Emergency Use Instructions (EUI) Fact Sheet for Healthcare Providers:
Oseltamivir for Treatment or Post-Exposure Prophylaxis of Novel Influenza A

The Centers for Disease Control and Prevention (CDC) is issuing Emergency Use Instructions (EUI) to provide information about the use of oseltamivir phosphate (the generic name of the brand name drug Tamiflu®; hereafter "oseltamivir") for treatment or post-exposure prophylaxis (PEP) of pandemic influenza A viruses and novel influenza A viruses with pandemic potential (hereafter referred to as novel influenza A viruses).

Oseltamivir is approved by the Food and Drug Administration (FDA) for the treatment of acute, uncomplicated illness due to influenza A and B virus infection in patients 2 weeks of age and older who have been symptomatic for no more than 48 hours (one dose twice daily for 5 days) and for prophylaxis of influenza A and B in patients 1 year and older (one dose given once daily for at least 10 days following close contact with an infected individual and up to 6 weeks during a community outbreak).

The CDC-issued EUI provide information on the following recommended[1] uses of oseltamivir that differ from or go beyond the Package Insert:

- Initiation of treatment after 48 hours from symptom onset.
- Treatment of severely ill hospitalized patients, including longer courses of treatment (e.g., 10 days) based on clinical judgment.
- Higher total daily dose and flexible duration for PEP. The EUI-recommended dosing regimen in most cases is twice daily for 5 or 10 days in asymptomatic close contacts of a confirmed or probable novel influenza A case or asymptomatic persons exposed to animals infected with highly pathogenic avian influenza A(H5N1) virus or other novel influenza A viruses.
- Treatment of term neonates under 2 weeks of age.
- PEP in neonates and infants less than 1 year of age.
- Treatment and PEP dosing regimens for preterm neonates and infants.

What are EUI and why is CDC issuing EUI for oseltamivir?
EUI permit CDC to inform healthcare providers and recipients about certain uses of FDA-approved, licensed, or cleared medical products, specifically about such products' approved, licensed, or cleared conditions of use, by noting additional uses under the EUI. CDC is issuing EUI to provide information about the uses of oseltamivir for treatment and PEP of novel influenza A virus infections that differ from or go beyond the Package Insert.

For additional information regarding oseltamivir, refer to CDC's Interim Guidance on the Use of Antiviral Medications for Treatment of Human Infections with Novel Influenza A Viruses Associated with Severe Human Disease and Interim Guidance on Follow-up of Close Contacts of Persons Infected with Novel Influenza A Viruses and Use of Antiviral Medications for Chemoprophylaxis.

What is novel influenza A?
In this document, novel influenza A virus infection refers to human infection with an influenza A virus that is antigenically and genetically different than seasonal influenza A viruses (subtypes A(H1N1pdm09) and A(H3N2) viruses) currently circulating among people worldwide. Novel influenza A viruses are of animal origin, such as highly pathogenic avian influenza A(H5N1) virus; other avian influenza A(H5) virus subtypes; avian influenza virus subtypes A(H6), A(H7), A(H9), and A(H10); and certain swine-associated influenza A viruses that can cause variant influenza A virus infections in humans (e.g., A(H1N1v), A(H1N2v), A(H3N2v)). Any novel

[1] The term "recommend" under EUI refers to CDC recommendations that may or may not be the same as the information in the FDA-approved labeling (Package Insert) for oseltamivir.

