Pneumonia in the Nursing Home Setting

Teresa Lubowski, Pharm. D., B.S., CPHQ
Director, Quality Improvement Medication Safety
HQIC Antibiotic Stewardship Workgroup Lead
HQIC Opioid and ADE Workgroup Lead

Melanie Ronda, MSN, RN, LTC-CIP, CPHQ
Assistant Director, Infection Prevention Specialist
Nursing Home Lead: NJ, NY, Ohio
Quality Improvement Initiative Task Lead

NY DOH Presentation 1-26-23

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Learning Objectives

- Review upper and lower respiratory tract infection sites and associated organisms.
- Describe pneumonia severity assessment resources.
- Identify empiric bacterial pneumonia treatment regimens including duration of therapy.
- List treatment options for COVID infection including time to start.
- Analyze a pneumonia case study.

Pneumonia Epidemiology

- Occurs in approximately 1-2 residents for every 1000 days of NH residence.
- NH residents with pneumonia that require hospitalization can have a mortality rate ranging from 13-41%
- Organism overwhelms the host defense, and the pathogen replication initiates an immune response leading to inflammation and alveolar irritation and impairment resulting in symptoms.
- Approximately 80% of NH residents with pneumonia exhibit 3 or fewer respiratory signs or symptoms, but 92% have at least one identifiable respiratory manifestation.

Nursing home pneumonia- StatPearls- NIH – Last update 7-18-22
Mills et al. Treatment of Nursing Home-Acquired Pneumonia. American Family Physician 2009

Respiratory tract infections are common. They range from the common cold to pneumonia.

- Common Cold
  - An upper respiratory tract infection that can be caused by many different viruses. Treatment is supportive care (rest, fluids, analgesics) and time.
- Acute Bronchitis
  - Inflammation of the large airways. The vast majority (90%) of these infections are caused by viruses. Distinguishing this infection from pneumonia can be challenging.
- Influenza
  - A viral infection most common in the winter months (October through March). The best way to avoid this infection is by getting a yearly influenza vaccination or "flu shot."
- Pneumonia
  - Inflammation of the lung. In adults, about one-fourth of these are caused by viruses with the remainder caused by bacteria. The diagnosis is made, in part, using a chest X-ray.

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Upper or Lower Respiratory Tract Infection Descriptions

Sinusitis

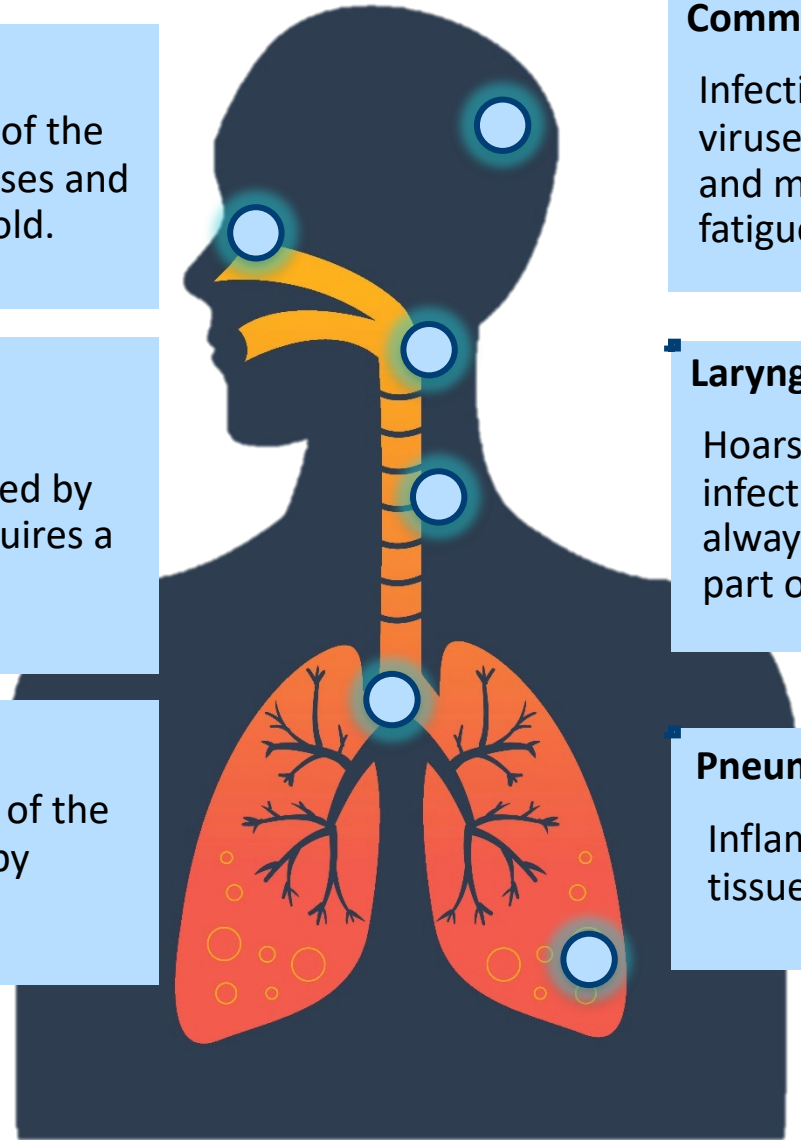
Inflammation and infection of the sinuses; 98% caused by viruses and usually part of a common cold.

Strep Throat

Infection of the tonsils and posterior oropharynx. Caused by group A *Streptococcus*. Requires a diagnostic test.

Bronchitis

Inflammation and infection of the large airways; 90% caused by viruses.



Common Cold

Infection caused by many different viruses. Affects sinuses and throat and may also cause headache, fatigue, low-grade fever.

Laryngitis

Hoarse voice; inflammation and infection of the vocal cords; nearly always a viral infection and usually part of a common cold.

Pneumonia

Inflammation and infection of lung tissue; ~75% caused by bacteria.

