INFLUENZA WEBINAR FOR INDIVIDUALS WORKING IN HOSPITALS, CLINICS, LABORATORIES & INFECTION CONTROL

2016-2017 SEASON

IOWA DEPARTMENT OF PUBLIC HEALTH (IDPH)
STATE HYGIENIC LABORATORY (SHL)
Webinar Information

- All participants will be muted during the presentation.
  - Questions can be submitted directly to the facilitator via the Q/A feature located on your control panel
  - All questions submitted will be answered at the end of the presentation
- This session will be recorded and made available for reviewing
  - When available, you will receive a follow-up-email on how to access this recording
Presentation Overview

- Influenza Activity Update
- Iowa Influenza Surveillance Network (IISN)
- Vaccine Update
- Laboratory
  - Specimen collection
  - Specimen submission and reporting results
- Antiviral Treatment and Prophylaxis
Presenters

In order of presentation:

- Scott Seltrecht, MPH, *Influenza Surveillance Coordinator*, IDPH
- Kelli Smith, RN, BSN, *Immunization Nurse Consultant*, IDPH
- Jeff Benfer, MS, MB (ASCP)cm, *Supervisor of Virology and Molecular Biology*, SHL
- Patricia Quinlisk, MD, MPH, *Medical Director / State Epidemiologist*, IDPH
Influenza Update
Flu Activity Update

- Flu activity in Iowa in August-Present
  - Sporadic
    - One case of seasonal influenza A (H3)

- National activity
  - Influenza activity remains low in the United States
  - Influenza A and influenza B viruses are currently circulating at low levels
Iowa Influenza Surveillance Network
IISN Overview

- Seasonal influenza surveillance is generally conducted in October through May every year.
- The IISN is a collaborative effort between IDPH, SHL and many other partners.
- Objectives of the surveillance are:
  - Establish when and where influenza is present in Iowa.
  - Ascertain how influenza is affecting Iowans.
  - Determine the strains of influenza in Iowa and match to the vaccine.
  - Genetically characterize to look for emergent strains.
  - Provide timely information to the public, health care providers, and public health agencies.
IISN Program Components

- **Outpatient surveillance (ILINet) – CDC program**
  - Outpatient visits attributed to influenza-like illness (ILI)

- **Hospital surveillance**
  - Influenza-associated hospitalizations

- **Laboratory**
  - Confirmatory testing, type and strain
  - Detect other respiratory viruses circulating
  - Percent rapid test positive

- **Mortality**
  - Flu-associated pediatric deaths (<18 years old)

- **School surveillance**
  - Absence due to illness
Non-Influenza Respiratory Pathogen Surveillance

- Surveillance for non-influenza respiratory viruses
  - Adenovirus
  - Parainfluenza 1-4
  - Rhinovirus/Enterovirus
  - Respiratory Syncytial Virus (RSV)
  - Human Metapneumovirus (hMPV)

- Data sources
  - State Hygienic Laboratory – Iowa City
  - Mercy Dunes Medical Laboratories - Sioux City
  - Iowa Methodist – Des Moines
Influenza Outbreaks

- Outbreaks of infectious disease are reportable
- Influenza outbreaks from Long-term care facilities
  - If you suspect an outbreak, please contact local public health, your regional epidemiologist, or IDPH at 800-362-2736
  - Follow outbreak control guidelines for long-term care facilities at [http://idph.iowa.gov/influenza/ltc-facilities](http://idph.iowa.gov/influenza/ltc-facilities)
- 10% school absenteeism
  - All Iowa schools are required to report to IDPH when percent of illness meets or exceeds 10 percent
  - Report using IDPH website
  - [http://idph.iowa.gov/influenza/schools](http://idph.iowa.gov/influenza/schools)
  - Download report from website and fax to (515)281-5698
Outbreak Control for Long-term Care Facilities

- Report the outbreak and collect specimens from ILI patients and submit specimens to SHL
- Administer antiviral prophylaxis to residents and health care personnel in accordance with current CDC recommendations
- Vaccinate all unvaccinated residents and staff unless medically contraindicated
- Reinforce respiratory hygiene/cough etiquette
- Implement Droplet Precautions
- Cohort and/or isolate ill residents as appropriate
- Restrict ill personnel from patient care
- Limit visitation, exclude ill visitors
- Limit new admissions
Outbreak Control for Schools and Child Cares