influenza A virus, such as those of avian or swine origin, has the potential in certain circumstances to cause an influenza pandemic. Some novel influenza A viruses are believed to pose a greater pandemic threat and are more concerning to public health officials than others because they have already caused serious human illness and death and also have been able to spread in a limited manner from person to person. Because novel influenza A viruses pose pandemic potential, all cases of novel influenza A virus infection have been nationally reportable to CDC since 2007. Examples of novel influenza A viruses of particular concern because of their potential to cause a severe pandemic include avian influenza A(H5N1) and avian influenza A(H7N9) viruses. These avian influenza A viruses have caused sporadic human infections and some limited, non-sustained person-to-person spread. Some infections have resulted in critical illness and death in people. Highly pathogenic avian influenza A(H5N1) virus, or "A(H5N1) virus," infects wild birds globally and causes sporadic infections or outbreaks among poultry flocks and backyard bird flocks, as well as spillover to terrestrial and marine mammals. Since 1997, more than 900 human cases of A(H5N1) have been reported from more than 20 countries, with a wide spectrum of disease severity, and a cumulative case fatality proportion of >50%. Limited, non-sustained human-to-human transmission of some novel influenza A viruses associated with severe human disease likely occurred or cannot be excluded in some case clusters that have occurred worldwide. For more information on novel influenza A viruses, refer to:

- Novel Influenza A Virus Infections: Case Definition
- Interim Guidance on Testing and Specimen Collection for Patients with Suspected Infection with Novel Influenza A Viruses with the Potential to Cause Severe Disease in Humans
- H5N1 Bird Flu: Current Situation Summary

Who can receive oseltamivir for treatment or PEP of novel influenza A under EUI?

The following persons can receive oseltamivir under EUI:

- Symptomatic outpatients and hospitalized patients with confirmed, probable, or suspected infection with novel influenza A viruses should receive oseltamivir treatment. Oseltamivir treatment is recommended as soon as possible for symptomatic outpatients and hospitalized patients with confirmed, probable, or suspected novel influenza A virus infection associated with severe disease in infected persons. Decisions to initiate antiviral treatment for untreated outpatients who are confirmed, probable, or suspected cases with uncomplicated disease, in whom fever is absent and symptoms are nearly resolved, should be based on clinical judgment as described in CDC's Interim Guidance on the Use of Antiviral Medications for Treatment of Human Infections with Novel Influenza A Viruses Associated with Severe Human Disease.
- Persons who are 1) close contacts of a confirmed or probable novel influenza A case-patient or 2) exposed to animals infected with novel influenza A viruses (e.g., highly pathogenic avian influenza A(H5N1) virus) may be offered oseltamivir for PEP as soon as possible according to risk of exposure (i.e., highest-risk, moderate-risk, and low-risk exposure groups) as described in CDC's Interim Guidance on Follow-up of Close Contacts of Persons Infected with Novel Influenza A Viruses and Use of Antiviral Medications for Chemoprophylaxis. Initiation of oseltamivir PEP for persons in moderate- and low-risk exposure groups should be based on clinical judgment, with consideration given to the type of exposure and to whether the close contact is at higher risk for complications from influenza. Refer to CDC's PEP guidance for recommendations regarding use of alternative antivirals.

Who should NOT take oseltamivir?

Persons with a known serious hypersensitivity or allergy to oseltamivir or to any of the components should not receive this drug. Oseltamivir is not recommended for patients with end-stage renal disease not undergoing dialysis (*see special dosage instructions below for patients who are undergoing dialysis*).

What are the EUI recommended dosages and durations of oseltamivir for treatment and PEP?

- The EUI recommended dosages are described in Tables 1, 2, 3 and 4 based on specific populations.
- EUI recommended duration:

  Treatment: The FDA-approved treatment duration is 5 days for acute uncomplicated influenza. CDC recommends that longer durations of treatment (e.g., 10 days) be considered for hospitalized patients depending on assessment of clinical and virological data.

  PEP: CDC recommends that PEP duration should be 5 or 10 days. If exposure was time-limited and not ongoing, 5 days of medication from the last known exposure is recommended. If exposure is likely to be ongoing (e.g., household setting), 10 days is recommended because of the potential for prolonged infectiousness in the novel influenza A case. Check current CDC recommendations for more information. See below for dose instructions.

  [*Special considerations for PEP in institutional settings (e.g., hospitals or long-term care facilities for elderly persons and children):* The CDC-recommended duration for antiviral prophylaxis during outbreaks of seasonal influenza in institutional settings is for a minimum of 2 weeks after last known exposure and up to 1 week after the last known case is identified. Duration of protection lasts for as long as dosing is continued.]

