



## What's New in Flu?

As the refreshingly cool temperatures of fall descend upon the state it's time to start gearing up for the flu season. On June 22, 2016, Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP) adopted recommendations for the 2016–2017 flu season. The two most noteworthy changes are an (interim) exclusion of live, attenuated influenza vaccine (LAIV) from its recommendations for the 2016–2017 season; and elimination of the egg allergy limitations of the past.

### FluMist® is out!

During the 2015–2016 season, in which influenza A (H1N1) viruses predominated, the U.S. Influenza Vaccine Effectiveness Network found no significant effectiveness of LAIV against acute outpatient respiratory illness caused by all influenza A and B viruses combined (3%; 95% confidence interval [CI] -49%–37%), or by influenza A (H1N1) (-21%; 95% CI -108%–30%) among children 2–17 years of age.<sup>1</sup>

A Department of Defense analysis similarly found no statistically significant effectiveness of LAIV against influenza A (H1N1) in this age group for the 2015–2016 season.<sup>1</sup> Data presented to ACIP by LAIV manufacturer MedImmune June 22, 2016, included a somewhat higher point estimate for LAIV effectiveness against influenza A (H1N1) — 50% — but this value was not statistically significant.<sup>2</sup> In contrast, the calculated effectiveness of inactivated (injectable) influenza vaccine (IIV) against these viruses among children aged 2–17 years was significant in all three studies.

Following review of this information in June 2016, ACIP made the interim recommendation that LAIV should not be used for the 2016–2017 influenza season.<sup>3</sup> The recommendation that children aged 6 months through 8 years old need TWO DOSES of flu vaccine this season, spaced at least 28 days apart, remains unchanged.<sup>4</sup> However, children in this age group only require one dose if they have previously received  $\geq 2$  doses\* of trivalent or quadrivalent influenza vaccine before July 1, 2016. Everyone  $\geq 9$  years of age needs only one dose of 2016–2017 flu vaccine.

\* The 2 doses need not have been received during the same season or consecutive seasons. The 2 doses can be inactivated influenza vaccine (IIV), can be live attenuated influenza vaccine (LAIV), or 1 dose of IIV and 1 dose of LAIV.

## Vaccine procurement

LAIV has accounted for 28%–36% of influenza vaccines given to children in Oregon (Table). Oregon Vaccines For Children (VFC) providers pre-book their influenza vaccine doses by February for the following influenza season. The June 2016 ACIP announcement that LAIV would not be available for use in the 2016–2017 season meant that all pre-booked LAIV doses had to be replaced with IIV.<sup>3</sup> Quite the hassle, but fear not! CDC worked with manufacturers throughout the summer to ensure that IIV supply would meet the newly increased demand.

All flu vaccine is commercially produced, so supply depends on the manufacturers. For the 2016–2017 season, manufacturers have projected a supply of 157–168 million doses of IIV for the U.S. market.<sup>5</sup> (Projections may change as the season progresses, however.)

## Egg allergy recommendations

Severe allergic reactions, including anaphylaxis, can occur in response to various components of all types of vaccines. Not all such reactions are related to egg proteins.

A 2012 study that reviewed 4,172 egg-allergic patients (513 of whom reported a history of “severe” allergic reaction) found that *none* developed anaphylaxis following administration of IIV.<sup>6</sup> Given the evidence that risk of anaphylaxis is minimal, ACIP changed its recommendations for influenza vaccination of persons with egg allergies significantly.<sup>4</sup> The changes include:

- Elimination of the recommendation that egg-allergic recipients be observed for 30 minutes after vaccination for signs and symptoms of an allergic reaction. (ACIP still recommends that providers consider observing *all* patients for 15 minutes after any vaccination to decrease the risk for injury should they faint.)
- Persons with a history of egg allergy who have experienced only hives after exposure to egg *should receive* influenza vaccine.
- A recommendation that persons with history of severe allergic reaction to egg (i.e., other than hives) be vaccinated in an inpatient or outpatient medical setting (including but not necessarily limited to hospitals, clinics, health departments, and physician offices), under the supervision of a health care provider who is able to recognize and manage severe allergic conditions.
- A previous *severe* allergic reaction to *influenza vaccine*, regardless of the component suspected of being responsible for the reaction, is a contraindication to future receipt of the vaccine.

