Carolina Antimicrobial Stewardship Program | UNC Hospitals

Influenza Treatment/Prophylaxis

INITIATING ANTIVIRAL THERAPY

Antiviral therapy should be started as soon as possible for adults and children, ideally within 48 hours of initial symptoms to maximize benefit, regardless of vaccination history. Starting antiviral treatment should not wait for laboratory confirmation of influenza.

Begin antiviral treatment as soon as possible for suspected or confirmed influenza in the following patients, even if symptoms have been present for longer than 48 hours:

- Hospitalized patients
- Patients with severe, complicated or progressive illness OR
- Patients at higher risk for influenza complications (Table 1)

Patients with documented or suspected influenza and SARS-CoV2 coinfection may receive treatment for both infections concomitantly. No clinically significant drug interactions are expected between neuraminidase inhibitors and current therapies for SARS-CoV2 (remdesivir, dexamethasone, SARS-CoV-2 directed monoclonal antibodies, baricitinib, and tocilizumab) based on available data. See the Liverpool Interaction Checker for current information on COVID-19 drug interactions.

Please refer to the Diagnosis and Management of Influenza in Pediatric Patients algorithm for more information regarding treating pediatric patients.

This document is intended for educational purposes and does not replace the medical decision and diagnosis of a treating provider. Although we have made a good faith effort to provide accurate information as of the date of creation, we make no representation or warranty regarding its accuracy and have no obligation to update the guidelines as new medical information becomes available.

TABLE 1. Patients at Higher Risk of Influenza Complications

High Risk Patient Populations	
Children < 2 years of age	Metabolic disorders (e.g., diabetes mellitus)
Adults > 65 years of age	Neurologic and neurodevelopment disorders (e.g., cerebral palsy, spinal cord injury, epilepsy, stroke, intellectual disability, severe developmental delay, muscular dystrophy)
Persons < 19 years of age receiving long-term aspirin therapy	Pregnant or post-partum women (within 2 weeks of delivery)
Chronic pulmonary disease (e.g., asthma, COPD)	Immunocompromised individuals
Chronic cardiovascular disease (not including hypertension alone)	Residents of nursing homes and other long-term care facilities
Chronic renal or hepatic disease	Morbidly obese individuals (BMI ≥ 40 kg/m^2)
Hematological disorders (e.g, sickle cell)	American Indians / Alaska Natives

OSELTAMIVIR (TAMIFLU®)

Oseltamivir is the preferred agent for influenza treatment and prophylaxis at the UNC Medical Center.

TABLE 2. Oral Oseltamivir Recommended Adult Doses Based on Creatinine Clearance (CrCl)

Renal Function	Treatment	Prophylaxi
CrCL > 60 mL/min	75 mg twice daily	75 mg
CrCL 31-60 mL/min	30 mg twice daily	30 mg
CrCL 11-30 mL/min	30 mg once daily	30 mg once every other day
ESRD on HD	30 mg after every HD cycle	30 mg after alternate HD cycles
ESRD on CAPD	Single 30 mg dose given after	30 mg once weekly given after

TABLE 3. Weight-Based Dosing for Oral Oseltamivir in Children >1 Year of Age

Weight (kg)	Treatment	Prophylaxis
≤ 15	30 mg twice daily	30 mg daily
> 15-23	45 mg twice daily	45 mg daily
> 23-40	60 mg twice daily	60 mg daily
> 40	75 mg twice daily	75 mg daily

TABLE 4. Weight-Based Dosing for Oral Oseltamivir in Infants*

Age	Treatment	Prophylaxis
PMA <38 weeks	1 mg/kg per dose twice daily	Consult Pediatric ID
PMA 38-40 weeks	1.5 mg/kg per dose twice daily	
PMA >40 weeks	3 mg/kg per dose twice daily	3 mg/kg per dose daily‡
Infants 9-11 months	3.5 mg/kg per dose twice daily	3.5 mg/kg per dose daily

PMA: Postmenstrual age
*Use of oseltamivir for treatment of infants < 14 days old and prophylaxis for infants 3-11 months old is not FDA approved; however, these recommendations are endorsed by the CDC and American Academy of Pediatrics.
‡Prophylaxis not recommended for infants < 3 months due to limited safety and efficacy data in this age group.