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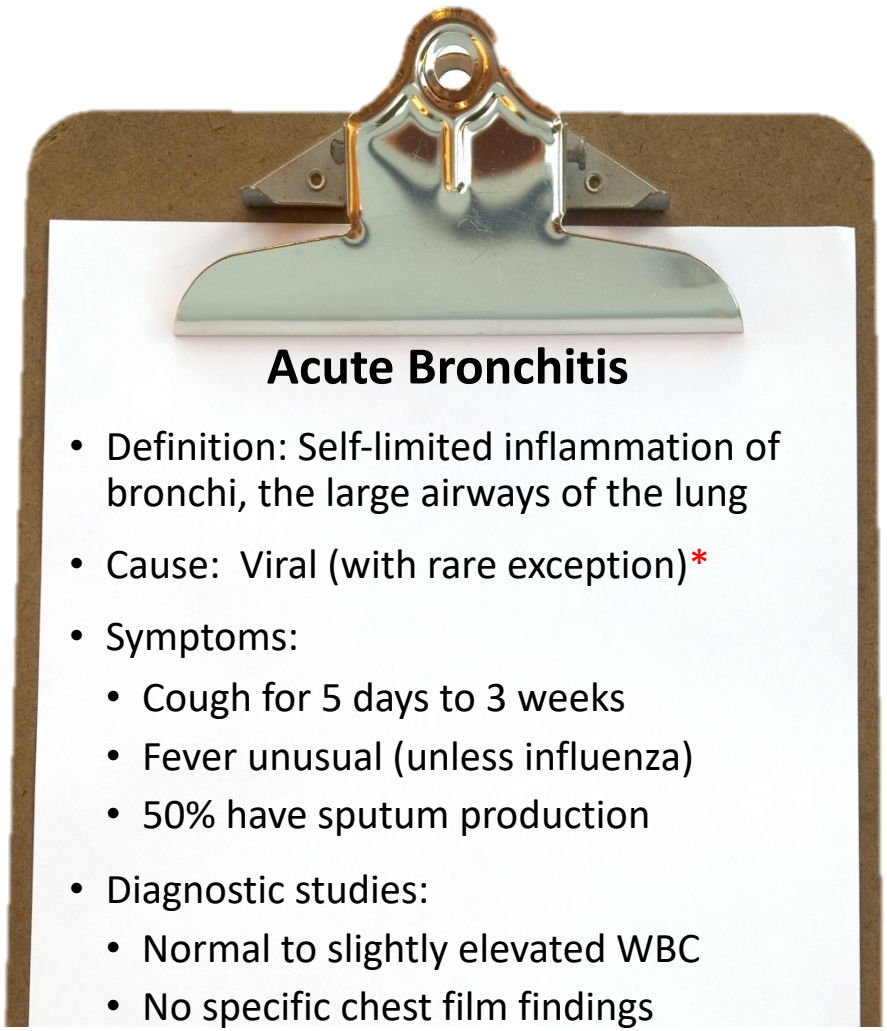
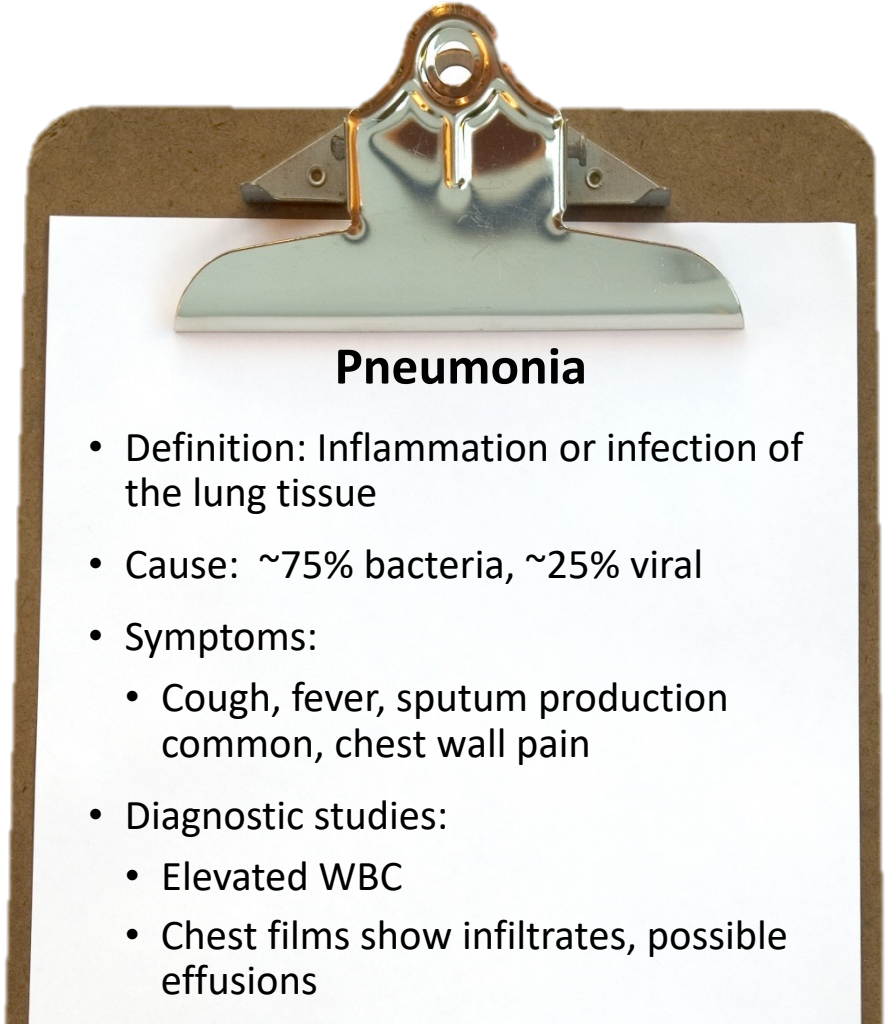
Bronchitis Versus Pneumonia



Acute Bronchitis

- Definition: Self-limited inflammation of bronchi, the large airways of the lung
- Cause: Viral (with rare exception)*
- Symptoms:
  - Cough for 5 days to 3 weeks
  - Fever unusual (unless influenza)
  - 50% have sputum production
- Diagnostic studies:
  - Normal to slightly elevated WBC
  - No specific chest film findings



Pneumonia

- Definition: Inflammation or infection of the lung tissue
- Cause: ~75% bacteria, ~25% viral
- Symptoms:
  - Cough, fever, sputum production common, chest wall pain
- Diagnostic studies:
  - Elevated WBC
  - Chest films show infiltrates, possible effusions

*Bacterial causes include *Mycoplasma pneumoniae, Chlamydia pneumoniae, and Bordetella pertussis, which causes whooping cough.* Bordetella is the only one of these that requires antibiotic treatment.[3]

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Pneumonia Symptoms

- New cough
- Dyspnea
- Pleural Pain
- Sweating
- Fever- Temperature > or = 38C
- Shivers
- Aches and pains
- Sputum production
- New and localizing chest examination signs

CURB-65

- CURB-65 (1pt each): if score = 0-1, patient may be treated as an outpatient. Residents with 2 or more points have mortality greater than 9.2% and require hospital admission.
    - decreased **C**onsciousness
    - increased blood **U**rea nitrogen BUN
    - **R**espiratory rate >30/min
    - **B**P < 90 systolic or diastolic ≤ 60
    - age >**65** years)

https://www.mdcalc.com/calc/324/curb-65-score-pneumonia-severity

PSI Scoring System (CAP)- Class I-V

Patient characteristics	Points assigned
Demographic factors	
Age (1 point/year)	
Men	Age (yr)
Women	Age (yr)-10
Nursing home resident	+10
Comorbid illnesses	
Neoplastic disease	+30
Liver disease	+20
Congestive heart failure	+10
Cerebrovascular disease	+10
Renal disease	+10
Physical examination findings	
Altered mental status	+20
Respiratory rate ≥ 30 breaths/minute	+20
Systolic blood pressure < 90 mm Hg	+20
Temperature < 30°C or ≥ 40°C	+15
Pulse ≥ 125 beats/minute	+10
Laboratory findings	
PH < 7.35	+30
Blood urea nitrogen > 10.7 mmol/L	+20
Sodium < 130 mEq/L	+20
Glucose > 13.9 mmol/L	+10
Hematocrit < 30%	+10
PO_2 < 60 mm Hg (or SaO_2 < 90%)	+10
Pleural effusion	+10