Table. Influenza immunization of Oregon children,<sup>a</sup> 2013–2014 to 2015–2016 influenza seasons

Season	Influenza Immunizations <sup>b</sup>		
	All	LAIV (n)	LAIV (%)
2013–14	313,186	96,969	30%
2014–15	292,865	104,620	36%
2015–16	295,964	82,772	28%

<sup>a</sup> 2–17 years of age

<sup>b</sup> Immunizations given between August to May of each period

Source: Oregon ALERT immunization Information System

### 2015–2016 flu season in review

The Oregon Health Authority (OHA) monitors flu activity through several surveillance systems: voluntary reporting of hospitalized, lab-confirmed flu cases in Portland-area hospitals; “ESSENCE” surveillance for influenza-like illness (ILI) in all 60 emergency departments (EDs) in the state; ILI reported by 23 “sentinel” outpatient clinics around the state; flu testing results reported to the National Respiratory and Enteric Virus Surveillance System (NREVSS); and reporting of outbreaks of ILI. These data are analyzed weekly by OHA epidemiologists and used to evaluate influenza activity in Oregon. The data are summarized in Flu Bites, a weekly report on our website from October through April of each year:

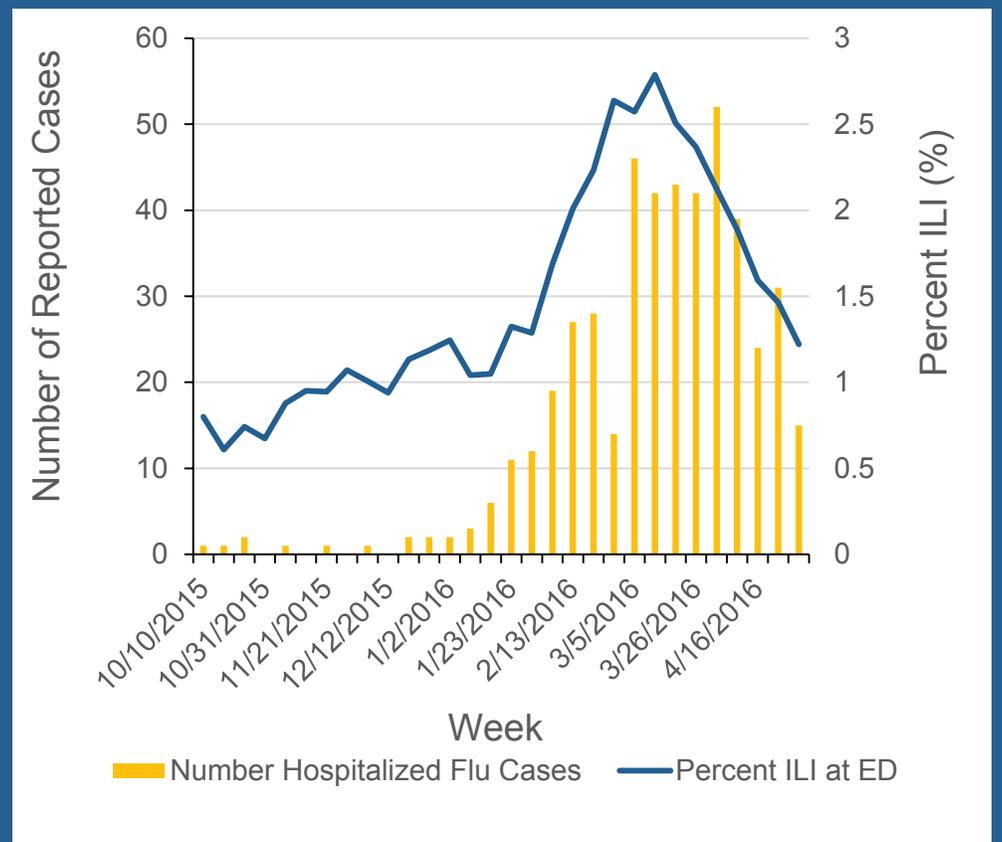
<http://bit.ly/flubites>. Following is a review of recent seasons’ data from each of those sources.

After a record-breaking flu season in 2014–2015, we were relieved to see fewer influenza-associated hospitalizations in Oregon during the 2015–2016 season (Figure). The 467 reported hospitalizations represent a crude rate of 26.5 per 100,000 down from the 46.7 in 2014–2015. Two pediatric deaths associated with flu were reported in Oregon in the spring of 2016. Flu activity during the 2015–2016 flu season peaked in March — later than in other recent seasons. Trends seen in the flu-associated hospitalization data were supported by ILI data collected at Oregon’s EDs, which indicated flu activity peaked March 6–12, 2016 with 2.8% of all ED visits that week due to ILI symptoms (Figure).

