Treatment and Prophylaxis Guidance for Influenza in Adult Patients

Adult Treatment Guidance

Figure 1: Confirmed Influenza

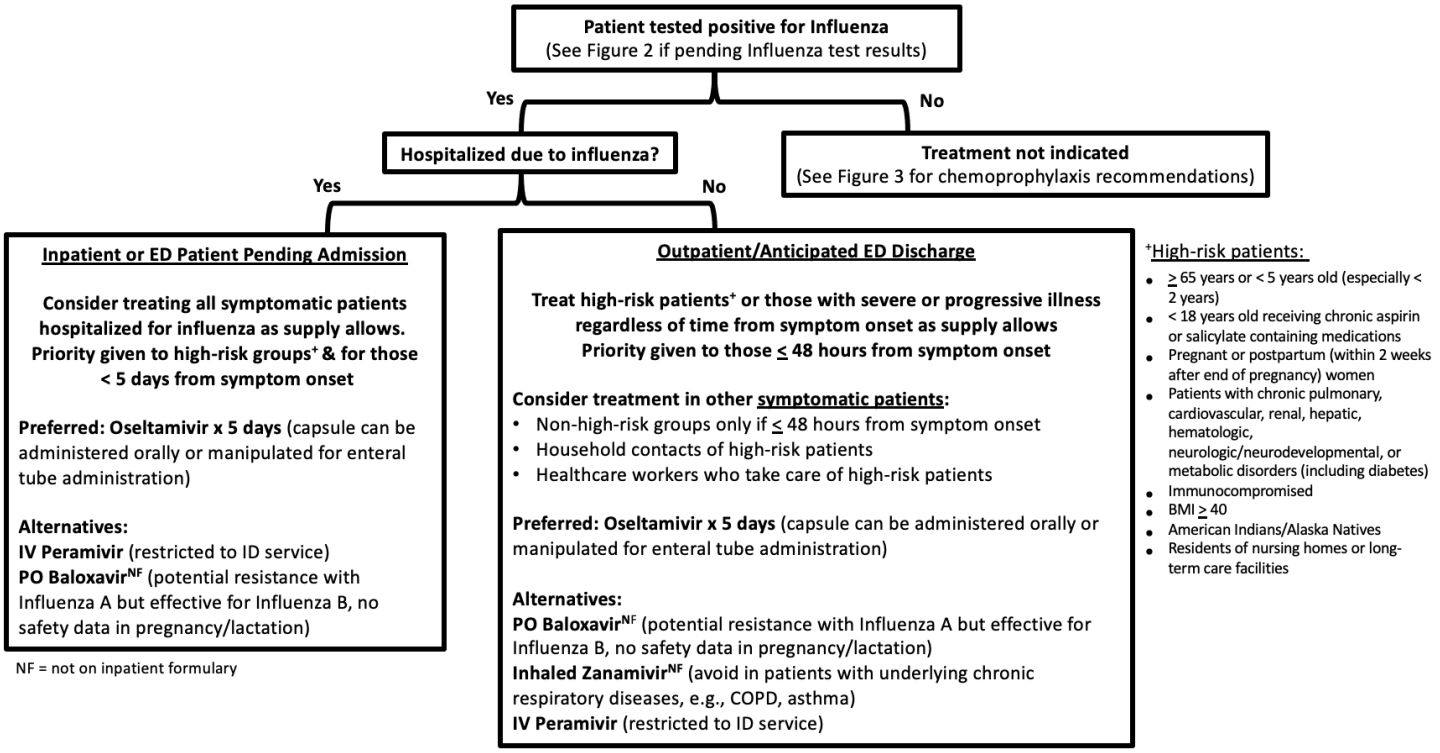
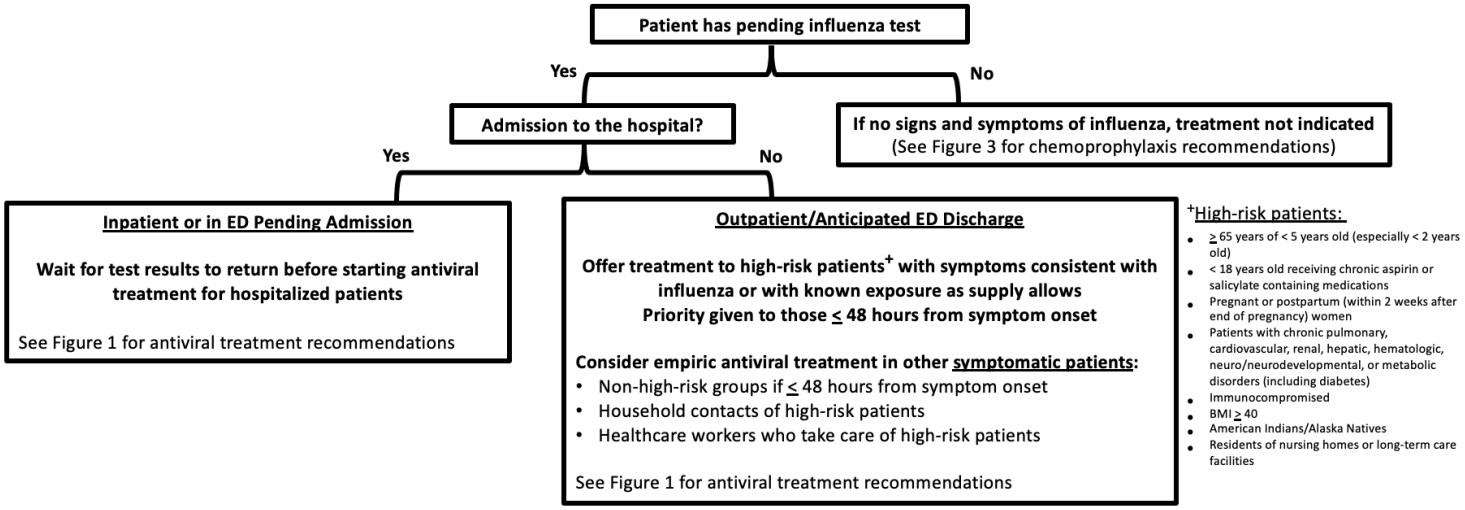
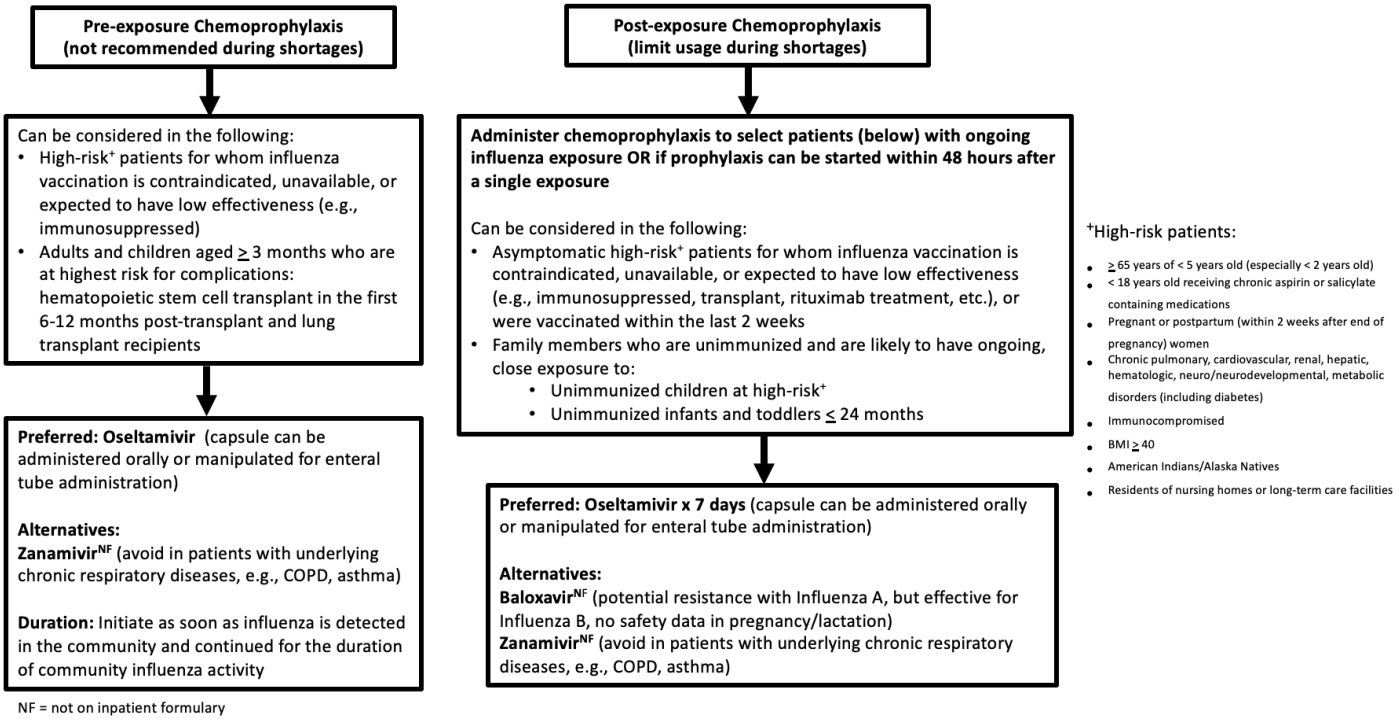


