measures WILL keep viruses out of facilities
 - ✓ Have all staff wear masks as soon as flu or COVID is in your community
 - ✓ Screen visitor for symptoms and temperature
- Because antibiotics continue to be overprescribed:
 - ✓ Work harder with medical staff to develop and use prescribing guidelines
- Because antivirals work:
 - ✓ Work harder with medical staff to develop and use prescribing guidelines
- Because rapid COVID testing has been helpful:
 - ✓ Have rapid COVID and Flu testing capacity in the future; possibly for other viruses as well
- Because of the negative impact of visitor restriction:
 - ✓ Try to avoid complete visitor lockdowns in the future

Other
Common Respiratory
Infections

Acute Respiratory Tract Infections

- Syndromes caused primarily by viruses
- Syndromes caused primarily by bacteria



Case #1



- 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

Vital Signs

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

What's the likely diagnosis?

Could this be COVID-19?

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)

What can and should we do for this patient?

There is Plenty You CAN Do for Acute Bronchitis

Order Set for Acute Bronchitis

- ☒ Obtain COVID test
- ☒ Airborne 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

“...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

How To Talk To Patients And Families About Viral 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

What Could You Say to 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.”

If the Family Asks Specifically About Antibiotics

“His 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.”

Case #2



- 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

What’s the likely diagnosis?

Are Antibiotics Indicated?

Which COPD Exacerbations Benefit from Antibiotics?

- 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

Lest we Forget.....Influenza

- 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.

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:

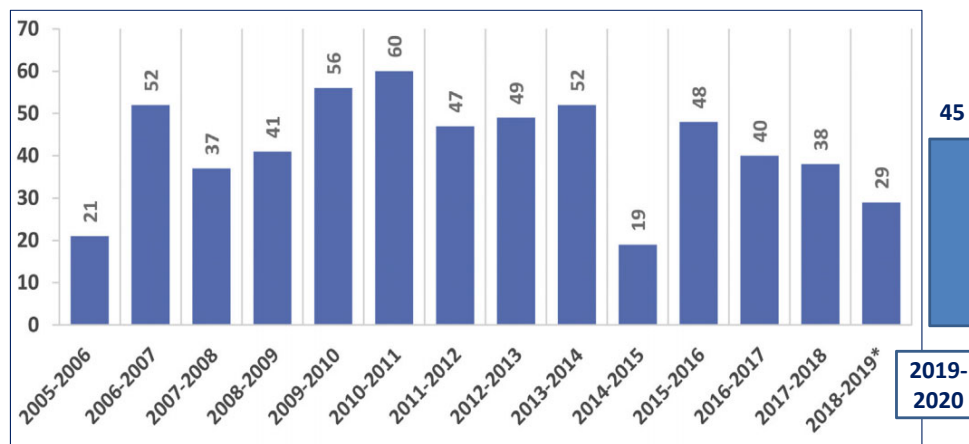
- Fever > 100°F, 37.8°C
PLUS
- cough and/or sore throat

for details on lab testing, check CDC website

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

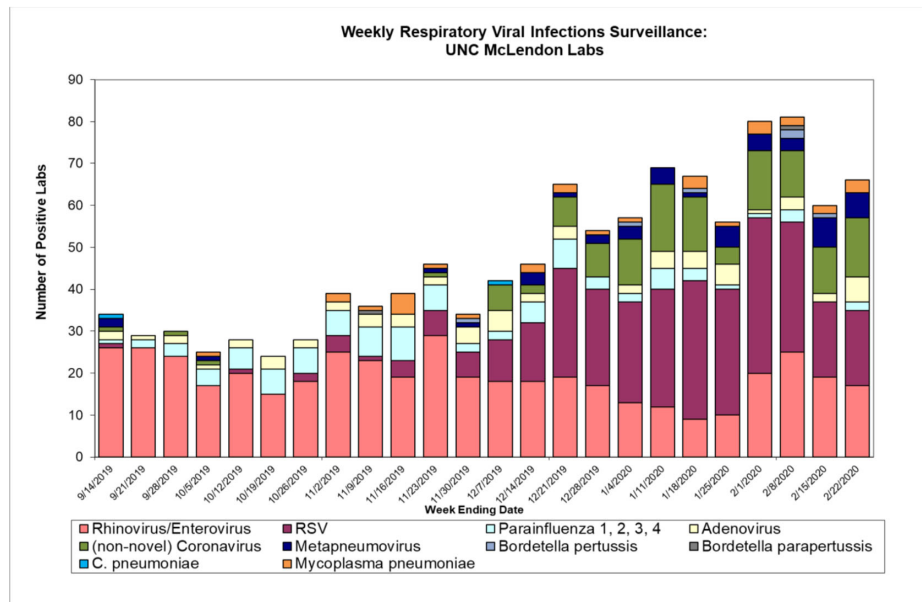
Flu Shot Effectiveness Is Mediocre - But It's the Best We Have -

Percent Effectiveness of Flu Vaccines over the Past 15 Years



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

There Are Other Viruses than Flu and COVID-19



Pneumonia:
“The ‘Old Man’s Friend’?”

Pneumonia Signs and Symptoms in NH Residents



- 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
- WBC \geq 14,000 or left shift

Three Main Types of Pneumonia: Aspiration



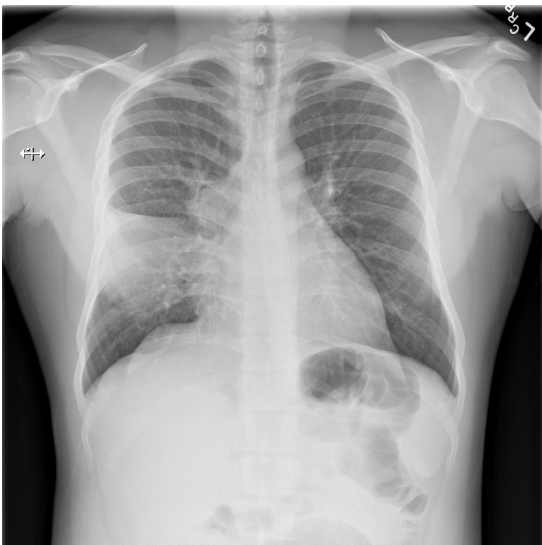
- Aspiration pneumonia
 - Most common type of pneumonia in NH patients
 - Affects 300,000 – 600,000 Americans annually
 - Oral bacteria predominate

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

Three Main Types of Pneumonia: Other Bacterial



- 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

Three Main Types of Pneumonia: Viral



- 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

When Antibiotics May Not Be Needed in Pneumonia

1. Chemical pneumonitis due to aspiration

- Symptoms and abnormal CXR usually resolve within 24 hours
- Antibiotics indicated if CXR changes fail to resolve in 48 hours

2. Viral pneumonia/bronchitis

3. Palliative care (e.g. end-stage dementia)

- William Osler: Pneumonia as “old man’s friend”
- Dyspnea is problem, treatment is oxygen, sedatives, opiates

To Sum it Up

Respiratory infection is more important than ever before in nursing home care.

Detection, diagnosis, and appropriate treatment require knowledge and the entire interdisciplinary team.