Did You Know?

Influenza and COVID-19

HEALTHDIRECT PHARMACY SERVICES

December 2024

Influenza and COVID-19 Outbreak Management in Long-Term Care and Post-Acute Care Facilities

Part I – Influenza (Flu) Management and Treatment Options

Influenza can be introduced into a long-term care facility by newly admitted residents, healthcare personnel, and visitors. Spread of influenza can occur between and among residents, healthcare personnel and visitors. Residents of long-term care facilities can experience severe and fatal illness during influenza outbreaks.

Preventing transmission of influenza viruses and other infectious agents within healthcare settings, including in long-term care facilities, requires a multi-faceted approach that includes the following:

1. Influenza Vaccination
2. Influenza Testing
3. Infection Prevention and Control Measures
4. Antiviral Treatment, and
5. Antiviral Chemoprophylaxis

Before an Outbreak Occurs

Influenza vaccination should be provided routinely to all residents and healthcare personnel of long-term care facilities.

Although vaccination by the end of October is recommended, influenza vaccine administered in December or later, even if influenza activity has already begun, is likely to be beneficial in the majority of influenza seasons because the duration of the season is variable, and influenza activity might not occur in certain communities until February or March.

Healthcare Personnel

CDC and the Advisory Committee on Immunization Practices (ACIP), recommend that all U.S. healthcare personnel get vaccinated annually against influenza.

- **Healthcare personnel who get vaccinated may help to reduce:**
  - transmission of influenza,
  - staff illness and absenteeism, and
  - influenza-related illness and death, especially among people at increased risk for severe influenza complications.

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Influenza Testing

Even if it's not influenza season, influenza testing should occur when any resident has signs and symptoms of acute respiratory illness or influenza-like illness and especially when two residents or more develop respiratory illness within 72 hours of each other.

When there is a confirmed or suspected influenza outbreak (2 or more ill residents)

If one laboratory-confirmed influenza positive case is identified along with other cases of acute respiratory illness in a unit of a long-term care facility, an influenza outbreak might be occurring.

Active surveillance for additional cases should be implemented as soon as possible once one case of laboratory-confirmed influenza is identified in a facility. When 2 cases of laboratory-confirmed influenza are identified within 72 hours of each other in residents on the same unit, outbreak control measures should be implemented as soon as possible.

Implement daily active surveillance for acute respiratory illness among all residents, healthcare personnel and visitors to the facility.

- During an outbreak, once a single laboratory-confirmed case of influenza has been identified in a resident, it is likely there are other cases among exposed persons.
- Conduct daily active surveillance until at least 1 week after the last laboratory-confirmed influenza case was identified.
- Test for influenza with a molecular assay in the following:
  - Ill persons who are in the affected unit(s) as well as previously unaffected units in the facility
  - Persons who develop acute respiratory illness symptoms after beginning antiviral chemoprophylaxis
- Ensure that the laboratory performing influenza testing notifies the facility of tests results promptly.
- The local public health and state health departments should be notified of every suspected or confirmed influenza outbreak in a long-term care facility, especially if a resident develops influenza while on or after receiving antiviral chemoprophylaxis.

Administer influenza antiviral treatment and chemoprophylaxis to residents and healthcare personnel according to current recommendations.

- All long-term care facility residents who have confirmed or suspected influenza should receive antiviral treatment immediately.
- Initiation of antiviral treatment should not wait for laboratory confirmation of influenza.
- Antiviral treatment works best when started within the first 2 days of symptoms. However, these medications can still help when given after 48 hours to those that are very sick, such as those who are hospitalized, or those who have progressive illness, or those who are at higher risk for complications of influenza.

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Having pre-approved orders from physicians or plans to obtain orders for antiviral medications on short notice can substantially expedite administration of antiviral medications.