Figure 2: Pending Influenza Test



Adult Prophylaxis Guidance

- CDC and IDSA do not recommend routine or widespread chemoprophylaxis outside of institutional outbreaks
  - CDC does not recommend seasonal or pre-exposure antiviral chemoprophylaxis, see Figure 3 for IDSA recommendations
  - **During a shortage of influenza antivirals, routine chemoprophylaxis is not recommended**
- Antiviral chemoprophylaxis can be considered in certain situations:
  - **Figure 3:** Recommendations of Antiviral Chemoprophylaxis



Adult Antiviral Recommendations

Antiviral	Route of Administration	AWP (price per day)	Dosing per Indication and Duration	Adverse Effects and Comments
Oseltamivir*	PO FT	Capsules • $28.36/day Suspension (per mL) • $28.90/day	**Treatment:** 75 mg BID x 5 days **Post-Exposure Prophylaxis:** 75 mg daily x 7 days	**Adverse effects:** nausea, vomiting, neuropsychiatric effects (rare) **Additional Comments:** • Most Influenza A and B virus strains are susceptible to oseltamivir • Well absorbed in setting of vasopressor therapy and enteral feeding
Zanamivir NF	Inhalation	Aerosol powder • $14.16/day	**Treatment:** Two inhalations (10 mg) BID x 5 days **Post-Exposure Prophylaxis:** Two inhalations (10 mg) daily x 7 days	**Adverse effects:** bronchospasm, neuropsychiatric events (rare) **Additional Comments:** • Most Influenza A and B virus strains are susceptible to zanamivir • Use with caution in patients with chronic lung disease (e.g. asthma, COPD, cystic fibrosis)

Peramivir* (restricted to ID)	IV	Solution • $1,140/day	**Treatment:** **Hospitalized:** 600 mg daily up to 5 days **Uncomplicated:** 600 mg x 1 dose	**Adverse effects:** neuropsychiatric events (rare) **Additional Comments:** • Oseltamivir resistant influenza strains are typically cross-resistant to peramivir • Limit to patients who are unable to take oseltamivir due to an inability to ingest or absorb oral medications (e.g., severe GVHD or mucositis, ileus, or patient intubated with no enteral access)
Baloxavir[NF]	PO FT	Tablet • $185.40/day	**Treatment and Post-Exposure Prophylaxis:** • < 80 kg: 40 mg x 1 dose • ≥ 80 kg: 80 mg x 1 dose	**Adverse effects:** diarrhea, vomiting **Additional Comments:** • Up to 10-15% resistance to Influenza A • Administer at least 2 hours before or 4 hours after administration of polyvalent cations due to interaction that may significantly decrease baloxavir exposure

*Adjust dose based on renal function, NF = not on inpatient formulary, ID = Infectious Diseases, PO = oral, FT = enteral tube, IV = intravenous, AWP = average wholesale price

Pediatric Specific Treatment and Prophylaxis Guidance for Influenza

Pediatric Treatment Guidance

- Refer to **Figures 1 and 2** for treatment guidance
  - **Preferred treatment: Oseltamivir**
  - Alternatives:
    - ≥ 5 years of age: Baloxavir[NF]
    - ≥ 7 years of age: Zanamivir[NF]
- High-risk pediatric patients include:
  - < 5 years of age (especially < 2 years of age)
  - Chronic pulmonary, cardiovascular, renal, hepatic, hematologic, neuro/neurodevelopmental, or metabolic disorders
  - Immunocompromised (e.g., transplant, rituximab infusions, etc.)
  - < 19 years of age and receiving long-term aspirin therapy
  - American Indians/Alaskan Natives
  - BMI ≥ 40

Pediatric Prophylaxis Guidance

- Refer to **Figure 3** for chemoprophylaxis guidance
  - **Preferred treatment:**
    - **≥ 3 months of age: Oseltamivir**
  - Alternatives:
    - ≥ 5 years of age: Zanamivir[NF]
- Pediatric patients who may benefit from chemoprophylaxis include:
  - High-risk pediatric patients, specifically immunocompromised patients who may have a poor response to vaccine

Pediatric Antiviral Recommendations

Antiviral	Route of Administration	AWP	Dosing per Indication and Duration	Comments