Points total	Risk Class	Mortality Rates	Patient Care Location
< 51	I	0.1%	Outpatient
51 to 70	II	0.6%	Outpatient
71 to 90	III	2.8%	Ideally, in an observation unit with re-evaluation
91 to 130	IV	8.2%	Inpatient
> 130	V	29.2%	Inpatient, likely ICU

https://www.mdcalc.com/calc/33/psi-port-score-pneumonia-severity-index-cap

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CAP Likely Pathogens- Johns Hopkins Guide 2023

Commonly seen organisms listed below:

- *Streptococcus pneumoniae*
- *Haemophilus influenzae*
- *Klebsiella pneumoniae*
- *Moraxella catarrhalis*
- *Chlamydophila pneumoniae*
- *Legionella* species
- *Mycoplasma pneumoniae*
- Viruses: influenza A, RSV, parainfluenza, adenovirus, human metapneumovirus, rhinovirus, COVID
    - A CDC report of extensive microbiologic testing of 2,300 adults hospitalized for CAP showed the most common pathogens were rhinovirus (9%), influenza (6%) and *S. pneumonia* (5%), no pathogen detected in 62%[19].
- Occasional pathogens that may need to be considered in the setting of suspected community-acquired pneumonia, e.g., if immunocompromised or other special situations:
    - *Mycobacterium tuberculosis*
    - *Nocardia*
    - Group A Streptococcus
    - *Neisseria meningiditis*
    - Anaerobes (aspiration pneumonia)

Risk Factors for Colonization with a Resistant Organism- NH

- History of colonization with a resistant organism
- Recent antibiotic therapy (< 90 days)
- Recent hospitalization (< 90 days)
- Dependency in ADL requiring frequent contact with caregivers
- Dialysis
- Wounds (pressure ulcers)
- Indwelling devices (urinary catheters, feeding tubes etc)
- Lung disease (COPD or bronchiectasis)

Mylotte. JAMDA 21; 2020: 315-321

Diagnostic Testing and Laboratory Values

- Chest X-ray nearly always shows an infiltrate
- Sputum Culture and Gram Stain - important if resident has risk factors for resistant organisms

Diagnostic Tests

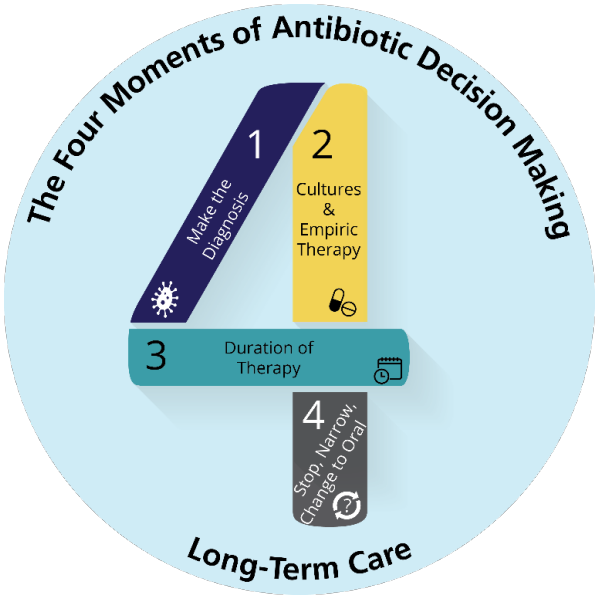
Gram stain and sputum culture
Respiratory viral panel
Coronavirus infection or COVID-19 PCR
Streptococcus pneumoniae urinary antigen (Ag)
Legionella urinary Ag

AHRQ Antibiotic Stewardship Toolkit- Respiratory Tract Infection

Clinical Considerations

- Up to 70% of CAP without pathogen identified.
- Initiate antibiotics within 4 hours, but now recommended as soon as possible and prior to patient leaving the ER for hospitalized patients. If septic shock, administer within 1 hour.
- Patients should show a clinical response within 48-72 hours of antibiotic administration. If not consider a non-responder and re-evaluate for pathogen and treatment.
- Duration of therapy 5 day minimum. Most recommend patients be afebrile for 48-72 hours with supplemental oxygen and stable vitals.

The AHRQ Four Moments of Antibiotic Decision Making



1. Does the resident have symptoms that suggest an infection? Can we try symptomatic treatment and active monitoring?
2. What type of infection is it? Have we collected appropriate cultures and diagnostic tests before starting antibiotics? What empiric therapy should we initiate?
3. What duration of antibiotic therapy is needed for the resident's diagnosis?
4. It's been 2–3 days since we started antibiotics. Re-evaluate the resident and review results of diagnostic tests. Can we stop antibiotics? Can we narrow therapy?

Loeb Criteria to Initiate Antibiotics - Pneumonia

Lower respiratory tract infection *with temp >38.9 °C (102 °F)*	At least one of the following criteria □ Productive cough □ Respiratory rate >25 breaths / minute
with temp >37.9 °C (100 °F) or 1.5 ºC (2.4 ºF) above baseline	Both of the following criteria □ Cough, AND □ At least one of the following criteria □ Pulse >100 beats / minutes □ Rigors □ Delirium □ Respiratory rate >25 breaths / minute
afebrile with COPD and >65 years old	Both of the following criteria □ New or increased cough □ Purulent sputum production
afebrile without COPD	All of the following criteria □ New cough □ Purulent sputum production □ At least one of the following criteria □ Delirium □ Respiratory rate >25 breaths / minute
with new infiltrate on chest X-ray consistent with pneumonia	At least one of the following criteria □ Productive cough □ Respiratory rate >25 breaths / minute □ Temp >37.9 °C (100 °F) or 1.5 °C (2.4 °F) above baseline

Note: *Consider ordering chest X-ray and CBC with differential for febrile residents with cough and any of these criteria (HR >100, worsening mental status, or rigors) Antibiotics should not be used for up to 24 h after large-volume aspiration in those without COPD but with temp ≤38.9ºC (102 ºF) and non-productive cough*

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Empiric Antibiotic Therapy - Start with IV or IM

- Ceftriaxone 500mg IM daily or Cefotaxime 1gm IM q12h for 1-3 days. Switch to oral regimen to finish therapy.
- Oral regimen
  - Cefpodoxime 200mg bid or Cefuroxime 500mg bid or Augmentin 875mg/125mg bid AND macrolide (azithromycin 500mg x1 then 250mg qd) or doxycycline 100mg bid

OR

  - Respiratory Quinolone- Levofloxacin 750mg qd or Moxifloxacin 400mg qd

Metlay et al. ATS Diagnosis and Treatment of Adults with Community Acquired Pneumonia. Practice Guidelines August 2019

