

OREGON PUBLIC HEALTH DIVISION • OREGON HEALTH AUTHORITY

INFLUENZA 2014–2015: “DRIFTING BLUES”

*Well, I'm drifting and I'm drifting,
like a ship out on the sea...
Well, I ain't got nobody
in this world to care for me.*

Charles Brown, *Driftn' Blues*

The big news to date regarding the 2014–15 influenza season is the emergence of A/Switzerland/9715293/2013, an H3N2 strain that emerged in the United States in March 2014.¹ Tests using ferret sera suggest significant H3N2 antigenic drift, perhaps enough for the virus to dodge a vaccine-induced immune response. This *CD Summary* addresses Charles Brown's apparent concern about antigenic drift, features recent influenza surveillance data and reviews recommendations regarding use of antiviral drugs.

SITUATION UPDATE

Widespread* influenza activity is being reported in most U.S. States. Influenza A has accounted for 96% of strains isolated, and 99.7% of those have been H3N2.² Through January 3, 2015, 68% of H3N2 viruses tested at CDC were antigenically different—i.e., drifted—from the H3N2 virus in the vaccine. Historically, H3N2-predominant flu seasons have brought more hospitalizations and deaths,³ and this season is no exception: high hospitalization rates are being observed, especially among people ≥65 years of age, similar to what was seen during the 2012–2013 influenza season (the most recent H3N2 season on record).

For the week ending January 3, Oregon reported widespread activity for the first time this season, indicating that flu has pervaded most of the state.⁴ The Oregon State Public Health Laboratory has identified influenza in 200 specimens, of which 195 (97.5%) were type A, and 5 (2.5%) were type B. All influenza A strains were sub-

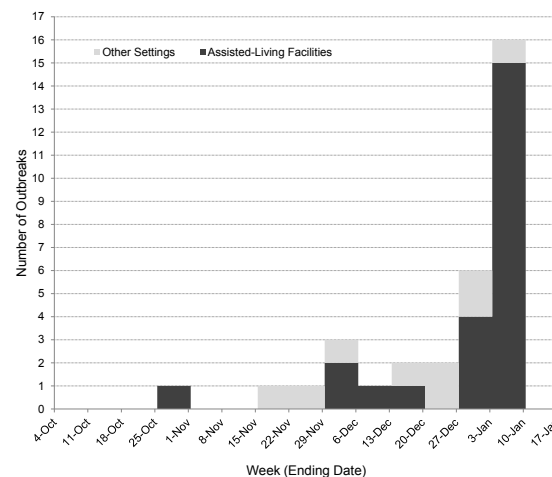
typed as H3N2.† In the Portland tri-county area, 230 patients have been hospitalized with lab-confirmed influenza, 66% of them ≥65 years of age, similar to the proportion hospitalized during the 2012–13 season. Thirty-four influenza outbreaks have been reported, of which 25 (74%) were in long-term care facilities (LTCFs). Influenza outbreaks can cause substantial morbidity and mortality: during the 2012–13 season, outbreaks of influenza or influenza-like illness (ILI) resulted in 620 cases of influenza (or ILI), 63 hospitalizations, and 27 deaths.

USE OF ANTIVIRALS

Given the severity of illness associated with H3N2 and potentially reduced effectiveness of this season's vaccine, CDC recommends prompt administration of neuraminidase inhibitors to any patient with suspected or confirmed influenza in the following categories: 1) all hospitalized patients; 2) any patient with severe, complicated or progressive illness; and 3) any patient at high risk for complications of influenza (Box, *verso*).⁵

Clinical benefit is greatest when antiviral treatment is administered within 48 hours of symptom onset. However, observational studies of hospitalized patients suggest that antiviral treatment initiated up to 5 days after symptom onset might still be beneficial; clinical judgment, taking into account the patient's disease severity and progression, age, underlying medical conditions, and time since onset of symptoms, is important when deciding whether to use antivirals. Given the importance of treating promptly, when influenza is circulating, don't wait for laboratory confirmation in patients with ILI at high risk

Oregon ILI outbreaks by week, 2014–2015 season



of complications: pull the antiviral trigger.

PERAMIVIR: NEW IV ANTIVIRAL

Three prescription neuraminidase inhibitors are now FDA-approved for treatment of influenza: oseltamivir (Tamiflu®), zanamivir (Relenza®), and peramivir (Rapivab™). The latter was approved in December 2014 for treatment of acute, uncomplicated influenza in persons ≥18 years of age. Given as a single intravenous dose, peramivir appeared efficacious in a study of 297 participants with confirmed influenza who were randomly assigned to receive peramivir 300 mg IV, peramivir 600 mg IV, or placebo.⁶ Patients who received the 600-mg dose reported relief of flu symptoms 21 hours earlier and defervesced ~12 hours sooner than those who drew the placebo straw. Efficacy could not be established, however, in patients with serious influenza requiring hospitalization.⁷

Forget about rimantadine and amantadine; they haven't been recommended for years, either for treatment or for prevention of influenza, because of high levels of resistance among circulating influenza A viruses.

