

Weekly Influenza Update

December 19, 2008

Wisconsin:

Influenza activity continues to be at baseline in Wisconsin. There have been 9 confirmed influenza detections in Wisconsin [5 A(H1), 2 A(H3) and 2 B] coming from Dane, Kenosha, Milwaukee, Racine, Waukesha, and Wood Counties. The prevalence of influenza-like illness [fever of 100oF or higher and either cough or sore throat] in Wisconsin's primary care patients is an estimated to be 1.7%.

13.7% of last week's primary care patients had acute respiratory infections (ARI).

The prevalence of acute diarrheal illness (ADI) in Wisconsin's primary care patients is at 1.6%.

CLINICAL NOTES:

Prophylaxis

Continue to offer influenza vaccine to anyone interested. Full immunity is achieved within 2 weeks of vaccination.

Vaccination is targeted towards:

- all high risk individuals
- children from 6 months to 18 years
- adults 50 years and above
- pregnant women
- healthcare workers

Diagnosis

- influenza infections are rare at this time
- PPV of rapid influenza tests is poor, NPV is excellent

Treatment

- a limited number of viruses have been tested for neuraminidase inhibitor resistance this season
 - 45 out of 46 A(H1) viruses were resistant to Oseltamivir (98%)
 - 0/7 A(H3) and 0/15 B viruses have been resistant to oseltamivir.

All viruses tested have been sensitive to zanamivir

- a limited number of viruses have been tested for adamantane resistance this season
 - 0/25 A(H1N1) viruses were resistant to adamantanes
 - 5/5 A(H3N2) viruses were resistant to adamantanes (100%)
 - Adamantane antivirals are ineffective against influenza B viruses

Other

- adenovirus is the most prevalent respiratory virus circulating in Wisconsin
- RSV prevalence is slowly increasing
- rotavirus isolations are at low levels

Across the U.S.:

As of December 6th, 507 positive surveillance cultures have been recorded in the United States. 2.8% of respiratory specimens during week 49 (November 30 – December 6) were positive for influenza.

-80.5% of isolates have been type A

89.7% of all sub-typed A viruses have been H1N1

10.3% of A viruses have been H3N2

-19.5% of isolates have been type B

-6.5% of deaths during week 49 (November 30 – December 6) were due to pneumonia or influenza

[below the epidemic threshold of 7.2%] -no pediatric influenza deaths have been reported to CDC this season

Global News [from the WHO]:

The Ministry of Health of Cambodia has announced a new confirmed case of human infection with the H5N1 avian influenza virus. The 19-year-old male developed symptoms on 28 November and is currently hospitalized.

The Ministry of Health and Population of Egypt has announced a new human case of avian influenza A(H5N1) virus infection. The case is a 16-year-old female whose symptoms began on 8 December 2008. She died on 15 December. Investigations into the source of her infection indicate a recent history of contact with sick and dead poultry.

Since 2003, there have been 391 laboratory-confirmed cases of Avian influenza (A-H5N1). The cases been confined to Laos, Viet Nam, Thailand, Indonesia, Cambodia, the People's Republic of China, Turkey, Iraq, Azerbaijan, Egypt, Djibouti Nigeria, Myanmar and Pakistan. There have been 247 associated deaths (case fatality rate= 63.2%). There is enhanced avian influenza surveillance in Wisconsin. Contact Tom Haupt at the Wisconsin Division of Public health (608-266-5326) prior to submitting specimens for fee-exempt testing for patients with influenza-like illness returning from Southeast Asia within 10 days.

Other Observations:

Winter Solstice - December 21st is the shortest day of the year with 8 hours and 59 minutes of daylight in Madison. The waning moon will contribute to the relative darkness over the next week (countered by our abundance of fresh snow!). The average temperature will continue to decline through January 21st, which corresponds to the 25-year average peak date of influenza A in Wisconsin.

The whole notion of seasonality is due to a cosmic mistake resulting in Earth's quirky axis. The Earth currently has an axial tilt of about 23.44° (23° 26'). The axis remains tilted in the same direction throughout a year; as the Earth orbits the Sun, the hemisphere tilted away from the Sun will gradually become tilted towards the Sun, and vice versa. This effect is the main driver of the seasons.

For those mathematically inclined, the photoperiod, or duration of sunlight, is highly predicible and can be calculated as follows:

$$P = 0.397 + 0.980 * [24.00 - 7.64 \{ \arccos(\tan(0.1745L) * \tan(\arccos[(0.163 + (0.404 / \cos(0.172D))^{**2} - (0.404 * \tan(0.172D))^{**2}] / (0.808 / \cos(0.0172D))] - \pi/2)) \}] - 0.00495(L) + 0.000154(L^{**2})$$

Where:

P = photoperiod in hours of light per day L = latitude in degrees D = sequential day number (d) from 21 December: d for 0 < d < 182 and 365-d for 182 < d < 365 and trigonometric functions are for radian measures

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