Adults and adolescents ages 13 years and older:
The EUI recommended dosing regimen is 75 mg twice daily for treatment or PEP (Table 1).

TABLE 1. Oseltamivir Treatment and Post-Exposure Prophylaxis (PEP) Dosage and Duration for Adults and Adolescents Ages 13 Years and Older Under EUI

Age (years)	Dosage for Treatment for 5 days[1] or PEP for 5 or 10 days[2]	# of Capsules and Strength to Dispense
Adults and children ≥ 13 years	75 mg twice daily	10 capsules (75 mg) for 5 days **or** 20 capsules (75 mg) for 10 days

[1] Standard treatment duration is 5 days. However, the optimal duration is uncertain for patients with severe disease. Longer courses of treatment (e.g., 10 days) should be considered for severely ill hospitalized patients with novel influenza A virus infections.

[2] Duration of PEP is 5 or 10 days. If the exposure was time-limited and not ongoing, the recommended duration is 5 days from the last known exposure. If the exposure is likely to be ongoing (e.g., household setting), a duration of 10 days is recommended because of the potential for prolonged infectiousness from the novel influenza A case-patient.

Pediatric patients ages 1 to 12 years:
The EUI recommended dosing regimens are shown in **Table 2** and are based on weight or age. Weight-based dosing is preferred.

TABLE 2. Oseltamivir Treatment and Post-Exposure Prophylaxis (PEP) Dosage and Duration for Pediatric Patients 1–12 Years of Age (Weight-based Dosing Preferred) Under EUI

Body Weight (kg)	Body Weight (lbs)	Age (years)	Dosage for Treatment for 5 days[1] or PEP for 5 or 10 days[2]	Volume of Oral Suspension (6mg/mL) for each dose	# Bottles Oral Suspension to Dispense[3]	# of Capsules and Strength to Dispense[3]
≤15 kg	≤33 lbs	1–2 years	30 mg twice daily	5 mL	1 bottle for 5 days **or** 2 bottles for 10 days	10 capsules (30 mg) for 5 days **or** 20 capsules (30 mg) for 10 days

>15–23 kg	>33–51 lbs	>2–5 years	45 mg twice daily	7.5 mL	2 bottles for 5 days **or** 3 bottles for 10 days	10 capsules (45 mg) for 5 days **or** 20 capsules (45 mg) for 10 days
>23 –40 kg	>51–88 lbs	>5–9 years	60 mg twice daily	10 mL	2 bottles for 5 days **or** 4 bottles for 10 days	20 capsules (30 mg) for 5 days **or** 40 capsules (30 mg) for 10 days
>40 kg	> 88 lbs	>9–12 years	75 mg twice daily	12.5 mL	3 bottles for 5 days **or** 5 bottles for 10 days	10 capsules (75 mg) for 5 days **or** 20 capsules (75 mg) for 10 days

[1] Standard treatment duration is 5 days. However, the optimal duration is uncertain for patients with severe disease. Longer courses of treatment (e.g., 10 days) should be considered for severely ill hospitalized patients with novel influenza A virus infections.

[2] Duration of PEP is 5 or 10 days. If the exposure was time-limited and not ongoing, the recommended duration is 5 days from the last known exposure. If the exposure is likely to be ongoing (e.g., household setting), a duration of 10 days is recommended because of the potential for prolonged infectiousness from the novel influenza A case-patient.

[3] The number of bottles of oral suspension or capsules to dispense indicated may be greater than the recommended dosing. Patients should be instructed to properly dispose of any remaining medication.

Pediatric patients less than 1 year of age (term neonates and infants):
Oseltamivir is FDA-approved for treatment of acute uncomplicated illness due to influenza A and B in pediatric patients 2 weeks of age and older (chronological age). The decision to administer oseltamivir in neonates younger than 2 weeks of age should be based on clinical judgment weighing the individual risks and benefits.

Oseltamivir is FDA-approved for PEP in children older than 1 year of age. PEP is generally not recommended for neonates younger than 2 weeks of age unless PEP is determined to be essential for outbreak control based on clinician judgment.

