

## Influenza 2 (Treatment)

Influenza symptoms:  
abrupt onset of fevers  
(38° - 40°C), headache,  
sore throat, myalgias,  
malaise, anorexia, dry  
cough during peak  
influenza season  
(November - March)

Evaluate within 48 hours  
of development of  
symptoms<sup>1</sup>

Treat based on clinical  
suspicion and symptoms  
alone<sup>2</sup>

Consider symptomatic relief only:  
Tylenol q 4-6 hours (avoid ibuprofen), hydration, OTC cough suppressants, no alcohol, no aspirin or aspirin containing medications  
OR  
the following antiviral medications can be started within 48 hours of development of symptoms:

1. *Zanamivir (Relenza™)*

2 puffs BID for total of 5 days (Category C). Asthmatics should have a short-acting beta-agonist inhaler available for bronchospasm. If on a scheduled beta agonist, this should be taken before Zanamivir (Cost \$ 53-55)<sup>4</sup>

2. *Oseltamivir (Tamiflu™)*: 75 mg oral BID x 5 days (Category C). If renal insufficiency (creatinine clearance < 30ml/min, reduce dose by 50%) (Cost: \$ 65-73)<sup>5</sup>

Observe for development of influenza viral pneumonia (3-5 days after onset of symptoms)-persistent cough, fever, dyspnea, and cyanosis  
**AND**  
development of secondary bacterial pneumonia

Consider hospital admission if pneumonia suspected

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1. **Cochrane Database Syst Rev 2000;(2) CD001265.** *The antiviral medication zanamivir and oseltamivir should be administered within 2 day of onset of symptoms. Zanamivir and Oseltamivir can reduce the duration of uncomplicated influenza A and B illness by approximately 1-1.5 days. (Demicheli JT, Deeks J, Tivetti D. Neuraminidase inhibitors for preventing and treating influenza in healthy adults.)*
  
2. Boivin G, Hardy I, Gaudreau A, Tellier G, Maziade J. **Program and abstracts of the 40<sup>th</sup> Interscience Conference on Antimicrobial Agents and Chemotherapy; Toronto, Ontario, Canada; Sept 17 – 20, 2000. Abstract 179.** *Predicting influenza infection during epidemics using a clinical case definition. Using a stepwise logistic regression model, the authors showed that cough and fever were the only factors significantly associated with a positive RT-PCR test. When only fever above 38C was considered together with cough, the sensitivity of the clinical diagnosis was 78%, the specificity 55%, PPV 88% and NPV only 39%.*
  
3. **Cox NJ, Subbarao K, Influenza. Lancet 1999; 354: 1277-82.** *Reye's syndrome has been reported in patients using aspirin after influenza infections.*
  
4. **Reprotox® Database, updated January 2000.** *Zanamivir Relenza ®(Category C): According to preclinical testing provided by the sponsor, fertility studies in rats did not show adverse reproductive effects in males and females given daily intravenous doses of up to 90 mg/kg. This dose was estimated to produce blood concentrations (AUC) of up to 90 mg/kg, a concentration 300 times that achieved in human on inhalation therapy. Use of similar doses in pregnant rats and rabbits did not produce adverse effects on embryo development. Zanamivir crosses the placenta in rats and rabbits, although fetal blood concentrations are considerably lower than those in the mother. Zanamivir is excreted in rat milk. Adverse effects of lactation exposure did not occur in preclinical studies in rats.*
  
5. *Oseltamivir Tamiflu® (category C). Preclinical studies presented by the sponsor did not show adverse fertility effects in male or female rats with oral doses up to 1500 mg/kg/d. These doses produced blood levels about 100 times those achieved in human on therapy. In pregnant rats and rabbits treated with oseltamivir at oral doses producing blood levels up to 100 to 50 times those achieved in humans, there was maternal toxicity and an increase in minor fetal skeletal variations. Such variations are not unusual in the face of maternal toxicity, although there is not proof in this case that the maternal toxicity was the cause of the skeletal changes in the fetuses. Oseltamivir crosses the placenta in rats and rabbits and is excreted in rat milk. No adverse effects of lactation exposure were seen in rats in preclinical studies.*

## NOTIFICATION TO USERS

These algorithms are designed to assist the primary care provider in the clinical management of a variety of problems that occur in pregnancy. They should not be interpreted as *standard of care* but instead represent *guidelines* for the management of these patients. Variation in practice should be taken into account such factors as characteristics of the individual patient, health resources, and regional experience with diagnostic and therapeutic modalities. The algorithms remain the intellectual property of the University of North Carolina School of Medicine at Chapel Hill. They cannot be reproduced in whole or part without the *expressed* permission of the school.  
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