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Empiric Antibiotic Therapy - Oral Only

- Oral regimen
  - Cefpodoxime 200mg bid or Cefuroxime 500mg bid or Augmentin 875mg/125mg bid AND macrolide (azithromycin 500mg x1 then 250mg qd) or doxycycline 100mg bid

OR

  - Respiratory Quinolone- Levofloxacin 750mg qd or Moxifloxacin 400mg qd

Metlay et al. ATS Diagnosis and Treatment of Adults with Community Acquired Pneumonia. Practice Guidelines August 2019

FDA-approved antiviral drugs recommended by CDC to treat Influenza

Generic	Trade Name	Dose	Indication	Dosage form	SIG	Other info
Oseltamivir phosphate	Tamiflu	30mg, 45mg, 75mg, 6mg/mL	Early influenza tx in people ≥ 14 days Influenza Ppx in people ≥ 1 year	Capsule, liquid suspension	**Tx:** 75mg BID x 5 days **Ppx:** 75mg QD x 10 days	Efficacy not established after 48 hours of sx.
Zanamivir	Relenza	5mg	Early tx of flu in people ≥ 7 years Influenza Ppx in people ≥ 5 years	Inhalation	**Tx:** 10mg BID x 5 days **Ppx:** 10mg QD x 10-28 days	NOT recommended for people with COPD or asthma NOT proven effective for Ppx in nursing home residents.
Peramivir	Rapivab	600mg	Early tx of acute uncomplicated influenza in people ≥ 18 years who have been symptomatic for no	IV	Once for minimum 15 mins	Efficacy not established for serious influenza requiring hospitalization.
Baloxavir marboxil	Xofluza	20mg, 40mg	Early tx of acute uncomplicated influenza in people ≥12 yrs	Tablet	**40-80kg:** two 20mg QD **≥80kg**: two 40mg QD	Avoid coadministration with dairy products, polyvalent cation containing antacids or laxatives

Administer approved antiviral treatments within 48 hours of symptom onset.

What you should know about flu antiviral drugs [Internet]. Centers for Disease Control and Prevention. Centers for Disease Control and Prevention; 2022 [cited 2022Oct18]. Available from: https://www.cdc.gov/flu/treatment

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COVID Therapeutics - Outpatient

- For patients at high risk of progressing to severe COVID-19, preferred therapies
  - Ritonavir-boosted nirmatrelvir (Paxlovid) - dose is 2 pink tablets of nirmatrelvir with 1 white tablet of ritonavir by mouth 2 times each day (in the morning and in the evening) for 5 days. For each dose, take all 3 tablets at the same time. Dose adjusted for renal impairment.
  - Remdesivir (Veklury) - dose is 200mg IV x1, then 100mg IV qd X3 days in outpatient setting.

- Alternate therapy if neither of preferred therapies are available
  - Molnupiravir (Lagevrio) - dose is 800mg (four 200mg capsules) q12h for 5 days

NIH COVID-19 Guideline: Non-Hospitalized

Table 2a. Therapeutic Management of Nonhospitalized Adults With COVID-19

Last Updated: September 26, 2022

Patient Disposition	Panel's Recommendations
Does Not Require Hospitalization or Supplemental Oxygen	**For All Patients** • All patients should be offered symptom management (**AIII**). • The Panel **recommends against** the use of **dexamethasone**[a] or **other systemic corticosteroids** in the absence of another indication (**AIIb**). **For Patients Who Are at High Risk of Progressing to Severe COVID-19**[b] *Preferred therapies. Listed in order of preference:* • **Ritonavir-boosted nirmatrelvir (Paxlovid)**[c,d] (**AIIa**) • **Remdesivir**[d,e] (**BIIa**) *Alternative therapies. For use ONLY when neither of the preferred therapies are available, feasible to use, or clinically appropriate. Listed in alphabetical order:* • **Bebtelovimab**[f] (**CIII**) • **Molnupiravir**[d,g,h] (**CIIa**)
Discharged From Hospital Inpatient Setting in Stable Condition, Even if Receiving Supplemental Oxygen	The Panel **recommends against** continuing the use of **remdesivir** (**AIIa**), **dexamethasone**[a] (**AIIa**), or **baricitinib** (**AIIa**) after hospital discharge.

Each recommendation in the Guidelines receives 2 ratings that reflect the strength of the recommendation and the quality of the evidence that supports it. See Guidelines Development for more information.

U.S. Department of Health and Human Services. (n.d.). *Clinical management of adults summary*. National Institutes of Health. Retrieved December 5, 2022, from https://www.covid19treatmentguidelines.nih.gov/management/clinical-management-of-adults/clinical-management-of-adults-summary/

FDA Updates on Bebtelovimab

- As of November 30, 2022, the U.S. Food and Drug Administration announced that Bebtelovimab is not currently authorized for emergency use in the U.S. because it is not expected to neutralize Omicron subvariants BQ.1 and BQ.1.1., according to data included in the Health Care Provider Fact Sheet.
- The Panel now **recommends against** the use of **Bebtelovimab** for the treatment of nonhospitalized patients with COVID-19 who are at high risk of progressing to severe COVID-19 **(AIII)**

U.S. Department of Health and Human Services. (n.d.). *What's new*. National Institutes of Health. Retrieved December 9, 2022, from https://www.covid19treatmentguidelines.nih.gov/about-the-guidelines/whats-new/

Center for Drug Evaluation and Research. (n.d.). *FDA announces Bebtelovimab is not currently authorized in the US*. U.S. Food and Drug Administration. Retrieved December 6, 2022, from https://www.fda.gov/drugs/drug-safety-and-availability/fda-announces-bebtelovimab-not-currently-authorized-any-us-region

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NIH COVID-19 Treatment Guideline Update

As of December 28, 2022, the antiviral drugs:

- Ritonavir-boosted nirmatrelvir (Paxlovid)
- Remdesivir, and
- Molnupiravir

are expected to continue to be active against the currently circulating Omicron subvariants for mild to moderate COVID-19 in non-hospitalized adults who are at high risk of progressing to severe COVID-19.

U.S. Department of Health and Human Services. (n.d.). *Update on Bebtelovimab*. National Institutes of Health. Retrieved December 8, 2022, from https://www.covid19treatmentguidelines.nih.gov/therapies/update-on-bebtelovimab/

What are Paxlovid, Lagevrio and Veklury?