- Report the outbreak including ≥ 10% school absence
- Work with local public health agencies
- Limit gatherings
- Ramp up cleaning
- Wash hands often with soap and water or use alcohol-based hand sanitizers
- Notify and educate parents
- Vaccination
- Utilize resources at IDPH and CDC
IISN Weekly Report

- Posted weekly at IDPH website
  - [http://idph.iowa.gov/influenza/reports](http://idph.iowa.gov/influenza/reports)

Iowa Influenza Surveillance Network (IISN) Weekly Activity Report

For the week ending October 11, 2014 - Week 41

Iowa Influenza Geographic Spread

No Activity
- Statewide
- Regional
- Local

Iowa statewide activity summary:

Influenza activity in Iowa is low. For this reporting week, the State Hygienic Laboratory confirmed two Flu A (H1N1) cases. The proportion of outpatient visits due to influenza-like illness (ILI) was 0.33 percent, which is well below the regional baseline. One influenza-associated hospitalization was reported from sentinel hospitals. No schools reported 50 percent or greater absenteeism due to illness. In addition, five cases of pneumonia, seven cases of parainfluenza virus type 2, and 10 cases of rhinovirus/enterovirus were reported to IDPH.

National activity summary - [www.cdc.gov](http://www.cdc.gov)

During week 41, the following influenza activity was reported: Widespread influenza activity was reported by Guam. Local influenza activity was reported by Puerto Rico and four states (Florida, New Hampshire, North Dakota, and Virginia). Sporadic influenza activity was reported by the District of Columbia and 36 states (Alabama, Alaska, Arkansas, California, Colorado, Connecticut, Delaware, Georgia, Hawaii, Idaho, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, West Virginia, Wisconsin, and Wyoming). No influenza activity was reported by the U.S. Virgin Islands and 10 states (Alaska, Illinois, Kansas, Massachusetts, Mississippi, Missouri, Montana, Oklahoma, Nevada, and Rhode Island).
Contact Information

To learn more about our influenza surveillance programs or to become a participant, please contact

Scott Seltrecht, MPH
Iowa Influenza Surveillance Network Coordinator
Iowa Department of Public Health
Office: 515-281-4985
Scott.Seltrecht@idph.iowa.gov
2016-2017 FLU VACCINE UPDATE

GET YOUR FLU SHOT
2016-2017 Seasonal Influenza Vaccine

- Strains included in all presentations:
  - A/California/7/2009 (H1N1)pdm09-like
  - A/Hong Kong/4801/2014 (H3N2)-like*
  - B/Brisbane/60/2008-like (Victoria lineage)

- Additional strain included in quadrivalent presentations:
  - B/Phuket/3073/2013 (Yamagata lineage)

* New strains included this season
2016-2017 Seasonal Influenza Vaccine

- 157-168 million doses of influenza vaccine to be distributed in the United States
Influenza Vaccine Recommendations

- Begin offering vaccine as it becomes available
- Immunize everyone 6 months of age and older for whom it is not contraindicated
- Some children ages 6 months through 8 years of age will need 2 doses (at least 4 weeks apart)
- There is no preferential recommendation for any specific formulation of vaccine for any population
- Live Attenuated Influenza Vaccine (LAIV) is not recommended to be used this season
- Waiting period of 30 minutes post-vaccination for egg-allergic individuals removed
Types of Influenza Vaccine

- **Injection**: contains inactivated (killed) virus, which is injected into the upper arm or thigh
  - **Standard Dose** – for ages 6 months-35 months: 0.25mL; for 3 years and older: 0.5mL
    - Trivalent and Quadrivalent presentations
    - Adjuvanted –for ages 65 years and older: 0.5mL, trivalent
  - **High Dose** – for ages 65 years and older: 0.5mL
    - Trivalent
- **Intradermal** – for ages 18 through 64 years: 0.1mL
  - Quadrivalent
- **Recombinant** – for ages 18 years and above: 0.5mL
  - Contains no egg protein
  - Trivalent
Types of Influenza Vaccine