PERAMIVIR (RAPIVAB®)

Intravenous peramivir is available on the UNC Medical Center formulary as a restricted anti-infective. It may be used without Infectious Disease (ID)/Anti-infective Stewardship Program (ASP) approval in patients with suspected or documented influenza and unable to take oral or enteral medications; all other indications require ID/ASP approval.

Adequate absorption of oseltamivir has been demonstrated in critically ill patients, including those in ICUs, on CRRT and on ECMO. Therefore, any patient who is able to take oral or enteral medications should continue to receive oral oseltamivir.

Peramivir is given as a single dose IV infusion infused over 15-30 minutes. For hospitalized patients, IV peramivir may be given once or daily for 5 days (off label dosing).[2,17]

TABLE 5. Adult IV Peramivir Dosing Based on Creatinine Clearance (mL/min)

Regimen	≥ 50 mL/min	30-49 mL/min	10-29 mL/min	ESRD on HD
One dose	600 mg once	200 mg once	100 mg once	100 mg post-HD once
5-days	600 mg once daily	200 mg once daily	100 mg once daily	100 mg on Day 1 then 100 mg after each HD session for 5 days total

TABLE 6. Pediatric IV Peramivir Dosing Based on Age

Regimen	≤ 30 Days*	31 – 90 Days*	91 Days – 17 Years	≥ 18 Years
One dose	6 mg/kg once	8 mg/kg once	10 mg/kg once	Refer to Adult Dosing
5-days	6 mg/kg once daily	8 mg/kg once daily	10 mg/kg once daily	

Maximum daily dose = 600mg
*For full-term neonates only. In premature infants, please contact pediatric pharmacy.

DURATION OF THERAPY

TABLE 7. Duration of Antiviral Therapy

Antiviral	Treatment	Prophylaxis
Oseltamivir	5 days	7 days**
Peramivir	Once or once daily for 5 days*	N/A

*For post HD dosing, give 100 mg on Day 1 followed by 100 mg given after each HD session for 5 total days total course.
**7 days from last exposure

INFLUENZA CHEMOPROPHYLAXIS

The influenza vaccine is the primary tool to prevent influenza disease. Chemoprophylaxis is not recommended for routine use outside of institutional outbreaks and for specific individuals. Indications for influenza chemoprophylaxis are listed in Table 8 (pre-exposure) and Table 9 (post-exposure).

Chemoprophylaxis is also recommended for UNC Medical Center patients who are < 1 year post-lung transplant for the duration of the local influenza season along with the influenza vaccine. Patients who cross their 1 year post-transplant mark during influenza season are continued on chemoprophylaxis for the remainder of the season.

TABLE 8. Considerations for Pre-Exposure Chemoprophylaxis

Patient Populations Considered for Pre-Exposure Chemoprophylaxis
Consider for the duration of influenza season in patients ≥ 3 months old who are at high risk of developing influenza complications (Table 1) and are unable to receive the vaccine or if there is concern there will be poor response to the vaccine (e.g., severely immunocompromised).
Short-term chemoprophylaxis may be considered in unvaccinated patients that are in close contact with high-risk persons that are unable to take their own chemoprophylaxis.
In patients at high risk of influenza complications (Table 1) who receive the influenza vaccine, chemoprophylaxis may be considered for two weeks following vaccination or until immunity is assumed to have developed; six weeks of chemoprophylaxis is recommended for children who require two doses of the influenza vaccination.

TABLE 9. Indications for Post-Exposure Chemoprophylaxis*

Patient Populations Indicated for Post-Exposure Chemoprophylaxis
Unvaccinated household contacts of patients at high risk of influenza complications (Table 1) who have been exposed to an infectious individual. Vaccination is recommended. Duration of prophylaxis should last for two weeks following vaccination.
Patients ≥ 3 months old at higher risk of influenza complications (Table 1) who have been exposed to an infectious household member and are unable to receive the influenza vaccine. Prophylaxis should be administered for the duration of potential influenza exposure and continued 7 days after the last known exposure.
All exposed residents of institutions (e.g., long-term care facility) who do not have suspected or confirmed influenza following an outbreak of influenza in the facility, regardless of vaccination history. Prophylaxis should be continued for 14 days or for 7 days after the onset of symptoms in the last person infected, whichever is longer.

*If post-exposure prophylaxis is given, administer as soon as possible after exposure, ideally no later than 48 hours after exposure.

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