Antiviral Treatment Adult Dosing- Influenza

Medication	Dosage	Considerations for Use
Preferred Medications		
Oral oseltamivir (**Tamiflu**) 30 mg capsule 45 mg capsule 75 mg capsule 6 mg/ml oral suspension	Adults: 75 mg PO twice daily x 5 days	*CrCl more than 60 mL/minute*: No dosage adjustment necessary. *CrCl 31 to 60 mL/minute*: 30 mg PO twice daily for 5 days. *CrCl 11 to 30 mL/minute*: 30 mg PO once daily for 5 days. *CrCl 10 mL/minute or less, not undergoing dialysis*: Oseltamivir is not recommended. *ESRD on hemodialysis*: 30mg after every hemodialysis cycle, treatment not to exceed 5 days
Alternative Medications		
Inhaled zanamivir (**Relenza**) 5 mg powder for inhalation	Adults: 10 mg (two 5 mg inhalations) every 12 hours x 5 days	*Contraindicated* for patients that have an allergy to milk protein lactose, used as a vehicle. *Caution advised* for patients with high-risk underlying medical conditions, including elderly patients, severe metabolic disease and long or cardiac disease due to limited data on use in these populations. *Not recommended for use with* chronic pulmonary diseases due to an increased risk of bronchospasm.
Intravenous peramivir (**Rapivab**) 200mg / 20 ml solution for injection	Adults: One 600 mg / 100 ml dose infused IV over 15-30 minutes	*CrCl 50 mL/minute or more*: No dosage adjustment necessary. *CrCl 30 to 49 mL/minute*: 200 mg IV as single dose. *CrCl 10 to 29 mL/minute*: 100 mg IV as single dose. *Post marketing reports* include risk for serious skin reactions and sporadic, transient neuropsychiatric adverse events (i.e. psychosis).
Oral baloxavir marboxil (**Xofluza**) 20 mg tablet 40 mg tablet 80 mg tablet	Adults weighing 80 kg or more: 80 mg PO x 1 dose Weight < 80 kg: 40 mg PO x 1 dose	Avoid co-administration of baloxavir with polyvalent cation-containing laxatives, antacids, or oral supplements (e.g., calcium, iron, magnesium, selenium, or zinc), may decrease absorption and efficacy. Not recommended during pregnancy, lactation, or for use in severely immunocompromised patients.

It should be noted that some long-term care residents may have difficulty using the inhaler device for zanamivir. There is no data on the use of baloxavir to control influenza outbreaks in long-term care facilities. IV peramivir is a reserved treatment option for those that cannot take oral oseltamivir or tolerate inhaled zanamivir.

For these reasons, oseltamivir (Tamiflu) remains the preferred treatment option, unless an oseltamivir-resistant flu strain is suspected.

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Chemoprophylaxis – Influenza

Administering chemoprophylaxis to reduce impact of an influenza outbreak in the long-term care community is recommended for the following individuals:

- All members of a unit if at least 2 residents are ill with lab-diagnosed influenza within 72 hours of each other, regardless of vaccination status.
- Individual residents if they were exposed to an influenza positive individual within the last 48 hours.
- All residents if mixing of residents or healthcare personnel from affected units is unavoidable.
- Healthcare personnel may be considered based on occupational exposure and other risk factors.

During an outbreak, antiviral chemoprophylaxis is recommended for a minimum of 14 days and should continue at least 7 days after the last known laboratory-confirmed influenza case is identified.

Per the CDC, Oseltamivir is the preferred agent for antiviral prophylaxis in long-term care settings and should be used whenever possible. If an oseltamivir-resistant flu strain is suspected, inhaled zanamivir may be used.

Antiviral Chemoprophylaxis Adult Dosing - Influenza

Medication	Dosage	Considerations for Use
Preferred Medications		
Oral oseltamivir (**Tamiflu**) 30 mg capsule 45 mg capsule 75 mg capsule 6 mg/ml oral suspension	Adults: 75 mg PO ONCE daily x 14 days	*CrCl more than 60 mL/minute*: No dosage adjustment necessary. *CrCl 31 to 60 mL/minute*: 30 mg PO once daily x 14 days *CrCl 11 to 30 mL/minute*: 30 mg PO every other day x 14 days *CrCl 10 mL/minute or less, not undergoing dialysis*: Oseltamivir is not recommended. *ESRD on hemodialysis*: 30 mg after alternate hemodialysis cycles, for a total duration of 14 days
Alternative Medications		
Inhaled zanamivir (**Relenza**) 5 mg powder for inhalation	Adults: 10 mg (two 5 mg inhalations) every 24 hours x 14 days	*Contraindicated* for patients that have an allergy to milk protein lactose, used as a vehicle. *Not recommended for use with* chronic pulmonary diseases due to an increased risk of bronchospasm. Should only be considered if an oseltamivir-resistant flu strain is suspected or confirmed.

*Baloxavir is FDA approved for post-exposure prophylaxis for persons aged 5 years and older, however due to a lack of data in the LTC population, is not recommended. Dosing for chemoprophylaxis is weight based and the same as described above for treatment

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Part II – COVID-19 Management (Confirmed SARS_CoV-2) and Treatment Options

Per the IDSA Treatment Guidelines, "During the early phase of the infection, when viral load is high and the host's adaptive immune system has not mounted an adequate response, treatments targeting viral replication are most likely to be effective."

Antiviral therapy options are available and recommended for management of COVID-19 infection to reduce the risk of progressing to severe disease, hospitalization, and death.

Older adults and those with underlying medical conditions are at a higher risk for developing serious disease and related adverse outcomes, and should be considered for treatment as soon as infection is confirmed.

Timely initiation of antiviral therapies is critical and should be initiated within 5 to 7 days of symptom onset to be most effective.