Covid-19 Therapeutics. COVID-19 Therapeutics | HHS/ASPR. (n.d.). Retrieved December 13, 2022, from https://aspr.hhs.gov/COVID-19/Therapeutics/Pages/default.aspx

Outpatient COVID-19 Therapeutics:

Standard

Renal

Paxlovid Product Information:
https://www.paxlovid.com/

Labeling.pfizer.com. (n.d.). Retrieved December 13, 2022, from https://labeling.pfizer.com/ShowLabeling.aspx?id=16474#S7.3

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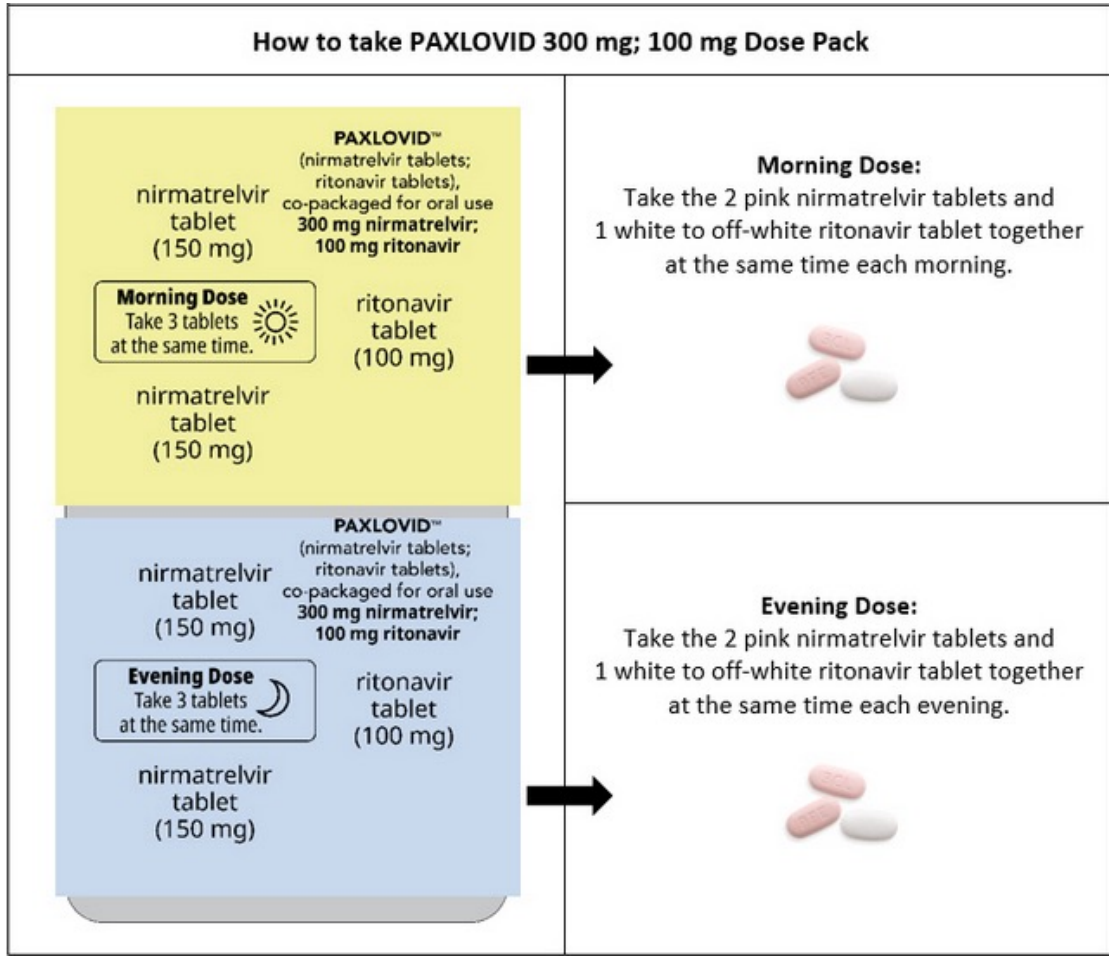
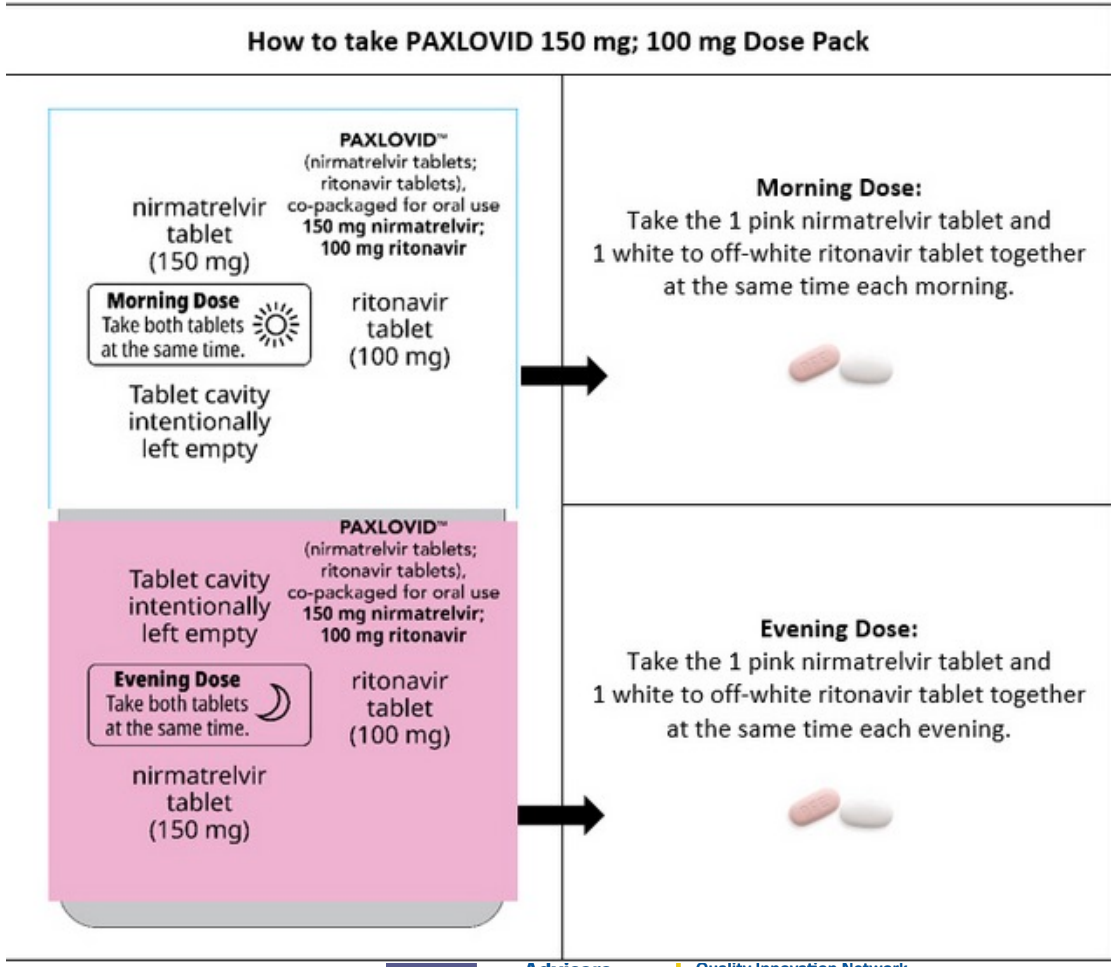
Outpatient COVID-19 Therapeutics:

Standard



Renal



Labeling.pfizer.com. (n.d.). Retrieved December 13, 2022, from https://labeling.pfizer.com/ShowLabeling.aspx?id=16474#S7.3

Outpatient COVID-19 Therapeutics:

Important to know

Administration Instructions

Inform patients to take PAXLOVID with or without food as instructed. Advise patients to swallow all tablets for PAXLOVID whole and not to chew, break, or crush the tablets. Alert the patient of the importance of completing the full 5-day treatment course and to continuing isolation in accordance with public health recommendations to maximize viral clearance and minimize transmission of SARS-CoV-2. If the patient misses a dose of PAXLOVID within 8 hours of the time it is usually taken, the patient should take it as soon as possible and resume the normal dosing schedule. If the patient misses a dose by more than 8 hours, the patient should not take the missed dose and instead take the next dose at the regularly scheduled time. The patient should not double the dose to make up for a missed dose *[see Dosage and Administration (2.1)]*.