- **Intranasal**: contains weakened (live) virus, which is sprayed into the nose
  - For healthy people ages 2 years through 49 years
  - 0.2mL
  - Quadrivalent

- **NOT** recommended for the 2016-17 flu season
Children aged 6 months through 8 years

- Two doses (at least 4 weeks apart) necessary for most children age 6 months through 8 years this season
- Children will only need one dose if they received:
  - Two doses of seasonal (trivalent or quadrivalent) flu vaccine prior to the 2016-2017 flu season (July 1, 2016)
For Persons Who Report an Allergy to Eggs

- Hives only: administer any age-appropriate licensed flu vaccine
- More severe reaction: administer any age-appropriate flu vaccine in an inpatient or outpatient medical setting. A health care provider able to recognize and manage severe allergic conditions should supervise.

*Observe all patients for 15 minutes after vaccination to decrease risk of injury should syncope occur.
Predicted Vaccine Effectiveness

- Variable depending upon
  - age and health status of the vaccine recipient
  - match between circulating strains and strains included in vaccine
  - possibly, which vaccine was used

- Difficult to determine because
  - once recommendations for flu vaccine are issued, it is unethical to do randomized studies
Resources

- Kelli Smith, RN, BSN
  Immunization Nurse Consultant
  Iowa Department of Public Health
  Office: (515)281-4938
  Kelli.Smith@idph.iowa.gov

- Iowa Department of Public Health, Immunization Program,
  Influenza page
  http://idph.iowa.gov/immtb/immunization/vaccine
Specimen Collection, Submission & Reporting Results
Why Submit?

- To monitor when and where influenza is circulating in the community
  - Provides state and national surveillance data
  - Surveillance information is published weekly by IDPH

- **Point of Care (rapid) test challenges**
  - False positive during low prevalence
  - False negative (less sensitive than molecular methods)
  - SHL uses the CDC molecular test (PCR) that is more sensitive and specific

- Provides virus strains for further characterization
  - Vaccine match, vaccine composition, identification of novel strains, monitor for resistance to influenza drugs

- Testing Algorithm
  [http://www.shl.uiowa.edu/kitsquotesforms/influenzaalgorithm.pdf](http://www.shl.uiowa.edu/kitsquotesforms/influenzaalgorithm.pdf)
**State Hygienic Laboratory and Iowa Department of Public Health**

**Influenza Surveillance Testing Algorithm 2016/2017**

Patients must have **influenza-like illness (fever and respiratory symptoms without other apparent cause)**.

Contact IDPH or SHL for guidance in the event of an ILI outbreak.

- **Labs:** Submit rapid antigen test positive specimens until one rapid A and one rapid B is confirmed by RT-PCR*
- **Hospitals:** Submit specimens hospitalized patients with Influenza-Like Illness and without other apparent cause
- **ILINet Sentinel Providers:** Submit specimens on patients with ILI per IDPH guidelines

Preferred specimen types are a nasopharyngeal swab or a combined nasal plus throat swab (2 swabs in one transport medium tube)

- **NEGATIVE**
  - **RT-PCR for Influenza A or B at SHL**
  - **Determine A subtype (H1, H3, 2009 H1N1 pdm, or H3N2 variant)**
  - **Determine B subtype (Victoria or Yamagata)**

- **POSITIVE**

*SHL confirmatory influenza testing serves the following purposes:

1) Demonstrates influenza virus presence when prevalence is low and when the positive predictive value of rapid tests is low.
   Demonstrates regions in Iowa where influenza virus is circulating.
2) Identification of the types and strains of influenza circulating in communities for treatment considerations and next season’s vaccine. Allows for characterization of new or antigenic variant viruses and match to current vaccine.

Surveillance testing is provided at no cost and is partially supported by a grant from the Centers for Disease Control and Prevention.