Oseltamivir*	PO
	FT
		Capsules
		• $28.36/day
		
		Suspension (per mL)
		• $28.90/day
			Treatment:
			• Infants < 12 months of age:
			  ○ Born at < 37 weeks gestation:
			  ▪ PMA < 38 weeks: 1 mg/kg/dose PO/FT BID x 5 days
			  ▪ PMA 38-40 weeks: 1.5 mg/kg/dose PO/FT BID x 5 days
			  ▪ PMA > 40 weeks: 3 mg/kg/dose PO/FT BID x 5 days
			  ○ Born at > 37 weeks gestation: 3 mg/kg/dose PO/FT BID x 5 days
			• Children ≥ 1 years of age
			  ○ ≤ 15 kg: 30 mg PO/FT BID x 5 days
			  ○ > 15 kg – 23 kg: 45 mg PO/FT BID x 5 days
			  ○ > 23 kg – 40 kg: 60 mg PO/FT BID x 5 days
			  ○ > 40 kg: 75 mg PO/FT BID x 5 days
			
			Prophylaxis:
				Adverse effects: nausea, vomiting, neuropsychiatric effects (rare)
				Additional Comments:
				• Well absorbed in setting of vasopressor therapy and enteral feeding
				• Most Influenza A and B virus strains are susceptible to oseltamivir

			• ≥ 3 months to < 12 months of age: 3 mg/kg PO/FT daily x 7 days
			• Children ≥ 1 years of age
			  ○ ≤ 15 kg: 30 mg PO/FT daily x 7 days
			  ○ > 15 kg – 23 kg: 45 mg PO/FT daily x 7 days
			  ○ > 23 kg – 40 kg: 60 mg PO/FT daily x 7 days
			  ○ > 40 kg: 75 mg PO/FT daily x 7 days	

Zanamivir[NF]	Inhalation	Aerosol powder • $14.16/day	**Treatment (≥ 7 years of age):** Two inhalations (10 mg) BID x 5 days **Prophylaxis (≥ 5 years of age):** Two inhalations (10 mg) daily x 7 days	**Adverse effects:** bronchospasm, neuropsychiatric events (rare) **Additional Comments:** • Use with caution in patients with chronic lung disease (e.g. asthma, COPD, cystic fibrosis) • Most Influenza A and B virus strains are susceptible to zanamivir

Peramivir* (restricted to ID) **Limited data for dosing in pediatric patients**	IV	Solution
		• $1,140/day
			Treatment:
			Hospitalized: treat for up to 5 days
			• Infants
			  ○ 29-30 DOL: 6 mg/kg daily
			  ○ 31-90 DOL: 8 mg/kg daily
			  ○ 91-180 DOL: 10 mg/kg
			  ○ 181 DOL-5 years: 10-12 mg/kg daily (max 600 mg/day)
			  ○ 6-17 years of age: 10 mg/kg daily (max 600 mg/day)
			  ○ ≥ 18 years of age: 600 mg daily
			Uncomplicated:
			Administer within 2 days of symptom onset
			• Infants ≥ 6 months and children: 12 mg/kg x 1 dose (max 600 mg/day)
			• Adolescents: 600 mg x 1 dose
				Adverse effects: neuropsychiatric events (rare)
				Additional Comments:
				• Limit to patients who are unable to take oseltamivir due to an inability to ingest or absorb oral medications (e.g., severe GVHD or mucositis, ileus, or patient intubated with no enteral access)
				• Oseltamivir resistant influenza strains are typically cross-resistant to peramivir

Baloxavir[NF]	PO FT	Tablet • $185.40/day	**Treatment (≥ 5 years of age) and Prophylaxis (≥ 5 years of age):** • < 20 kg: 2 mg/kg PO/FT x 1 dose (compounded suspension) • 20 kg to < 80 kg: 40 mg PO/FT x 1 dose • ≥ 80 kg: 80 mg PO/FT x 1 dose	**Adverse effects:** diarrhea, vomiting **Additional Comments:** • Administer at least 2 hours before or 4 hours after administration of polyvalent cations due to interaction that may significantly decrease baloxavir exposure • Up to 10-15% resistance to Influenza A

*Adjust dose based on renal function, NF = not on inpatient formulary, ID = Infectious Diseases, PO = oral, FT = enteral tube, IV = intravenous, AWP = average wholesale price, DOL = days of life

Selected References:

- Uyeki TM, Bernstein HH, Bradley JS, et al. Clinical Practice Guidelines by the Infectious Diseases Society of America: 2018 Update on Diagnosis, Treatment, Chemoprophylaxis, and Institutional Outbreak Management of Seasonal Influenza. *CID.* 2019;68(6):e1-47.
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- Govorkova EA, Takashita Em, Daniels RS, et al. Global update on the susceptibilities of human influenza viruses to neuraminidase inhibitors and the cap-dependent endonuclease inhibitor baloxavir, 2018-202. *Antiviral Res.* 2022;200:105281.
- Hayden FG, Sugaya N, Hirotsu N, et al. Baloxavir Marboxil for Uncomplicated Influenza in Adults and Adolescents. *N Engl J Med.* 2018;379:913-923.
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