Paxlovid Product Information:
https://www.paxlovid.com/

Labeling.pfizer.com. (n.d.). Retrieved December 13, 2022, from https://labeling.pfizer.com/ShowLabeling.aspx?id=16474#S7.3

Outpatient COVID-19 Therapeutics:

Lagevrio

Lagevrio (molnupiravir) Product Information
https://www.molnupiravir-us.com/

Veklury

Veklury Product Information
https://www.vekluryhcp.com/

Dunleavy, K. (2022, July 8). *FDA is letting pharmacists prescribe Pfizer's paxlovid but won't do the same for Merck's lagevrio*. Fierce Pharma. Retrieved December 13, 2022, from https://www.fiercepharma.com/pharma/fda-letting-pharmacists-prescribe-pfizers-paxlovid-wont-do-same-mercks-lagevrio
VEKLURY® (remdesivir) 100 mg for injection, lyophilized powder. (n.d.). Retrieved December 13, 2022, from https://www.vekluryhcp.com/downloads/information_for_payer_and_trade_organizations.pdf

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Medication Comparison:

Drug Name	Paxlovid (nirmatrelvir/ritonavir)	Lagevrio (molnupiravir)	Veklury (remdesivir)
Route of Administration	PO Administer with or without food. Swallow tablets whole; do not open, break, or crush	PO Administer with or without food. Swallow capsules whole; do not open, break, or crush	IV infusion
MOA	Viral protease inhibitor that halts viral replication	Nucleoside analog that inhibits viral replication by viral mutagenesis	Nucleotide analog ribonucleic acid (RNA) polymerase inhibitor that halts viral replication
Authorized Use	**Treatment of mild to moderate COVID-19**		
Manufacturer	Pfizer, Inc.	Merck Sharp & Dohme Corp., a subsidiary of Merck & Co., Inc.	Gilead Sciences, Inc.
FDA Approval	EUA December 22, 2021	EUA December 23, 2021	October 22, 2020

Side-by-Side Overview of Therapeutics Authorized or Approved for the Prevention of COVID-19 Infection or Treatment of Mild-Moderate COVID-19 has been moved to the ASPR COVID-19 website. For the most recent version of the page, please visit: https://aspr.hhs.gov/COVID-19/Therapeutics/Documents/side-by-side-overview.pdf

Labeling.pfizer.com. (n.d.). Retrieved December 13, 2022, from https://labeling.pfizer.com/ShowLabeling.aspx?id=16474#S7.3

Medication Comparison:

Drug Name	Paxlovid (nirmatrelvir/ritonavir)	Lagevrio (molnupiravir)	Veklury (remdesivir)
History Requirements	Assessment of renal health (eGFR) Assessment of hepatic health	Assessment of pregnancy status and oral contraceptive use Assessment of breastfeeding status	Assessment of renal health (eGFR), hepatic health and prothrombin time
Prescribing Window	Initiate within 5 days of symptom onset and positive SARS-CoV-2 viral test	Initiate within 5 days of symptom onset and positive SARS-CoV-2 viral test	Initiate within 7 days of symptom onset and positive SARS-CoV-2 viral test

Side-by-Side Overview of Therapeutics Authorized or Approved for the Prevention of COVID-19 Infection or Treatment of Mild-Moderate COVID-19 has been moved to the ASPR COVID-19 website. For the most recent version of the page, please visit: https://aspr.hhs.gov/COVID-19/Therapeutics/Documents/side-by-side-overview.pdf

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Paxlovid COVID Rebound

COVID-19 rebound after Paxlovid and Molnupiravir during January-June 2022

Lindsey Wang, Nathan A. Berger, Pamela B. Davis, David C. Kaelber, Nora D. Volkow, Rong Xu

doi: https://doi.org/10.1101/2022.06.21.22276724

Conclusion:

COVID-19 rebound occurred both after Paxlovid and Molnupiravir, especially in patients with underlying medical conditions. This indicates that **COVID-19 rebound is not unique to Paxlovid** and the **risks were similar for Paxlovid and Molnupiravir**. For both drugs the rates of COVID-19 rebound increased with time after treatments.

Patients with COVID-19 rebound had significantly higher prevalence of underlying medical conditions than those without.

COVID-19 rebound after Paxlovid and Molnupiravir during January-June 2022
Lindsey Wang, Nathan A. Berger, Pamela B. Davis, David C. Kaelber, Nora D. Volkow, Rong Xu
medRxiv 2022.06.21.22276724; doi: https://doi.org/10.1101/2022.06.21.22276724

Paxlovid COVID Rebound

Recommendations for Healthcare Providers

For patients with COVID-19 rebound:

- There is currently no evidence that additional treatment for COVID-19 is needed for COVID-19 rebound.

- Advise people with COVID-19 rebound to follow CDC's guidance on isolation and take precautions to prevent further transmission. Patients should re-isolate for at least 5 days. Per CDC guidance, they can end their re-isolation period after 5 full days if fever has resolved for 24 hours (without the use of fever-reducing medication) and symptoms are improving. The patient should wear a mask for a total of 10 days after rebound symptoms started.

- Consider clinical evaluation of patients who have COVID-19 rebound and symptoms that persist or worsen.

Centers for Disease Control and Prevention. (2019, March 28). *2022 Hans*. Centers for Disease Control and Prevention. Retrieved December 14, 2022, from https://emergency.cdc.gov/han/2022.asp

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Paxlovid COVID Rebound

- ❑ Pfizer will conduct a randomized placebo-controlled trial in patients with “COVID-19 rebound” following an initial treatment course of PAXLOVID to evaluate a subsequent 5-day treatment course of PAXLOVID. Pfizer will provide topline results by September 30, 2023.

- ❑ Pfizer will conduct a randomized controlled trial to evaluate different durations of PAXLOVID treatment in immunocompromised patients with mild-to-moderate COVID-19. Pfizer will provide topline results by September 30, 2023.