* "Widespread": Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in at least half the regions of the state with recent laboratory evidence of influenza in the state.

†The Oregon State Public Health Laboratory does not perform antigenic characterization, so we cannot report the proportion related to the drifted strain.



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FLU IN LTCFS

The plenitude of recent outbreaks in Oregon LTCFs suggests that influenza is hitting the elderly hard this season, so management of influenza in these facilities merits attention. Annual vaccination of both residents and staff of LTCFs is recommended nationally, but the latter group is not well immunized: during the 2013–14 season, only 56% of healthcare workers in Oregon LTCFs were vaccinated against the flu.⁸ In addition to increasing vaccination among staff, we strongly encourage monitoring for ILI among residents and employees; and prompt reporting of suspected outbreaks (≥ 2 cases of ILI) to the local health department. Specimens can be sent to the Oregon State Public Health Lab after consultation with the local health department. Control measures should be implemented promptly:

- promote hand washing;
- implement standard and droplet precautions for residents with confirmed or suspected influenza;
- post “cover your cough” signs;
- limit communal activities, communal meals, and new resident admission;
- inform visitors of the outbreak, and encourage deferral of visits until the outbreak has passed; and
- treat ill residents with neuraminidase inhibitors, and offer chemoprophylaxis to all well residents, regardless of vaccination status.

CONCLUSION

We could be in for a particularly severe influenza season, given H3N2 predominance and a drifted strain to boot. Despite the strain drift, vaccination is still recommended for every-

one ≥ 6 months of age who doesn't have a contraindication: some circulating strains are well represented in the vaccine, and the vaccine may afford some cross-protective immunity against the drifted strain. Prompt use of antiviral agents and steps to prevent illness in LTCFs assume greater importance this season.

At high-risk for flu complications

- Children <5 years of age (with children <2 years of age known to be at highest risk);
- Adults >65 years of age;
- Persons with chronic pulmonary, cardiovascular (except hypertension alone), renal, hepatic, hematological (including sickle cell disease), and metabolic disorders (including diabetes mellitus), or neurologic and neurodevelopment conditions;
- Persons with immunosuppression, including that caused by medications or by HIV infection;
- Women who are pregnant or postpartum (within 2 weeks after delivery);
- Persons aged <19 years who are receiving long-term aspirin therapy;
- American Indians/Alaska Natives;
- Persons who are morbidly obese (i.e., body-mass index is ≥ 40); and
- Residents of LTCFs.

FOR MORE INFORMATION

- Flu Bites: Oregon's weekly surveillance report, available at: <http://public.health.oregon.gov/DiseasesConditions/CommunicableDiseaseSurveillanceData/Influenza/Documents/data/FluBites.pdf>

- CDC. Summary of influenza antiviral treatment recommendations for clinicians, available at www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm
- CDC. Interim guidance for influenza outbreak management in long term care facilities, available at: www.cdc.gov/flu/professionals/infectioncontrol/lc-facility-guidance.htm

REFERENCES

1. Rolfes M, Blanton L, Brammer L, et al. Update: influenza activity — United States, September 28–December 6, 2014. *MMWR* 2014;63:1189–94.
2. CDC. FluView. 2015. Available at www.cdc.gov/flu/weekly, accessed 13 Jan 2015.
3. Matias G, Taylor R, Haguinet F, Schuck-Paim C, Lustig R, Shinde V. Estimates of mortality attributable to influenza and RSV in the United States during 1997–2009 by influenza type or subtype, age, cause of death, and risk status. *Influenza and other respiratory viruses* 2014;8:507–15. doi: 10.1111/irv.12258.
4. Oregon Health Authority. Flu Bites. 2015. Available at <http://healthoregon.org/fludata>, accessed 13 Jan 2015.
5. Fiore AE, Fry A, Shay D, et al. Antiviral agents for the treatment and chemoprophylaxis of influenza — recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2011;60 (RR-1):1–24.
6. BioCryst Pharmaceuticals I. RAPIVAB™ prescribing information. 2014. Available at http://www.accessdata.fda.gov/drugsatfda_docs/label/2014/2064261bl.pdf, accessed 13 Jan 2015.
7. de Jong MD, Ison MG, Monto AS, et al. Evaluation of intravenous peramivir for treatment of influenza in hospitalized patients. *Clin Infect Dis* 2014;59:e172–85. doi: 10.1093/cid/ciu632.
8. Oregon Health Authority. Healthcare Worker Influenza Vaccination Rates, 2013–14 Season. 2014. Available at http://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/HAI/Documents/Reports/Flu_Vacc_Report_2014.pdf, accessed 13 Jan 2015.