The EUI recommended doses are based on body weight (**Table 3**). The treatment and PEP dosages recommended in Table 3 are not intended for preterm infants and may lead to high drug concentrations in this group due to immature renal function. See the preterm neonates and infants section below for additional information.

TABLE 3. Oseltamivir Treatment and Post-Exposure Prophylaxis (PEP) Dosage and Duration for Pediatric Patients Younger Than 1 Year of (Term Neonates and Infants Only) Under EUI

Age (weeks or months)	Treatment Dose for 5 days[1]	Prophylaxis Dose for 5 or 10 days[2]	Suspension Volume (6mg/mL) for each dose[3]	# Bottles Oral Suspension to Dispense[3]
Birth to <1 year	3 mg/kg/dose **twice** daily[4]	3 mg/kg/dose **twice** daily[5, 6]	0.5 mL/kg	1–2

[1] Standard treatment duration is 5 days. However, the optimal duration is uncertain for patients with severe disease. Longer courses of treatment (e.g., 10 days) should be considered for severely ill hospitalized patients with novel influenza A virus infections.

[2.] Duration of PEP is 5 or 10 days. If the exposure was time-limited and not ongoing, the recommended duration is 5 days from the last known exposure. If the exposure is likely to be ongoing (e.g., household setting), a duration of 10 days is recommended because of the potential for prolonged infectiousness from the novel influenza A case-patient.

[3] For infants aged less than 1 year, an appropriate measuring device such as a 3 mL or 5 mL oral syringe should be used to measure the dose instead of the syringe supplied.

[4.] The dosing for pediatric patients ages 9 months to 11 months (3 mg/kg/dose) differs from American Academy of Pediatrics-recommended dose of 3.5 mg/kg/dose [1].

[5] PEP is not generally recommended for neonates younger than 2 weeks of age unless PEP is determined to be essential for outbreak control based on clinician judgment.

[6] EUI PEP dosing recommendation is based on American Academy of Pediatrics treatment dosing recommendations.

Preterm neonates and infants:

Clinical data used to support the FDA approval of oseltamivir included some data in premature infants ≥36 weeks post conceptional age who were exposed to oseltamivir at doses ranging from 2 to 3.5 mg/kg twice daily orally for 5 days. Oseltamivir is not FDA-approved for the treatment of neonates younger than 2 weeks of age (chronological age), regardless of prematurity.

Very limited data provide the basis for the EUI dosage recommendations in preterm neonates and infants based on postmenstrual age (gestational age + chronological age) (**Table 4**). Recommended dosages are lower compared to those for term neonates or infants due to immature renal function in premature neonates and infants, which may lead to high drug concentrations. PEP is not generally recommended in these groups due to very limited data, unless PEP is determined to be essential for outbreak control based on clinician judgement. Dosages for preterm neonates and infants are based on body weight.

TABLE 4: Oseltamivir Treatment and Post-Exposure Prophylaxis (PEP) Dosage and Duration for Preterm Neonates and Infants Based on Post Menstrual Age (PMA) (gestational age + chronological age) Under EUI[1] [1]

Post Menstrual Age (PMA)	Treatment Dose for 5 days	PEP Dose[2] for 5 or 10 days[3]	Suspension Volume (6mg/mL) for each Dose	# Bottles Oral Suspension to Dispense
< 38 weeks PMA	1 mg/kg per dose, twice daily	1 mg/kg per dose, twice daily	0.17 mL/kg	1
38–40 weeks PMA	1.5 mg/kg per dose, twice daily	1.5 mg/kg per dose, twice daily	0.25 mL/kg	1
>40 weeks PMA	3.0 mg/kg per, twice daily	3.0 mg/kg per, twice daily	0.5 mL/kg	1

[1] Treatment and PEP dosing for preterm neonates and infants in this table is based on American Academy of Pediatrics recommendations based on post menstrual age (gestational age + chronological age) [1]

[2] Oseltamivir is not FDA-approved for PEP in children younger than 1 year of age. PEP is generally not recommended for preterm neonates and infants unless PEP is determined to be essential for outbreak control based on clinician judgment. Infectious Diseases consultation is recommended.