Classification of Infection Severity	Clinical Presentation
Mild SARS-CoV-2 Infection	Clinical features suggestive of upper respiratory tract involvement without features of lung or other end organ involvement
Moderate SARS-CoV-2 Infection	Pulmonary involvement without hypoxia (SpO2 >94% on room air or without needing low-flow supplemental oxygen)
Severe SARS-CoV-2 Infection	Pulmonary involvement with SpO2 <94% on room air or needing low-flow supplemental oxygen
Critical SARS-CoV-2 Infection	Needing high-flow oxygen, non-invasive ventilation, or ECMO

Who is at risk for progression to Severe SARS-CoV-2 infection?

- Age 65+
- BMI >25
- Chronic Kidney Disease
- Pregnancy
- Diabetes Mellitus
- Neurodevelopmental Disorders
- Immunocompromising Medications
- Chronic Lung Disease
- Cardiovascular Disease
- Sickle Cell Disease
- Hypertension
- Mechanical Technology Dependence (i.e. tracheostomy)

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The following table describes currently recommended treatment options for non-hospitalized, Mild-Moderate SARS-CoV-2 infected adults in order of preference per the IDSA COVID-19 Treatment Guidelines.

Drug Name	Dosing Regimen	Time from Symptom Onset	Considerations for Use
Preferred therapies			
Nirmatrelvir-ritonavir (**Paxlovid**)	**eGFR ≥60 mL/min:** ■ 300mg (2 tablets) nirmatrelvir and 100mg (1 tablet) ritonavir PO twice daily for 5 days **eGFR ≥30 to <60 mL/min:** ■ 150mg nirmatrelvir (1 tablet) and 100mg ritonavir (1 tablet) PO twice daily for 5 days **eGFR <30 mL/min:** ■ Not recommended **Severe Hepatic Impairment (Child-Pugh Class C):** ■ Not recommended	≤5 days	Ritonavir is a strong CYP3A4 and P-GP inhibitor, resulting in significant drug interactions. Clinicians should consider all concomitant medications and consult Pharmacy for management recommendations.
Remdesivir (**Veklury**)	*Adults and pediatrics weighing at least 40kg*: 200mg IV on day 1 followed by 100mg IV on days 2 and 3. Each infusion is administered over 30–120 minutes. Patients should be observed for ≥1 hour after infusion as clinically appropriate. Longer infusion times may reduce risk of hypersensitivity.	≤7 days	Remdesivir is not recommended in patients with eGFR < 30 ml/min. Renal and hepatic function, as well as prothrombin time should be evaluated before starting Veklury and as clinically indicated during treatment.
Alternative therapy, for use when the above options are not available, feasible to use or clinically appropriate.			
Molnupiravir (**Lagevrio**)	Adults: 800 mg (four 200 mg capsules) taken orally every 12 hours for 5 days	≤5 days	Molnupiravir is not authorized for use in patients less than 18 years of age because it may affect bone and cartilage growth. Not recommended during pregnancy or breastfeeding due to toxicity concerns. Hypersensitivity reactions have been reported during post-marketing surveillance.

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Systemic Corticosteroids for Mild-Moderate SARS-CoV-2 Infection: Dexamethasone and other systemic corticosteroids are NOT recommended to treat outpatient COVID-19 unless patient requires supplemental oxygen, or hospitalization. Patients that require corticosteroids for management of underlying medical conditions should continue steroid as directed by clinician.

For all patients, symptomatic management with antipyretics, analgesics or antitussives for fever, headache, myalgias and cough can be recommended.

Managing Nirmatrelvir/Ritonavir (Paxlovid) Drug-Drug Interactions

PAXLOVID includes ritonavir, a strong CYP3A inhibitor, which may lead to greater exposure of certain concomitant medications, resulting in potentially severe, life-threatening, or fatal events.

Prior to prescribing PAXLOVID:

1. Review all medications taken by the patient to assess for potential drug-drug interactions with a strong CYP3A inhibitor like PAXLOVID. and
2. Determine if concomitant medications require a dose adjustment, interruption, and/or additional monitoring.

Consider the benefit of PAXLOVID treatment in reducing hospitalization and death, and whether the risk of potential drug-drug interactions for an individual patient can be appropriately managed.

- Consult the pharmacy for additional information and medication management recommendations
- Recommended Resource: University of Liverpool: COVID-19 drug interaction checker

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NHSN Reporting Update

Beginning on January 1, 2025, nursing homes will be required to electronically report information about COVID-19, influenza, and respiratory syncytial virus (RSV).

This will replace the current nursing home COVID-19 reporting requirements to NHSN that are set to sunset on December 31, 2024.

The new data elements for which NHSN reporting will be required on January 1, 2025, include:

- Facility census
- Resident vaccination status for COVID-19, influenza, and RSV,
- Confirmed resident cases of COVID-19, influenza, and RSV (overall and by vaccination status)
- Hospitalized residents with confirmed cases of COVID-19, influenza, and RSV (overall and by vaccination status)

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