**Thank you for your support of this program.**

**NOTE:** This algorithm is subject to change based on the public health needs as the influenza season progresses.

**IDPH** 800-362-2736 [http://idph.iowa.gov/influenza](http://idph.iowa.gov/influenza)  
**SHL** 319-335-4500 [http://www.shl.uiowa.edu/services/influenza/](http://www.shl.uiowa.edu/services/influenza/)
The Optimal Specimen

- Three days post symptom onset (range 1 to 7 days)
- Specimen types
  - Nasal swab and throat swab combined into one tube
  - Nasopharyngeal flocked swab
  - Do not submit swabs or specimens that have been used for rapid testing
  - For lower respiratory infections: Sputum, Bronchial lavage/brush, Tracheal aspirate
- Must be in viral transport medium
Specimen Collection

- **Order Virus Isolation and Detection Specimen Collection Kits**
  - Call SHL at 319-335-4500
  - Order on-line
    - [www.shl.uiowa.edu/kitsquotesforms/clinicalkit.html](http://www.shl.uiowa.edu/kitsquotesforms/clinicalkit.html)

- **Collection Instructions** Acceptable specimens, type of swab
  - How to package specimen
  - Specimen must be labeled (name and DOB)
  - How to fill out the test request form
    - [www.shl.uiowa.edu/kitsquotesforms/vidandpcrcollectioninstructions.pdf](http://www.shl.uiowa.edu/kitsquotesforms/vidandpcrcollectioninstructions.pdf)
Ordering collection kits
Test Request Form and Required Information

- New Online Form on SHL website
- [http://www.shl.uiowa.edu/](http://www.shl.uiowa.edu/)
- Form can now be saved as a **pdf file with your facility information pre-populated**
- Can be printed and filled out by hand OR filled out electronically and then printed
- **Electronically filled out then printed forms** make data entry a breeze because it is **legible**.
- Make sure your facility address is correct at the bottom of the form.
Test Request Form
Step 1. Select the test request form:
- Bacteriology
- Blood Lead
- Chlamydia trachomatis/Neisseria gonorrhoeae
- Cystic Fibrosis
- Serology/Immunology
- Viral and Bacterial PCR and DFA

Step 2. Select your organization (listing is sorted by name):
If your organization is not listed or your address is incorrect, please contact the laboratory.

- 7812 - ACKLEY MEDICAL CENTER, 1000 10TH AVE, ACKLEY, IA
- 2062 - ADAIR COUNTY HOME CARE, 117 NW HAYES, GREENFIELD, IA
- 7813 - ADAIR COUNTY MEMORIAL HOSPITAL, 609 SE KENT ST, GREENFIELD, IA
- 7814 - ADAIR COUNTY VETERINARY CLINIC, 407 SE NOBLE, GREENFIELD, IA
- 7815 - ADAMS PET HOSPITAL, 5875 SARATOGA RD, DUBUQUE, IA
- 7816 - ADVANCED PET CARE CLINIC, 4507 ALGONQUIN DR STE A, CEDAR FALLS, IA
- 7817 - AKRON MERCY MEDICAL CLINIC, 321 MILLS ST, PO BOX 200, AKRON, IA
- 7818 - ALEGENT CREIGHTON HEALTH CLINIC, 210 S MAIN, LENOX, IA
- 7820 - ALEGENT CREIGHTON HEALTH CLINIC, 1502 MADISON AVE, BEDFORD, IA
- 7821 - ALEGENT CREIGHTON HEALTH CLINIC, 601 ROSEY DR, PO BOX 188, CORNING, IA
- 7822 - ALEGENT HEALTH, 1581 MADISON AVE COUNCIL BLUFFS, IA
## Viral and Bacterial PCR and DFA Test Request Form

### SPECIMEN INFORMATION

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### TESTS REQUESTED

- Influenza by PCR (A, B, and subtyping for A and B)
- Confirm Rapid Assay Positive
- Confirm Rapid Assay Negative
- Hospitalized (In-Patient)

### OTHER

- Date Collected
- Time Collected (24 hr. clock)
- Clinical Diagnosis
- Date of Onset

