C.S. MOTT CHILDREN'S HOSPITAL
MICHIGAN MEDICINE

TREATMENT AND PROPHYLAXIS OF INFLUENZA IN PATIENTS ON PEDIATRIC SERVICES

Indication and Population	Definitive Therapy	Duration/Comments

Treatment Indications:
• Hospitalized patients with suspected or confirmed influenza regardless of time from symptom onset
 	
• Outpatients with suspected or confirmed influenza who are at high risk for influenza complications, regardless of time from symptom onset:
  ○ Children under 2 years of age
  ○ Patients with chronic pulmonary, cardiovascular, renal, hepatic, hematologic, or metabolic, or neurological or neurodevelopmental conditions
  ○ Immunocompromised patients
  ○ Pregnant women
  ○ Patients under 19 years of age receiving long-term aspirin therapy
  ○ American Indians and Alaskan Natives
  ○ Morbidly obese patients
  ○ Residents of nursing homes and other chronic-care facilities
 	
• Can consider for outpatients with suspected or confirmed influenza who lack risk factors for complications, if treatment can start within 48 hours of symptom onset
	Preferred:
	Oseltamivir*
	Infants <12 months of age:
	Born at <37 wks gestation:
	<38 wks PMA: 1 mg/kg PO BID
	38-40 wks PMA: 1.5 mg/kg PO BID
	>40 wks PMA: 3 mg/kg PO BID
	Born at ≥37 wks gestation:
	3 mg/kg PO BID
	
	Children ≥1-year-old:
	≤15 kg: 30 mg PO BID
	>15 - 23 kg: 45 mg PO BID
	>23 - 40 kg: 60 mg PO BID
	>40 kg: 75 mg PO BID
	
	Alternative for patients ≥7-years old who are not intubated and have a documented intolerance to oseltamivir or an influenza strain resistant to oseltamivir:
	Zanamivir 2 inhalations (10 mg) BID
	
	Restricted alternative for patients > 12-years old with neuraminidase inhibitor-resistant strains:
	ID consult is strongly recommended
	+ **Baloxavir**
	40- 79 kg: 40 mg x1
	≥80 kg: 80 mg x1
	
	Restricted alternative for patients ≥2 years old with documented influenza in which drug delivery by a route other than IV is not feasible:
	Peramivir* 12 mg/kg IV once daily (max: 600 mg/dose)
		Treatment Duration:
		Oseltamivir: 5 days
		• For most ICU patients or those with mild to moderate immunosuppression, 5 days is recommended
		• In select patients with extended ventilation or profound immunosuppression in whom oseltamivir duration is extended beyond 5 days, treatment should not be continued after two negative influenza PCRs.
		Zanamivir: 5 days
		Baloxavir: 1 day
		Peramivir: should not exceed 5 days in hospitalized patients.
		• Patients with uncomplicated influenza in the clinic or ED (for whom drug delivery by a route other than IV is not feasible) should receive a one-time dose
		Comments:
		Oseltamivir
		• Can rarely cause neuropsychiatric effects
		• Well absorbed in the setting of vasopressor therapy and enteral feeding
		Zanamivir
		• Zanamivir should be used with caution in patients with chronic lung disease (e.g. children with asthma, cystic fibrosis)
		• Requires respiratory effort and should not be used in patients with respiratory distress and/or limited respiratory drive
		Baloxavir
		• Baloxavir requires ID consult prior to use.
		• Baloxavir should not be used routinely due to its low barrier to resistance and lack of efficacy data in hospitalized and critically ill patients.
		• Baloxavir should be administered at least 2 hours prior or 4 hours after administration of polyvalent cations due to the formation of a chelate which can significantly decrease baloxavir exposure
		Peramivir
		• Oseltamivir-resistant influenza strains are cross-resistant to peramivir.

Prophylaxis Indications: Consider for select patients (below) with documented ongoing influenza exposure OR in whom prophylaxis can be started within 48 hours of the last exposure: • Patients at high risk for complications (see above) who have not received an influenza vaccine or were vaccinated within the last 2 weeks • Unimmunized family members with ongoing, close exposure to unimmunized children at high risk for complications • As a supplement to immunization among immunocompromised children who may not respond to vaccine • Vaccinated individuals at high risk for complications (see above) and at high risk for a poor response to the vaccine (e.g. transplant, rituximab treatment) In seasons where the vaccine is a poor match for circulating influenza strains, prophylaxis of high-risk patients may be considered regardless of immunization status.	Preferred: **Oseltamivir*** Infants ≥3 months and <12 months: 3 mg/kg PO once daily Children ≥ 1-year old: ≤15 kg: 30 mg PO once daily >15 - 23 kg: 45 mg PO once daily >23 - 40 kg: 60 mg PO once daily >40 kg: 75 mg PO once daily Alternative for patients ≥5-years old with a documented intolerance to oseltamivir or an influenza strain resistant to oseltamivir: **Zanamivir** 2 inhalations (10 mg) once daily	Prophylaxis Duration: Oseltamivir or zanamivir: 7 days after last known exposure • For ongoing exposure, resolution of symptoms in case patient defines end of exposure Comments: • Use of oseltamivir for chemoprophylaxis is not recommended in patients <3-months old unless situation is judged critical due to limited data in this age group • Oseltamivir can rarely cause neuropsychiatric effects • CDC does not recommend seasonal or pre-exposure antiviral chemoprophylaxis • Amantadine and rimantadine are no longer recommended due to increasing rates of resistance

*Adjust dose based on renal function. See Pediatric Renal Dosing Guidelines.
-Consult with Infection Prevention or the Health Department for institutional/hospital outbreaks.
-Consult with Occupational Health or Infection Prevention for occupational exposures

References:
1. https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm.
2. Ariano, et al. CMAJ 2010; 1824:357-63.
3. AAP Red Book, 2015.

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