[3] Duration of PEP is 5 or 10 days. If the exposure was time-limited and not ongoing, the recommended duration is 5 days from the last known exposure. If the exposure is likely to be ongoing (e.g., household setting), a duration of 10 days is recommended because of the potential for prolonged infectiousness from the novel influenza A case-patient.

Dosing in Special Populations:

- *Adults 65 years of age and older:* No dose modification is recommended. Follow adult dosing schedule.
- *Pregnant persons:* Oseltamivir is the preferred antiviral for treatment and PEP in pregnant persons up to 2 weeks postpartum. Follow adult dosing schedule.
- *Critically ill influenza patients:* Limited data suggest that oseltamivir administered orally or by oro-/nasogastric tube is well absorbed in critically ill influenza patients**,** including those in the intensive care unit, on continuous renal replacement therapy, or on extracorporeal membrane oxygenation.
- *Hepatic impairment:* No dose modification is recommended.
- *Renal impairment:* Dose adjustment of oseltamivir is recommended for patients with creatinine clearance between 10 and 60 mL/min and patients with end-stage renal disease (ESRD) undergoing hemodialysis or continuous ambulatory peritoneal dialysis (see **Table 5**). Similarly, dose adjustment

is recommended for pediatric patients with similar degrees of renal impairment based on age-appropriate assessment of renal function. Oseltamivir is not recommended for patients with ESRD not undergoing dialysis. For patients undergoing hemodialysis (assuming 3 hemodialysis sessions are performed in the 5-day period), treatment can be initiated immediately if influenza symptoms develop during the 48 hours between hemodialysis sessions; however, the post-hemodialysis dose should still be administered independently of time of administration of the initial dose.

TABLE 5. Recommended Dosages Modifications for Treatment and Post-Exposure Prophylaxis (PEP) in Adults aged 18 years and older with Renal Impairment or End Stage Renal Disease (ESRD) on Dialysis

Renal Impairment (Creatinine Clearance)	**Dosage for Treatment or PEP[1]**
Mild (> 60 to 90 mL/min)	75 mg twice a day
Moderate (> 30 to 60 mL/min)	30 mg twice a day[2]
Severe (> 10 to 30 mL/min)	30 mg once daily
ESRD Patients on Hemodialysis (≤ 10 mL/min)	30 mg immediately and then 30 mg after every hemodialysis cycle. Treatment duration not to exceed 5 days[2]
ESRD Patients on Continuous Ambulatory Peritoneal Dialysis[3] (≤ 10 mL/min)	A single 30 mg dose administered immediately after a dialysis exchange[4]
ESRD Patients **Not** on Dialysis	Oseltamivir is not recommended

[1] The recommended duration for PEP is 5 or 10 days. If the exposure was time-limited and not ongoing, the recommended duration is 5 days from the last known exposure. If the exposure is likely to be ongoing (e.g., household setting), a duration of 10 days is recommended because of the potential for prolonged infectiousness from the novel influenza A case-patient.
[2] Capsules or oral suspension can be used for 30 mg dosing.
[3] Data derived from studies in continuous ambulatory peritoneal dialysis (CAPD) patients.
[4] ESRD patients on continuous ambulatory peritoneal dialysis who require a 10-day duration of postexposure prophylaxis should receive a second 30 mg dose 7 days after the initial dose.

What are the possible risks of oseltamivir?

The most common adverse events are gastrointestinal symptoms (i.e., nausea and vomiting), headache, and pain. Nausea and vomiting may be less severe if oseltamivir is taken with food. Rare cases of anaphylaxis and serious skin reactions including toxic epidermal necrolysis, Stevens-Johnson syndrome, and erythema multiforme have been reported in postmarketing experience with oseltamivir. Oseltamivir should be stopped and appropriate treatment instituted if an allergic-like reaction occurs or is suspected. Patients with influenza may be at an increased risk of hallucinations, delirium, and abnormal behavior early in their illness. Monitor patients for signs of abnormal behavior.

