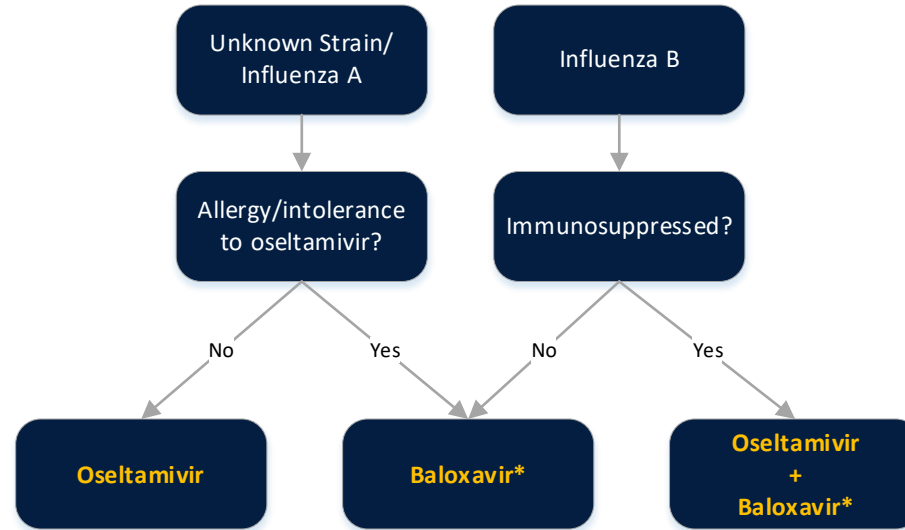


TREATMENT AND PROPHYLAXIS OF INFLUENZA IN ADULT PATIENTS

General Approach to Influenza positive treatment



** Can consider inpatient administration of baloxavir in select patients after consultation with Infectious Diseases
* If immunosuppressed patient started on oseltamivir and later found to have influenza B, recommend adding on baloxavir*

Additional considerations and treatment details are in the corresponding treatment tables.

Consult with Infection Prevention or the Health Department for institutional/hospital outbreaks.
Consult with Occupational Health or Infection Prevention for occupational exposures

[Inpatient Treatment](#)

[Outpatient Treatment](#)

[Exposure Chemoprophylaxis](#)

Inpatient Treatment of Influenza

Patient population	Definitive Therapy	Duration of Therapy	Comments & References
<p>Inpatient Hospitalized patients with suspected or confirmed influenza regardless of time from symptom onset</p>	<p><u>Preferred:</u> Oseltamivir* 75 mg PO (or via tube) BID</p> <p><u>Alternative</u> Baloxavir 40 - 79 kg: 40 mg x1 ≥80 kg: 80 mg x1</p> <p>ID consult is <i>required</i> for the use of baloxavir (see comments)</p> <p><u>Restricted alternative for patients with documented influenza in which drug delivery by a route other than IV is not feasible:</u> Peramivir* 600 mg IV once daily</p>	<p>Oseltamivir: 5 days</p> <p>In most ICU patients or those with mild to moderate immunosuppression, 5 days is recommended</p> <p>Baloxavir: 1 day</p> <p>Peramivir: Should not exceed 5 days in hospitalized patients.</p> <p>Patients with uncomplicated influenza in the ED or outpatient setting (in which drug delivery by a route other than IV is not feasible) should receive a one-time dose</p>	<ul style="list-style-type: none"> High-risk patients are more likely to develop pneumonia/ARDS from influenza infection. Close follow-up is recommended Combination treatment should be considered in patients with influenza B and immunocompromised patients <p>Oseltamivir</p> <ul style="list-style-type: none"> May rarely cause neuropsychiatric effects Well absorbed in the setting of vasopressor therapy and enteral feeding <p>Baloxavir</p> <ul style="list-style-type: none"> ID approval is required as this is a Tier 1 agent. The use of baloxavir should be considered in patients with influenza B. 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. No safety data in pregnant / nursing patients <p>Peramivir</p> <ul style="list-style-type: none"> May rarely cause neuropsychiatric effects Oseltamivir resistant influenza is often resistant to peramivir. At this time, peramivir is not recommended in suspected or confirmed oseltamivir-resistant influenza. ID consultation is recommended in such cases.

*Adjust dose based on renal function. Refer to institutional guidelines [here](#).

Outpatient Treatment of Influenza

Patient population	Definitive Therapy	Duration of Therapy	Comments & References
<p>Outpatient / ED Discharge Outpatients with suspected or confirmed influenza who are at high risk for influenza complications per CDC guidelines (click link)</p>	<p><u>Preferred:</u> Oseltamivir 75 mg PO BID</p> <p><u>Alternative</u> (Preferred in Influenza B) Baloxavir 40 - 79 kg: 40 mg x1 ≥80 kg: 80 mg x1</p>	<p>Oseltamivir: 5 days</p> <p>Baloxavir: 1 day</p>	<ul style="list-style-type: none"> • 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 • One study showed that baloxavir was superior to oseltamivir in influenza B • Addition of baloxavir should be considered in immunocompromised patients that are later confirmed to have influenza B <p>Oseltamivir</p> <ul style="list-style-type: none"> • May rarely cause neuropsychiatric effects <p>Baloxavir</p> <ul style="list-style-type: none"> • Should not be used routinely due to its low barrier to resistance. Adults studies have shown a resistance rate up to 9.7%. • 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. • No safety data in pregnant / nursing patients

