Antivirals for Influenza
...What you need to know for 2014-2015

General Information
- Neuraminidase inhibitors Oseltamivir (Tamiflu©) & Zanamivir approved for treatment and chemoprophylaxis of known or suspected Influenza A or B infection
- Antivirals are NOT a substitute for the annual influenza vaccine
- Influenza virus resistance to neuraminidase inhibitors is very low (unlike amantadine and rimantidine)

Indications for Use
- As treatment for known or suspected influenza A or B infection
- Especially for “Individuals at high risk for complications: < 2 yrs, > 64 yrs, chronic conditions, chronic care facilities, immunosuppressed, morbidly obese, pregnant, American Indian, native Alaskan, < 19 yrs on long term aspirin therapy”
- Ideally treatment begins as soon as possible, but within 48 hours of symptom onset

What the AAP & CDC Say
- AAP states Tamiflu© treatment reduces duration of symptoms, and may reduce complications, death, and shorten hospital length of stay
- CDC states there is minimal to no benefit for starting treatment 48 hours after symptom onset
- One study of 408 children ages 1-3 yrs showed resolution of illness shortened by median of 3.5 days with Tamiflu©
- CDC also states that for hospitalized patients some studies suggest treatment within 96 hours of symptom onset may reduce risk of poor outcomes
- Both organizations defer to clinician judgment in starting treatment after 48 hours of symptom onset

Drug Info
- Most commonly used is Oseltamivir Phosphate (Tamiflu©)
- Zanamivir cannot be used in patients with underlying respiratory disease (i.e. asthma)
- Tamiflu© available in capsule and suspension, given PO, limited data for via GT / NGT
- Tamiflu© approved for treatment of influenza for ages 2 weeks and older, approved for chemoprophylaxis for ages 1 year and older

Helpful to Know
- Premature infants may have slower clearing of Tamiflu© due to immature renal function. See dosing chart for suggestions.
- Tamiflu© is contraindicated in patients with known serious hypersensitivity to oseltamivir or any component of the product
- Most serious adverse events: serious skin reactions (SJS, TEN, erythema multiforme) and neuropsychiatric events (confusion or abnormal behavior)
- Most frequent pediatric adverse event is vomiting. Other more frequent pediatric adverse events: abdominal pain, epistaxis, ear disorder, and conjunctivitis. All resolved spontaneously without having to discontinue medicine.
- In cases of Tamiflu© overdose, no serious events reported, most adverse effects observed the same as with correct dosing
- Drug interaction may occur with influenza live virus vaccine (LAIV)! FDA recommends waiting 48 hours after Tamiflu© course finished to give LAIV; and not to give Tamiflu© until 2 weeks after LAIV
- FDA recommends caution when giving Tamiflu© to breastfeeding mothers
<table>
<thead>
<tr>
<th>Age</th>
<th>Weight (kg)</th>
<th>Treatment Dosing for 5 days</th>
<th>Prophylaxis Dosing for 10 days</th>
<th>Volume of oral suspension (6mg/ml) for each dose</th>
<th>Number of bottles of oral suspension to dispense for treatment</th>
<th>Number of capsules and strength to dispense for treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 wk to 1 yr</td>
<td>Any weight</td>
<td>3 mg/kg <strong>twice</strong> daily</td>
<td>Not approved</td>
<td>0.5 ml/kg</td>
<td>1 bottle</td>
<td>N/A</td>
</tr>
<tr>
<td>1-12 yrs</td>
<td>15 kg or less</td>
<td>30 mg <strong>twice</strong> daily</td>
<td>30 mg <strong>once</strong> daily</td>
<td>5 ml</td>
<td>1 bottle</td>
<td>10 capsules 30 mg</td>
</tr>
<tr>
<td></td>
<td>15.1 kg thru 23 kg</td>
<td>45 mg <strong>twice</strong> daily</td>
<td>45 mg <strong>once</strong> daily</td>
<td>7.5 ml</td>
<td>2 bottles</td>
<td>10 capsules 45 mg</td>
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<tr>
<td></td>
<td>23.1 kg thru 40 kg</td>
<td>60 mg <strong>twice</strong> daily</td>
<td>60 mg <strong>once</strong> daily</td>
<td>10 ml</td>
<td>2 bottles</td>
<td>20 capsules 30 mg</td>
</tr>
<tr>
<td></td>
<td>40.1 kg or more</td>
<td>75 mg <strong>twice</strong> daily</td>
<td>75 mg <strong>once</strong> daily</td>
<td>12.5 ml</td>
<td>3 bottles</td>
<td>10 capsules 75 mg</td>
</tr>
</tbody>
</table>

- Premature infants may have slower clearance of Tamiflu® because of immature renal function. Doses for full-term infants are not appropriate. Limited data support that 1 mg/kg twice daily for premature infants leads to same concentrations as recommended treatment dose for full-term infants. Consult a clinical pharmacist.
- In patients with renal impairment use renal dosing
- Ideally Tamiflu® should be taken with food to maximize tolerability
- If oral suspension is not available or not tolerated, Tamiflu® capsules can be opened and mixed with sweetened liquids (chocolate syrup, corn syrup, caramel, sugar dissolved in water, etc.)
- If oral suspension not available, a pharmacist may compound an emergency supply of oral suspension from the 75mg capsules
- Capsules are stored at room temperature; oral suspension is stored at room temperature for up to 10 days or in the refrigerator for up to 17 days