Refer to the Package Insert for more safety information. **The EUI Fact Sheet for Recipients and Caregivers should be given to patients.**

Risk-Benefit of Oseltamivir for PEP and Treatment for Individuals Described in the EUI

The recommendation for twice daily PEP dosing frequency is based on limited data in animal studies that support higher PEP dosing for novel influenza A [2] and for the purpose of reducing the potential for development of antiviral resistance while receiving once daily PEP [3-5]. The optimal duration and dosing for treatment are uncertain for patients with severe disease. Avian influenza A(H5N1) and A(H7N9) viruses have been shown to be associated with higher virus levels and longer duration of viral replication (particularly in the

lower respiratory tract) in hospitalized patients compared to patients with seasonal influenza A or B virus infection [6-10]. Therefore, pending further data, longer courses of treatment (e.g., 10 days) should be considered for severely ill hospitalized patients with novel influenza A virus infections.

For data regarding safety, please see the Package Insert. Based on available information, it appears reasonable to anticipate that the known and potential risks of the recommended doses and durations of oseltamivir for PEP and treatment of novel influenza A virus infection recommended under EUI may be outweighed by their potential benefits. Refer to CDC's interim guidance and treatment and prophylaxis guidance for more information.

How is oseltamivir prepared and administered?
Oseltamivir is available as oral capsules, or as an oral suspension for children or adults who are unable to swallow capsules. The oral suspension is provided as powder that must be reconstituted. See below for instructions for reconstituting oseltamivir oral suspension:

Instructions for Preparing Oseltamivir for Oral Suspension (360 mg base, final concentration 6 mg/mL)
Oseltamivir for oral suspension may be reconstituted by a pharmacist or healthcare provider.

a) Tap the closed bottle several times to loosen the powder.
b) Measure **55 mL** of water in a graduated cylinder.
c) Add the total amount of water for reconstitution to the bottle.
d) Close bottle with child-resistant cap tightly and shake the closed bottle well for 15 seconds.
e) Label the bottle with instructions to "Shake Well Before Each Use".
f) Remove the child-resistant cap and push bottle adapter into the neck of the bottle.
g) Close bottle with child-resistant cap tightly. This will assure the proper seating of the bottle adapter in the bottle and child-resistant status of the cap.

- Store reconstituted suspension under refrigeration at 2-8°C (36-46°F). Do not freeze.
- The reconstituted oseltamivir for Oral Suspension (6 mg/mL) should be used within 17 days of preparation when stored under refrigeration (10 days at controlled room temperature); the pharmacist, healthcare provider, patient, or patient's parent or guardian should write the date of expiration of the reconstituted suspension on the label.
- An oral dosing dispenser with 30 mg, 45 mg, and 60 mg graduations is provided with oseltamivir for Oral Suspension and should be used to measure the dose; the 75 mg dose can be measured using a combination of 30 mg and 45 mg. For infants less than 1 year of age, an oral syringe with smaller graduation should be used. In the event that the dispenser provided is lost or damaged, another dosing syringe or other device may be used to deliver the following volumes: 5 mL (1 tsp) for children ≤15 kg; 7.5 mL (1.5 tsp) for > 15 kg to 23 kg; 10 mL (2 tsp) for > 23 kg to 40 kg; and 12.5 mL (2.5 tsp) for > 40 kg.
- Healthcare providers and pharmacists should be aware of potential dosing errors with oseltamivir for Oral Suspension. Healthcare providers and pharmacists should include doses in mg if the dosing dispenser with the drug is in mg. Pharmacists and healthcare providers should ensure that the units of measure in the dosing instructions match the dosing device provided with the drug.
- The EUI Factsheet for Recipients and oral dispenser should be provided to the patient.

During emergency situations when commercially manufactured oral suspension is not available, pharmacists may prepare an oral suspension (6 mg/mL) from oseltamivir 75 mg capsules. See **Attachment A** for emergency preparation instructions.