Emergency use authorization for Paxlovid - Food and Drug Administration. (n.d.). Retrieved December 9, 2022, from https://www.fda.gov/media/161018/download

Paxlovid (nirmatrelvir and ritonavir) Patient Eligibility Screening Checklist Tool for Prescribers (Table)

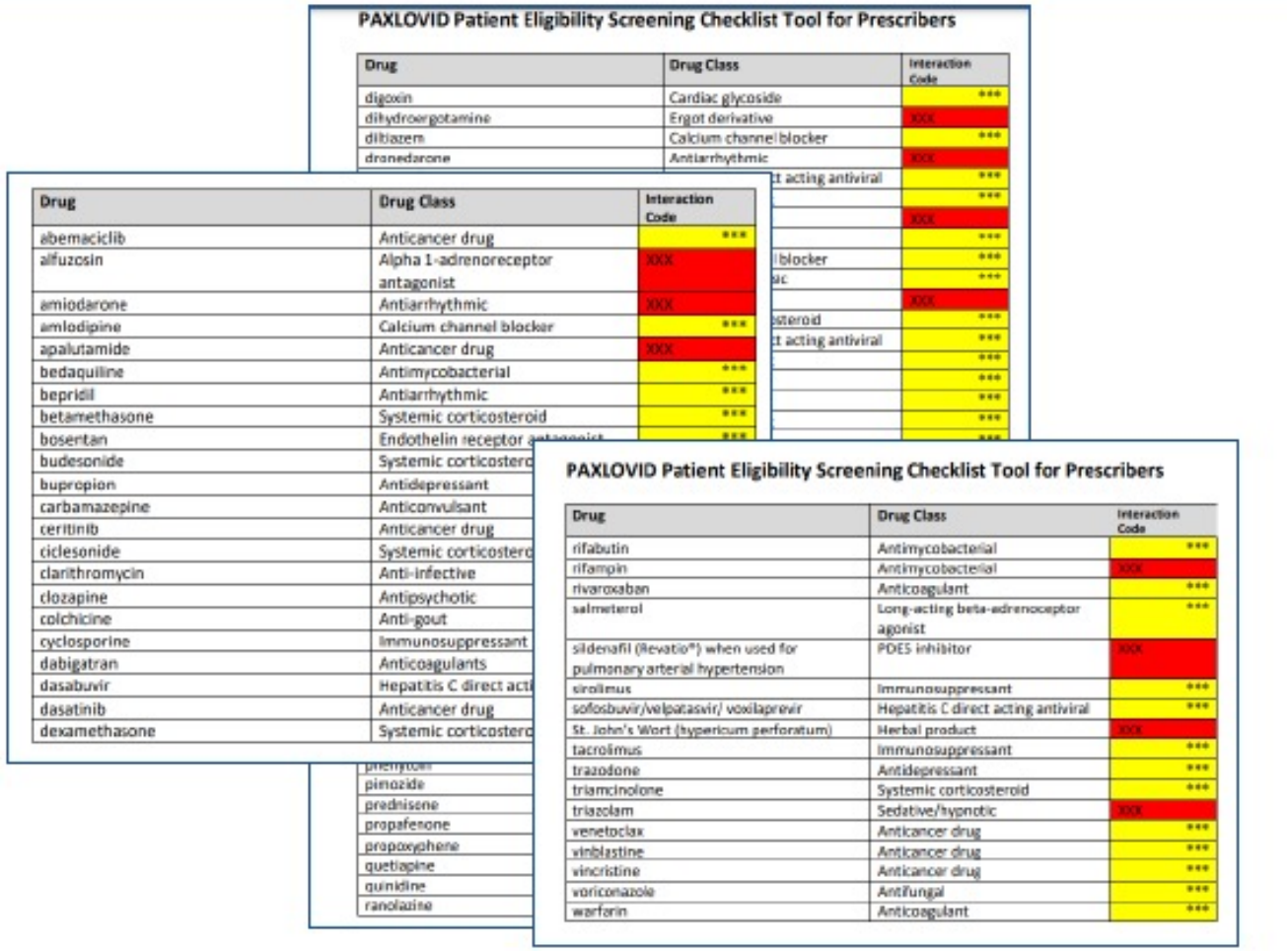
PAXLOVID Patient Eligibility Screening Checklist Tool for Prescribers

Other Drugs with Established and Other Potentially Significant Drug Interactions with PAXLOVID (listed alphabetically by generic name)

Interaction Codes:

XXX — Coadministration of this drug with PAXLOVID is CONTRAINDICATED. For further information, refer to the Fact Sheet for Healthcare Providers and the individual Prescribing Information for the drug.

*** — Coadministration of this drug with PAXLOVID should be avoided and/or holding of this drug, dose adjustment of this drug, or special monitoring is necessary. Consultation with the prescriber of the potentially interacting drug is recommended. For further information, refer to the Health Care Provider Fact Sheet and the individual Prescribing Information for the drug.



See table in Paxlovid Patient Eligibility Screening Checklist Tool for Prescribershttps://www.fda.gov/media/158165/download

Covid-19 Therapeutics. COVID-19 Therapeutics | HHS/ASPR. (n.d.). Retrieved December 14, 2022, from https://aspr.hhs.gov/COVID-19/Therapeutics/Pages/default.aspx

