Influenza Outbreaks

An Overview for Pharmacists
Prescribing Antiviral Medications

Under the Collaborative Drug Therapy Agreement
for Influenza Antiviral Medications
Learning Objectives

1. Understand the pharmacist’s role in an outbreak
2. Understand the characteristics of an influenza outbreak
3. Identify influenza illness & cases needing referral
4. Prescribe antiviral medications for treatment and prophylaxis
5. Advise proper self-care & preventive measures
1. Your Role as a Pharmacist in the Public Health Response

Under this Collaborative Drug Therapy Agreement (CDTA)
Pharmacists in the State of Washington may prescribe antivirals under a CDTA with a licensed, authorized prescriber.

- CDTA template for Influenza Antiviral Medications developed in 2009
- To be activated by Local Health Officer
- CDTA covers prescribing of antiviral medications for influenza
## Organization of Response

<table>
<thead>
<tr>
<th>Agency</th>
<th>Role</th>
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<tbody>
<tr>
<td>Centers for Disease Control (CDC)</td>
<td>• Monitors the outbreak and provides updated guidance and new information</td>
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<tr>
<td></td>
<td>• Manages Strategic National Stockpile (SNS) of antiviral medications</td>
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<tr>
<td>Washington State Department of Health (DOH)</td>
<td>• Requests, manages and distributes SNS medications for the state</td>
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<tr>
<td>Local Health Office</td>
<td>• Distributes SNS medications to pharmacies</td>
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<td></td>
<td>• Authorizes their use for treatment and/or prophylaxis</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>• Prescribe and dispense antiviral medications under this CDTA</td>
</tr>
</tbody>
</table>
Pharmacists should:

1. View this training presentation
2. Pass the self-assessment quiz
3. Review the protocol
4. Review information in tool kit

- Prescribing and dispensing must be documented, reported and reviewable
- Interns may participate if they are working under direct pharmacist supervision
2. Characteristics of an Influenza Outbreak
Influenza A (H1N1)

- Novel strain of influenza (swine flu)
- Risk groups same as seasonal flu, except elderly are less susceptible, pregnant women and children are more
- Vaccine available October 2009
How does the influenza virus spread?

Infectious period:

- 1 day prior to symptom onset up to 7 days after onset of symptoms
- Spread via inhalation of infected droplets
3. Identify Influenza Illness & Cases Needing Referral
Identifying Influenza: Signs & Symptoms

- Fever (> 100° F )
- Cough
- Sore throat
- Arthralgia/myalgia
- Headache
- Chills

- Fatigue
- Anorexia
- Rhinorrhea
- Nausea
- Vomiting
- Diarrhea
Screening Form Template

• Decision-making tool
• Required for documentation of antiviral medications prescribed
High Risk Patients

- Elderly are less susceptible, but may develop more severe illness
- Pregnant women and children are more susceptible and may develop more severe illness
- May be managed in the pharmacy
- Local Health Officer *may* recommended for preferential treatment or prophylaxis
Identifying High Risk Patients

- Less than 5 years old
- Over 65 years old
- Chronic medical conditions
- Immunosuppressed
- Pregnant women
- Persons less than 18 years old receiving long-term aspirin therapy
- Residents of nursing homes and chronic-care facilities
When to Refer?

- Symptoms of pneumonia
- High or persistent fever (>48 hours)
- Central nervous system symptoms
  - Neck Pain
  - Mental Status Changes
Pneumonia is the leading complication and cause of death during an influenza outbreak.