- Oseltamivir capsules may be opened, contents mixed with a thick, sweet liquid, and given to patients unable to swallow capsules. Refer to CDC's webpage on Opening and Mixing Oseltamivir

Capsules with Liquids if Child Cannot Swallow Capsules and video instructions on Mixing Tamiflu in Sweet Liquid for more information.

Other FDA-approved Influenza Antivirals[2]
There are other FDA-approved antivirals that may be alternatives to oseltamivir for treatment or prophylaxis of influenza that include:

- Inhaled zanamivir (Relenza®) is FDA-approved for treatment of acute uncomplicated illness due to influenza A and B viruses in adults and pediatric patients 7 years of age and older who have been symptomatic for no more than 2 days and prophylaxis of influenza in adults and pediatric patients 5 years of age and older.
- Oral baloxavir (Xofluza®) is FDA-approved for treatment of acute uncomplicated influenza in patients 5 years of age and older who have been symptomatic for no more than 2 days and who are otherwise healthy or at high risk of developing influenza-related complications. Baloxavir is also FDA-approved for post-exposure prophylaxis of influenza in patients 5 years of age and older following contact with an individual who has influenza. The dosing regimen for baloxavir is a single oral dose for treatment and PEP.
- Intravenous peramivir (Rapivab®) is FDA-approved for treatment of acute uncomplicated influenza in patients 6 months of age and older who have been symptomatic for no more than 2 days and is administered as a single intravenous dose.

For hospitalized patients and outpatients with severe, progressive, or complicated disease, oral oseltamivir is recommended. Inhaled zanamivir and intravenous peramivir are not recommended because of the lack of data in these patients. There are very limited to no data available for use of zanamivir, peramivir, or baloxavir for treatment of patients with novel influenza A virus infection or for PEP of novel influenza A virus infection. CDC does not recommend baloxavir as monotherapy for patients with severe, progressive, complicated disease or in hospitalized patients because of the lack of data in these patients.
For more information, refer to CDC's Interim Guidance on the Use of Antiviral Medications for Treatment.

Tamiflu (oseltamivir) Beyond Labeled Expiry Date
For any Tamiflu-branded product (oseltamivir) that is past its original manufacturer-labeled expiration date, look up the lot number at the following website: https://aspr.hhs.gov/SNS/Pages/Access-to-Influenza-Countermeasure.aspx. If the lot number appears on this website, you may inform recipients that FDA has determined that the Tamiflu they have received can be used for up to 20 years beyond its manufacture date, provided it has been stored under labeled storage conditions. Expiration dates may be extended based on data that may have been generated as part of the federal government's Shelf-Life Extension Program or as a result of data provided by the manufacturer. FDA reviews available data to determine if product remains stable and potent and continues to meet the specifications for continued use.

Reporting and Monitoring Adverse Events
Report adverse events or medication errors to MedWatch at www.fda.gov/medwatch, by submitting a MedWatch Form 3500 or by calling 1-800-FDA-1088.

The Countermeasures Injury Compensation Program (CICP) is a federal program that may help pay for costs of medical care and other specific expenses of certain people who have been seriously injured by certain medicines or vaccines, which may include certain oseltamivir products. Generally, a claim must be submitted to the CICP within one (1) year from the date of receiving the medicine. To learn more about this program, visit www.hrsa.gov/cicp or call 1-855-266-2427.

[2] The EUI for oseltamivir do not cover use of alternative antivirals.

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Attachment A: Instructions for Emergency Preparation of Oseltamivir Suspension (final concentration 6 mg/mL) from 75 mg Capsules

The following directions are provided for use only during emergency situations. These directions are not intended to be used if the FDA-approved, commercially manufactured oseltamivir for oral suspension is readily available. Emergency preparation of an oral suspension with this procedure will provide one patient with enough medication for a 5-day course of treatment or prophylaxis (twice daily dosing).