### ORGANIZATION INFORMATION

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### ORDERING HEALTH CARE PROVIDER INFORMATION

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### PATIENT INFORMATION

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### GENDER

- Male
- Female
- Unknown

### ETHNICITY

- Hispanic
- Non-Hispanic
- Unknown

### INSURANCE INFORMATION

- Medicare
- Medicaid
- Other

### MEDICAL HISTORY

- Allergies
- Chronic Illnesses
- Previous Infections

### PLACE THE HL7 LABEL WITHIN THIS BOX

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Specimen Transport: CDS Courier

- The CDS courier can be used to transport specimens to SHL
  www.cdsofiowa.com/index.html
  - Coordinate shipments through your local birthing hospital.
  - For assistance: Ron Hardy (CDS) at 515-289-9990 or Becky Teske (SHL) at 319-335-4500.
    - Note, Please make certain you do not use the NBS envelope (or choose NBS envelope on the CDS website) because these envelopes go to the laboratory in Ankeny and influenza testing is performed in Iowa City.

- Other options are commercial carriers and USPS

- Store specimens refrigerated prior to shipment
  - Transport on ice packs if not using courier (courier has cold section)
  - Ship within 72hrs from time of collection
Result Interpretation and Reporting

- Specimens tested for Influenza A and B
  - If positive for Flu A, then subtype with H3, 2009 H1N1, H3N2v
  - If positive for Flu B, then subtype for Victoria or Yamagata
- Web-based result reporting system
  - Call 319-335-4358, Email ask-shl@uiowa.edu
  - Also, sign up for Email notification of when samples are received and when results are available
  - Must contact SHL when personnel with web access leave your lab to remain HIPPA compliant
- Facilities without web access will receive results via USPS
Web Access for RESULTS
http://www.shl.uiowa.edu
Click on OpenELIS Web Portal User Guide.
Using the icons circled in red

Welcome to the State Hygienic Laboratory’s New OpenELIS Web Portal

Effective on February 15, 2015, SHL’s OpenELIS Web Portal has been redesigned to afford easier access of test results regardless of the type of sample (environmental, safe drinking water, private well, clinical, or neonatal screening.) The new OpenELIS Web Portal features the following enhancements:

- All of your organization's test results can now be downloaded by using the Final Report link.
- The functionality to download your results into a spreadsheet has also been expanded to all types of samples.
- Clinical test results (except for rabies and maternal screening) for samples that are received at SHL beginning on March 1, 2015 will now be located in OpenELIS.
- There is now a Tool Tip to the right of each search field that contains information about the use and format of that field.

Results for rabies and maternal screening tests will still be located in the PHIMS web portal until this testing is transitioned into OpenELIS. Neonatal screening results will still be located in the Neonatal Screening web portal until this testing is transitioned into OpenELIS.
Survey of Respiratory Virus Surveillance Test Results from Iowa Clinical Laboratories

• **How it works**
  - Each week SHL will email you a link to a quick online survey where you report the number of rapid flu, rapid RSV and any non-flu virus detection.
  - Within that email we also provide the compilation from the previous week’s results from around the state.

• **Benefit**
  - Help you be aware of what’s circulating in your local area.
  - Data is used by IDPH for the weekly flu report.
  - Positive predictive value of rapid influenza tests relies on prevalence in your local community.

*To participate contact Jeff Benfer*
Influenza/Rapid RSV/Non-Flu Panel

Required

Your Name *

Your Email Address *

Facility Name *

Adair County Memorial Hospital, Greenfield

Continue »

14% completed
### Previous weeks results

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<thead>
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<th>FACILITY NAME</th>
<th>RAPID ANTIGEN INFLUENZA TESTS</th>
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<th>Flu B</th>
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<td>Theillon Student Health Center (ISU), Ames</td>
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<td>67%</td>
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</tr>
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<td>11%</td>
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<td>0%</td>
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Regional results from previous week

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<th>A*</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
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<td>Flu B</td>
<td>% Positive</td>
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<td>Positive</td>
<td>% Positive</td>
<td>Tested</td>
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<td>HMPV</td>
<td>Para 1</td>
<td>Para 2</td>
<td>Para 3</td>
<td>Para 4</td>
<td>RSV</td>
<td>Coronavirus</td>
<td>Rhinovirus</td>
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<td>Flu B</td>
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<td>Positive</td>
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<td>149</td>
<td>39%</td>
<td>264</td>
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<td>1</td>
<td>1</td>
<td>2</td>
<td>65</td>
<td>30</td>
<td>18</td>
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</tbody>
</table>
Laboratory Contact Information