Like hospitalizations, ILI activity was less severe and peaked later than in the previous season, when ED visits due to ILI peaked at 40% during the week of January 18–24, 2015.

Part of this season’s relative decline in flu activity could have been due to a more effective vaccine: in 2015–2016 the flu vaccine was a good match to the circulating flu strains. Vaccination has been shown to prevent flu infections, and when they occur despite vaccination, the severity of illness (as indicated by likelihood of

**Figure. Influenza-associated hospitalization in Portland-area and percentage of ED visits due to ILI in Oregon 2015–2016**



hospitalization or ICU admission) is reduced.<sup>7</sup> The relatively late peak of the 2015–2016 flu season also allowed more time for more doses of flu vaccine to be administered before flu circulation was widespread. [State immunization data](#) show that, by mid-March, 1.17 million flu immunizations had been administered — enough to protect 42% of all Oregonians.

## Outbreaks

Thirty outbreaks of ILI were reported during the 2015–2016 season, far fewer than the 82 reported in the previous season. These outbreaks included 17 (57%) in long-term care facilities (LTCFs), 6 (20%) in schools, 4 (13%) in psychiatric wards, 2 (7%) in homeless shelters, and 1 (3%) at a conference. LTCFs continue to be an important source of ILI outbreaks, but flu vaccination is one way to prevent disease in this population. Often LTCFs will offer flu vaccinations to all residents, but ILI outbreak investigations have revealed that LTCF *employees* are often under-vaccinated. If you work at a LTCF and do suspect an outbreak, please report it to your local health department immediately. (Find your local health department [here](#).) In fact, Oregon public health law requires clinicians to report outbreaks to the local public health authority. Following guidance published by CDC,<sup>8</sup> local public health officials can work with facilities to initiate case monitoring, help provide testing, and take steps to control transmission, including:

- Promoting handwashing
- Promoting “cover your cough”
- Implementing standard and droplet precautions (i.e., use gowns, face masks, and gloves) for residents with confirmed or suspected influenza
- Limiting communal activities, communal meals, and new resident admission
- Informing visitors that an ILI outbreak is occurring and discouraging visits until the outbreak has passed
- Administering antiviral treatment (e.g., oseltamivir) to ill residents and offering antiviral chemoprophylaxis to all well residents, regardless of vaccination status. Antiviral administration requires a doctor’s prescription, so if your facility does not have a medical director, have plans to contact residents’ primary care providers quickly if an outbreak occurs.

## Calling all outpatient clinics!

OHA is always recruiting outpatient clinics from anywhere in the state to participate in our “ILINet” surveillance program.

### Why monitoring ILI is important:

We monitor flu activity in the state through several different data sources, but ILINet is our best method to monitor circulation of flu in the community, by tracking cases seen in outpatient settings. ILINet helps OHA determine when flu season is starting and which regions of the state are most affected, and provides specimens that allow us to determine which strains are circulating. Weekly data reports are used by CDC to produce the U.S. map describing each state’s level of influenza activity (i.e., sporadic, local, regional, or widespread).

### Information collected:

ILI is defined as fever + cough or sore throat. Participating clinics report the number of patients with ILI seen, by age group, and the total number of patients seen.

### Frequency of reporting:

Weekly, via on-line data entry.

### Benefits of reporting:

Each week your clinic can send two specimens to the Oregon State Public Health Laboratory for free testing with the respiratory viral PCR panel. And don’t forget that warm, fuzzy feeling you get from contributing to everyone’s understanding of flu activity in Oregon.

### For more information:

Google “Oregon ILINet” or email the state flu team at [flu.oregon@state.or.us](mailto:flu.oregon@state.or.us).

## Resources

- Subscribe to Flu Bites: <https://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/DiseaseSurveillanceData/Influenza/Pages/index.aspx>
- ILINet Sentinel Provider Surveillance: <https://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/DiseaseSurveillanceData/Influenza/Pages/OregonILINet.aspx>
- CDC. Influenza page: [www.cdc.gov/flu](http://www.cdc.gov/flu)

## References

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