Commercially manufactured oseltamivir for oral suspension (6 mg/mL) is the preferred product for pediatric and adult patients who have difficulty swallowing capsules or where lower doses are needed. In the event that oseltamivir for oral suspension is not available, pharmacists may prepare a suspension (6 mg/mL) from oseltamivir capsules 75 mg using one of these vehicles: Cherry Syrup (Humco®), Ora-Sweet® SF (sugar-free) (Paddock Laboratories), or simple syrup. Other vehicles have not been studied.

STEP 1: Calculate the total volume of oral suspension to be prepared and dispensed for each patient. The total volume recommended is determined by the weight of the patient (see **Table 5** below).

TABLE 5. Volume of an Oral Suspension (6 mg/mL) Needed to be Prepared Based Upon the Patient's Body Weight

Weight (kg)	Weight (lbs)	Dosage (mg)	Total Volume to Prepare per Patient (mL)
15 kg or less	33 lbs or less	30 mg	75 mL
16 through 23 kg	34 through 51 lbs	45 mg	100 mL
24 through 40 kg	52 through 88 lbs	60 mg	125 mL
41 kg or more	89 lbs or more	75 mg	150 mL

STEP 2: Determine the number of capsules and the amount of water and vehicle (Cherry Syrup, Ora-Sweet® SF, or simple syrup) that are needed to prepare the total volume (determined from Table 2: 75 mL, 100 mL, 125 mL, or 150 mL) of prepared oral suspension (6 mg/mL) (see Table 3).

TABLE 6. Number of Oseltamivir 75 mg Capsules and Amount of Water and Vehicle (Cherry Syrup, Ora-Sweet® SF, or Simple Syrup) Needed to Prepare the Total Volume of a Prepared Oral Suspension (6 mg/mL)

Total Volume of Prepared Oral Suspension to be Prepared	75 mL	100 mL	125 mL	150 mL
Number of Oseltamivir 75 mg Capsules	6 capsules (450 mg oseltamivir)	8 capsules (600 mg oseltamivir)	10 capsules (750 mg oseltamivir)	12 capsules (900 mg oseltamivir)
Amount of Water	5 mL	7 mL	8 mL	10 mL
Volume of Vehicle Cherry Syrup (Humco®) **OR** Ora-Sweet® SF (Paddock Laboratories) **OR** simple syrup	69 mL	91 mL	115 mL	137 mL

STEP 3: Follow the procedure below for preparing the oral suspension (6 mg/mL) from oseltamivir capsules 75 mg:

1. Place the specified amount of water into a polyethyleneterephthalate (PET) or glass bottle (see Table 3).

2. Carefully separate the capsule body and cap and pour the contents of the needed number of oseltamivir 75 mg capsules into the PET or glass bottle.
3. Gently swirl the suspension to ensure adequate wetting of the oseltamivir powder for at least 2 minutes.
4. Slowly add the specified amount of vehicle to the bottle.
5. Close the bottle using a child-resistant cap and shake well for 30 seconds to completely dissolve the active drug and to ensure homogeneous distribution of the dissolved drug in the resulting suspension. (Note: The active drug, oseltamivir phosphate, readily dissolves in the specified vehicles. The suspension is caused by inert ingredients of oseltamivir capsules which are insoluble in these vehicles.)
6. Put an ancillary label on the bottle indicating "Shake Well Before Each Use."
7. Instruct the parent or caregiver that any unused suspension remaining in the bottle following completion of therapy must be discarded by either affixing an ancillary label to the bottle or adding a statement to the pharmacy label instructions.
8. Place a pharmacy label on the bottle that includes the patient's name, dosing instructions, and drug name and any other required information. Place an appropriate expiration date on the label according to storage conditions below.

Storage of the Emergency Prepared Suspension

- Refrigeration: Stable for 5 weeks (35 days) when stored in a refrigerator at 2° to 8°C (36° to 46°F).
- Room Temperature: Stable for five days (5 days) when stored at room temperature, 25°C (77°F).

Note: The storage conditions are based on stability studies of prepared oral suspensions, using the above-mentioned vehicles, which were placed in glass and polyethylene terephthalate (PET) bottles. Stability studies have not been conducted with other vehicles or bottle types.