Symptoms include

Cough, high fever, pleuritic chest pain, dyspnea, rigors, chills, sputum and cyanosis
Adult Emergency Warning Signs

- Difficulty breathing or shortness of breath
- Pain or pressure in the chest or abdomen
- Sudden dizziness
- Confusion
- Severe or persistent vomiting
- Flu-like symptoms improve but then return with fever and worse cough
• Fast breathing or trouble breathing
• Bluish or gray skin color (call 911 immediately)
• Not drinking enough fluids
• Severe or persistent vomiting
• Not waking up or not interacting
• Being so irritable that the child does not want to be held
• Flu-like symptoms improve but then return with fever and worse cough
Referral Based on Temperature

Refer when temperatures exceed the following for over 48 hours:

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Age Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>100.5°F</td>
<td>&lt; 1 yr. old</td>
</tr>
<tr>
<td>101°F</td>
<td>1-17 yrs. old</td>
</tr>
<tr>
<td>102°F</td>
<td>&gt; 17 yrs. old</td>
</tr>
</tbody>
</table>
Referral Steps

1. Prescribe and dispense antiviral medications in accordance with the CDTA Protocol for Influenza Antiviral Medications

2. Advise patient to seek care from:
   1. Primary care provider
   2. Emergency department
   3. Urgent care center
Why Take a Temperature?

- Identify people who do **NOT** need treatment
- Identify people who are severely ill, need referral
4. Prescribing Antiviral Medications for Treatment and Prophylaxis of Influenza
Antiviral Medications

Novel Influenza A (H1N1) virus is resistant to adamantanes, but sensitive to neuraminidase inhibitors

Neuraminidase inhibitors:
- oseltamivir
- zanamivir

Adamantanes:
- amantadine
- rimantadine
Novel Influenza A (H1N1) virus is resistant to adamantanes, but sensitive to neuraminidase inhibitors

Neuraminidase inhibitors: oseltamivir, zanamivir

Adamantanes: amantadine, rimantadine
Mechanisms of Action

Adamantanes (M2 inhibitors) work here:

- Ion Channel
- Haemagglutinin
- Lipid Envelope
- Neuraminidase

Neuraminidase inhibitors work here:
Neuraminidase Inhibitors

Treatment & prevention of influenza A & B:

Oseltamivir (Tamiflu®)
• Individuals 1 year old or older

Zanamivir (Relenza®)
• Treatment of individuals ≥ 7 years of age
• Prevention in individuals ≥ 5 years of age
  • Not recommended for persons with underlying airway disease
Recommended Durations

Treatment
• Start **ASAP** within 2 days of onset of symptoms
• Continue for 5 days

Prophylaxis – only when directed by Local Health Officer

*Post-exposure:*
• Start ASAP after last known exposure
• Continue for 10 days

*Pre-exposure:*
• Start during potential exposure period
• Continue for 10 days after *last* known exposure
Oseltamivir Dosing for Treatment or Prophylaxis

<table>
<thead>
<tr>
<th>Oseltamivir</th>
<th>Treatment - for 5 days</th>
<th>Prophylaxis – for 10 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>75 mg capsule twice daily</td>
<td>75 mg capsule once daily</td>
</tr>
<tr>
<td>Children (age ≥ 12 months), Weight ≤ 15 kg</td>
<td>60 mg per day divided into 2 doses</td>
<td>30 mg once per day</td>
</tr>
<tr>
<td>15-23 kg</td>
<td>90 mg per day divided into 2 doses</td>
<td>45 mg once per day</td>
</tr>
<tr>
<td>24-40 kg</td>
<td>120 mg per day divided into 2 doses</td>
<td>60 mg once per day</td>
</tr>
<tr>
<td>&gt;40 kg</td>
<td>150 mg per day divided into 2 doses</td>
<td>75 mg once per day</td>
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</tbody>
</table>

Reduce the dose for adults with renal impairment, CrCl 10-30 mL/min:
**Treatment:** 75 mg once daily for 5 days
**Prophylaxis:** 75 mg every other day or 30 mg once daily
Oseltamivir Use Under an Emergency Use Authorization (EUA)

• Infants
  • Have high rates of morbidity and mortality from influenza
  • Use for children less than 1 year old recently approved by the U.S. FDA under an EUA
  • Limited data exist on safety and dosing
  • Carefully monitor infants for adverse events

• Treatment timeframe increased to include those with > 48 hours of symptoms
### Oseltamivir Use Under an EUA