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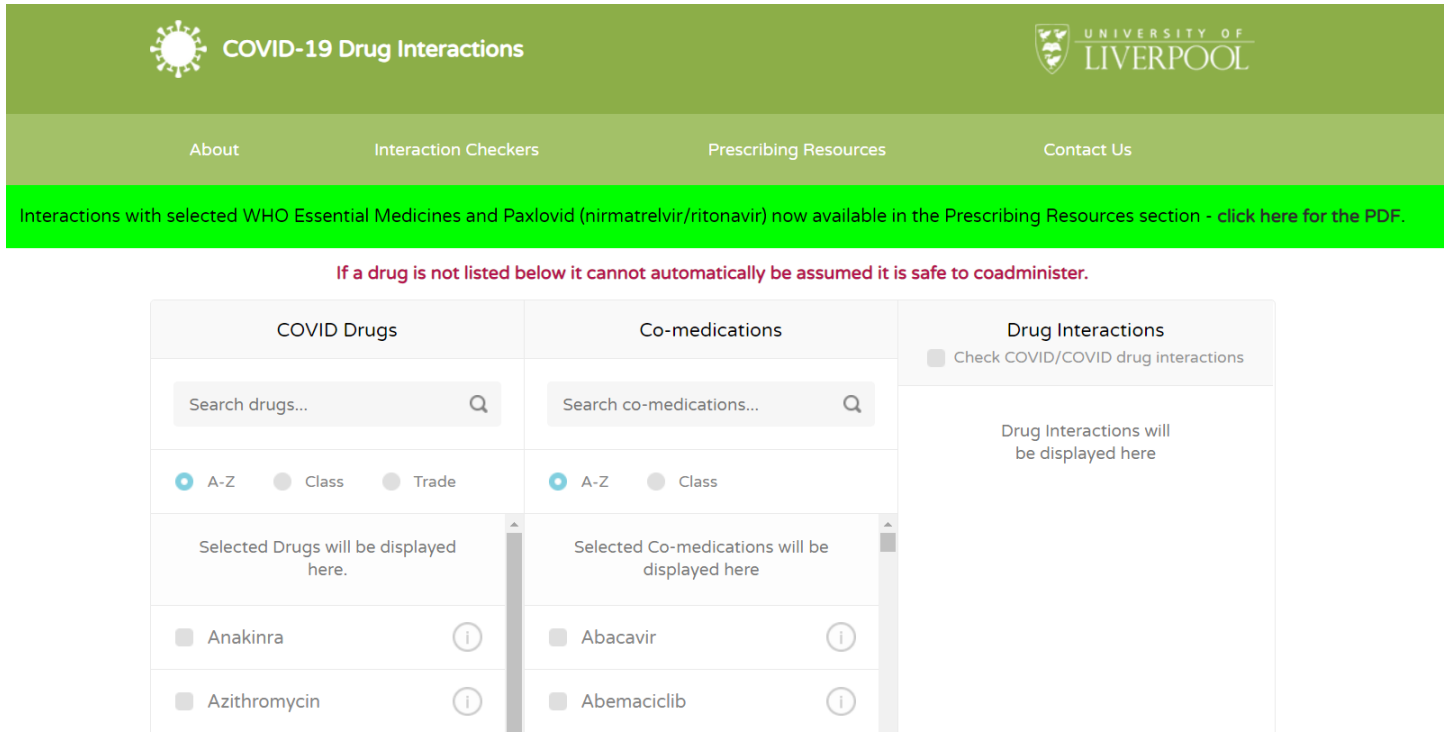
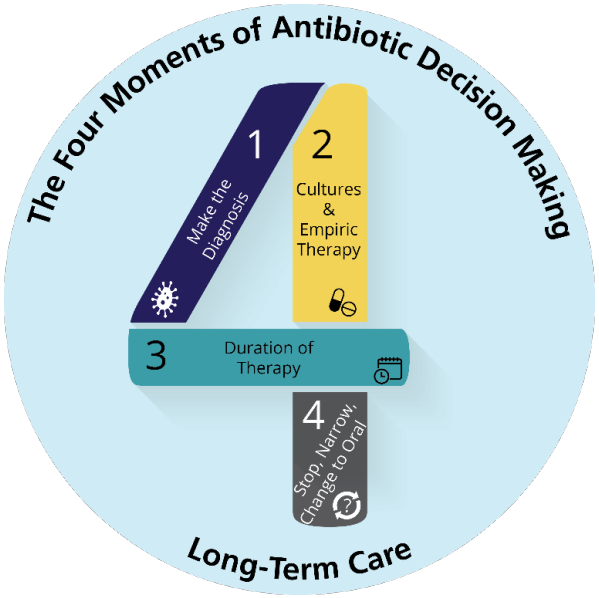
COVID-19 Drug Interaction Checker

- University of Liverpool offers an online COVID-19 Drug Interaction Checker that can be utilized to check for drug interactions



Liverpool covid-19 interactions. Liverpool COVID-19 Interactions. (n.d.). Retrieved June 2, 2022, from https://www.covid19-druginteractions.org/checker

The AHRQ Four Moments of Antibiotic Decision Making



1. Does the resident have symptoms that suggest an infection? Can we try symptomatic treatment and active monitoring?

2. What type of infection is it? Have we collected appropriate cultures and diagnostic tests before starting antibiotics? What empiric therapy should we initiate?

3. What duration of antibiotic therapy is needed for the resident's diagnosis?

4. It's been 2–3 days since we started antibiotics. Re-evaluate the resident and review results of diagnostic tests. Can we stop antibiotics? Can we narrow therapy?

Vaccine Updates

- Pneumococcal vaccine changes-
  - PneumoRecs VaxAdvisor: Vaccine Provider App | CDC
  - Pneumococcal Vaccine Recommendations | CDC

Influenza vaccination

- Influenza Information for Healthcare Professionals | CDC
- Post-acute and Long-term Care Facility Toolkit: Influenza Vaccination among Healthcare Personnel | Seasonal Influenza (Flu) | CDC
- Increase Influenza Vaccination Coverage among your Health Care Personnel | Seasonal Influenza (Flu) | CDC
  - Implementing a workplace vaccination requirement is the most effective strategy to increase influenza vaccination coverage among HCP in post-acute and facilities.

COVID-19 Vaccine

- Primary Series - Any issues?
- Bivalent vaccine - [It's Worth a Shot – IPRO NQIIC]

- COVID-19 Bivalent Quality Improvement Action Plan
- COVID-19 Booster Power Point for Resident & Family Council Meetings
- COVID-19 Vaccine Booster Campaign
- COVID-19 Vaccine Flyer – basic information on vaccine safety and efficacy
- COVID-19: How to Protect Yourself and Stay Healthy
- Influenza, Pneumococcal and COVID-19 Immunization Toolkit
- Paxlovid Patient Eligibility Screening Checklist for Prescribers
- Vaccinations for Adults – an IPRO-developed PowerPoint for community providers to offer education on vaccinations in adults
- Value in Vaccination Video Series
- AMDA Guidance, Resources and Tools
- CDC National Healthcare Safety Network (NHSN) Long-term Care Facility COVID-19 Module

Case Study Review

- Polly Taylor, 82-year-old female long-term care resident at Coles South Side Nursing Home. She has early dementia, diabetes, and status post stroke 3 years ago with continued left-sided weakness and mechanical soft diet with nectar liquids.
  - What is/are Polly's risk of respiratory complications?

Acute Illness

- Early on Tuesday morning, Polly's cheeks were flushed and she had increased confusion. Polly's vital signs were T-99, P-86, b/p 122/70, R-24, SPO2-92%.
  - Does Polly have a fever? Do you need more information? What is your next step?

- Tuesday at 4PM: Polly has a fever of 102. She has begun coughing and seems distressed. SPO2-90%.
  - Next steps?

Questions- Contact Information

Teresa Lubowski, Pharm. D., B.S., CPHQ
Director, Quality Improvement Medication Safety
HQIC Antibiotic Stewardship Workgroup Lead
HQIC Opioid and ADE Workgroup Lead
IPRO
3525 Quackerbridge Rd
Suite 6700
Hamilton NJ 08619
Office Phone 609-556-6119
E-mail- tlubowski@ipro.org
Better Healthcare, Realized

Melanie Ronda, MSN, RN, LTC-CIP, CPHQ
Assistant Director, Health Care Quality Improvement
Nursing Home Lead, NY, NJ, Ohio
Infection Prevention Specialist
IPRO
Main: 518-426-3300
Direct: 518-320-3513
Cell: 518-331-8074
Fax: 518-426-3418
mronda@ipro.org

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Healthcentric Advisors
Qlarant
QIN–QIO
Quality Innovation Network - Quality Improvement Organizations
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iQUALITY IMPROVEMENT & INNOVATION GROUP