Jeff Benfer, M.S., MB (ASCP)cm, Supervisor of Molecular Biology and Virology

jeff-benfer@uiowa.edu

Lucy DesJardin, Ph.D., Program Manager

lucy-desjardin@uiowa.edu

P:319-335-4500
F:319-335-4555

THANK YOU FOR PARTICIPATING!!!
Antiviral Treatment and Prophylaxis
Antiviral Agents for Flu

- **Neuraminidase inhibitors** (primary agents for A and B influenza)
  - Oseltamivir (Tamiflu®) oral
  - Zanamivir (Relenza®) inhaled
  - Peramivir (Rapivab®) intravenous

- **Adamantanes** (most flu A’s resistant - not used)
  - Amantadines
  - Rimantadines
Treatment Efficacy of Neuraminidase Inhibitors

- No/minimal effect in healthy people after 48 hours after onset
- Reduces uncomplicated illness by 1 day when given within 48 hours of onset of illness
- In young children, reduced illness by 3.5 days if given within 24 hours of onset of illness
- In pregnant women, reduces respiratory failure and death if started within 3 days (may benefit if within 3-5 days)
- Secondary pneumonia decreased by 50% in adults with lab confirmed flu if treated
- Risk of death reduced after treatment
- Children studies showed variable but reduced secondary infections after treatment, less asthma impact
Treatment Recommendations

Look at underlying conditions, disease severity, time of onset

- All hospitalized patients with confirmed or suspected influenza
- Severe, progressive, or complicated illness
- Patients under 2 or over 65 years of age
- Those with chronic diseases, pregnant (2 weeks post-partum), children on aspirin, morbidly obese, residents of long term care, American Indian/Alaska Native
- Reduces morbidity and mortality even if given up to 5 days after onset of illness in high risk, seriously ill patient
Antiviral Treatment Dosage

Duration for antiviral treatment is 5 days (longer if illness prolonged)

- **Zanamivir** (*Relenza* – inhaled powder)
  - 10 mg (two 5 mg inhalations) twice daily
  - Treatment – not approved in <7 years of age

- **Oseltamivir** (*Tamiflu* – tablet)
  - Children (under 40 Kg) dose varies by weight
  - Adults (older children 40+ kg) **75 mg twice daily**

- **Peramivir** (*Rapivab* – intravenous)
  - 600 mg via intravenous infusion for 15-30 minutes
  - Treatment for Adults >18
  - 1 day of treatment for uncomplicated influenza and 5 days of treatment for hospitalized patients
Antiviral Prophylaxis
(not substitute for vaccine, or Tx if become ill)

- **Post-exposure**
  - 10 days duration for high risk persons with household exposure
  - 7 days duration after non-household close exposure to persons with confirmed or suspected cases of flu
  - give within 48 hours of last exposure

- **Pre-exposure**
  - used in high risk persons
  - especially in institutional settings with outbreaks, and should be given for duration of exposure
  - Minimum of 2 weeks, up to 1 week after last known case

- Susceptibility to infection returns when antivirals stopped
Antiviral Prophylaxis Dosage

- **Zanamivir** (*Relenza* – inhaled powder)
  - 10 mg (two 5 mg inhalations) once daily
  - Not approved for children <5 years of age

- **Oseltamivir** (*Tamiflu* – tablet)
  - Children one year and older (<40 kg) dose varies by weight
  - Older children and adult (40+ kg) 75 mg once daily

- **Peramivir** (*Rapivab* – intravenous)
  - Not approved for antiviral prophylaxis

- See *Influenza Antiviral Drugs* at [www.cdc.gov/flu/professionals/antivirals/index.htm](http://www.cdc.gov/flu/professionals/antivirals/index.htm)
“Don’t think of it as getting a flu shot. Think of it as installing virus protection software.”

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