Chemoprophylaxis of Influenza		
Patient Population	Definitive Therapy	Comments & References
<ul style="list-style-type: none"> • Consider for select patients (below) with documented ongoing influenza exposure OR in whom prophylaxis can be started within 48 hours of a single exposure: <ul style="list-style-type: none"> ○ Patients at high risk for complications (click link) who have not received an influenza vaccine or were vaccinated within the last 2 weeks ○ Family members who are unimmunized and are likely to have ongoing, close exposure to: <ul style="list-style-type: none"> ▪ unimmunized children at high risk ▪ unimmunized infants and toddlers who are younger than 24 months • 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. • 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) 	<p><u>Preferred:</u> Oseltamivir* 75 mg PO (or via tube) once daily for 7 days</p> <p><u>Alternative for patients with a documented intolerance to oseltamivir or an influenza strain resistant to oseltamivir:</u> Baloxavir single dose (see above for dosing) OR Zanamivir 2 inhalations (10 mg) once daily for 10 days</p>	<ul style="list-style-type: none"> • Oseltamivir may 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 • Baloxavir has been associated with infection with resistance strains (2.7%) that may require neuraminidase inhibitor • Baloxavir has no safety data in pregnant / nursing patients

*Adjust dose based on renal function. Refer to institutional guidelines [here](#).

References:

1. <https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm>.
2. Ariano RE, Sitar DS, Zelenitsky SA, et al. Enteric absorption and pharmacokinetics of oseltamivir in critically ill patients with pandemic (H1N1) influenza. [CMAJ. 2010 Mar 9;182\(4\):357-63.](#)
3. Hayden FG, Sugaya N, Hirotsu N, et al. Baloxavir Marboxil for Uncomplicated Influenza in Adults and Adolescents. [N Engl J Med. 2018 Sep 6;379\(10\):913-923.](#)
4. Ison MG, Portsmouth S, Yoshida Y, et al. Early treatment with baloxavir marboxil in high-risk adolescent and adult outpatients with uncomplicated influenza (CAPSTONE-2): a randomised, placebo-controlled, phase 3 trial. [Lancet Infect Dis. 2020 Oct;20\(10\):1204-1214.](#)
5. Uehara T, Hayden FG, Kawaguchi K, et al. Treatment-Emergent Influenza Variant Viruses With Reduced Baloxavir Susceptibility: Impact on Clinical and Virologic Outcomes in Uncomplicated Influenza. [J Infect Dis. 2020 Jan 14;221\(3\):346-355.](#)
6. Behillil S, May F, Fourati S, et al. Oseltamivir Resistance in Severe Influenza A(H1N1) pdm09 Pneumonia and Acute Respiratory Distress Syndrome: A French Multicenter Observational Cohort Study. [Clin Infect Dis. 2020 Aug 14;71\(4\):1089-1091.](#)
7. Whitley RJ, Monto AS. Resistance of Influenza Virus to Antiviral Medications. [Clin Infect Dis. 2020 Aug 14;71\(4\):1092-1094.](#)
8. Ikematsu H, Hayden FG, Kawaguchi K, et al. Baloxavir Marboxil for Prophylaxis against Influenza in Household Contacts. [N Engl J Med. 2020 Jul 23;383\(4\):309-320.](#)
9. Sugaya N, Mitamura K, Yamazaki M, et al. Lower clinical effectiveness of oseltamivir against influenza B contrasted with influenza A infection in children. [Clin Infect Dis. 2007 Jan 15;44\(2\):197-202.](#)
10. Lee N, Hui DSC, Zuo Z, et al. A prospective intervention study on higher dose oseltamivir treatment in adults hospitalized with influenza A and B infections. [Clin Infect Dis. 2013 Dec;57\(11\):1511-9.](#)
11. <https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm#summary>

Antimicrobial Subcommittee Approval: 09/2017; 12/2020; 02/2021	Originated: 10/2017
P&T Approval: 10/2017; 03/2021	Last Revised: 03/2021
Revision History: 12/20: Revised baloxavir criteria, added baloxavir therapy guidance 02/21: Revised baloxavir criteria and therapy guidance	

The recommendations in this guide are meant to serve as treatment guidelines for use at Michigan Medicine facilities. If you are an individual experiencing a medical emergency, call 911 immediately. These guidelines should not replace a provider's professional medical advice based on clinical judgment, or be used in lieu of an Infectious Diseases consultation when necessary. As a result of ongoing research, practice guidelines may from time to time change. The authors of these guidelines have made all attempts to ensure the accuracy based on current information, however, due to ongoing research, users of these guidelines are strongly encouraged to confirm the information contained within them through an independent source.

If obtained from a source other than med.umich.edu/asp, please visit the webpage for the most up-to-date document.