#### Treatment of children younger than 1 year

<table>
<thead>
<tr>
<th>Age</th>
<th>Recommended treatment dose for 5 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 3 months</td>
<td>12 mg twice daily</td>
</tr>
<tr>
<td>3-5 months</td>
<td>20 mg twice daily</td>
</tr>
<tr>
<td>6-11 months</td>
<td>25 mg twice daily</td>
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#### Prophylaxis of children younger than 1 year

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<th>Age</th>
<th>Recommended treatment dose for 5 days</th>
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<tr>
<td>&lt; 3 months</td>
<td>Not recommended unless situation judged critical due to limited data on use in this age group</td>
</tr>
<tr>
<td>3-5 months</td>
<td>20 mg once daily</td>
</tr>
<tr>
<td>6-11 months</td>
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Zanamivir Dosing
for Treatment or Prophylaxis

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<tr>
<th>Zanamivir</th>
<th>Treatment - for 5 days</th>
<th>Prophylaxis – for 10 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>Two 5 mg inhalations (10 mg total) twice per day</td>
<td>Two 5 mg inhalations (10 mg total) once per day</td>
</tr>
<tr>
<td>Children</td>
<td>Two 5 mg inhalations (10 mg total) twice per day (age ≥ 7 years)</td>
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Under EUA, zanamivir may also be used to treat patients who have had symptoms for >48 hours.
Pregnant Women

Pregnancy should *NOT* be considered a contraindication to treat

- Despite the fact that they are Pregnancy Category C – to be used during pregnancy ONLY if the potential benefit justifies the potential risk to the embryo or fetus

- Experts prefer zanamivir over oseltamivir for pregnant women

- No relation between these medications and adverse reproductive outcomes have been established
Breastfeeding Considerations

- Women with influenza should continue breastfeeding and increase feeding frequency.

- Antiviral medication treatment or prophylaxis is not a contraindication for breastfeeding.
In case of **severe** medication side effects pharmacists should:

- Stop antiviral therapy
- Recommend OTC treatment for side effect management
- If severe, refer for medical evaluation
- Record and report suspected medication side effect information to MedWatch:

1-800-FDA-1088

[https://www.accessdata.fda.gov/scripts/medwatch/medwatch-online.htm](https://www.accessdata.fda.gov/scripts/medwatch/medwatch-online.htm)
5. Patient Information
Oseltamivir (Tamiflu®)

Common Adverse Drug Reactions:
• Nausea/vomiting
• Abdominal pain

Counseling tips:
• Stay hydrated
• Eat small frequent meals to help with possible nausea/vomiting
• Use sugar-free candy or sugar-free gum to help with nausea/vomiting
Zanamivir (Relenza®)

Potential Adverse Drug Reactions:
• Headache, dizziness, nausea/vomiting, muscle pain, diarrhea, cough, nasal and throat irritation

Counseling tips:
• Drink non-caffeinated liquid
• Eat small frequent meals to help with nausea/vomiting
• Use hard sugar-free candy or sugar-free gum to help with nausea/vomiting
• Start treatment immediately, if possible take 2 doses on first day separated by at least 2 hours
• Demonstrate correct use of inhaler device
How-to-Use Relenza® Inhaler

Click here for Video
OTC medications for symptomatic treatment

- Acetaminophen
- Ibuprofen
- Naproxen
Non-Pharmacologic Interventions

- Limit close contact
- Wash hands with soap or use alcohol-based sanitizer
- Drink clear fluids
- Cover mouth when coughing or sneezing
- Stay at home at least 7 days after illness began and 24 hours after fever has abated
Resources

• U.S. Centers for Disease Control and Prevention  
  www.cdc.gov

• Washington State Pharmacy Association  
  http://wsparx.org/

• Washington State Board of Pharmacy  
  http://www.doh.wa.gov/hsqa/professions/pharmacy/default.htm

• WA State Department of Health – link to your local public health office  
  www.doh.wa.gov

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Acknowledgements

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