

## DISCLOSURE STATEMENT

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## BACKGROUND

- In the US, monitoring for annual influenza morbidity and mortality occurs seasonally from October through May.
- Numerous data sources are used by national, state, and local health agencies.
- ILINet is CDC's national network of healthcare providers; ~2,000 outpatient healthcare providers voluntarily report weekly on the total number of patients seen for any reason and the number of those patients with influenza-like illness (ILI). ILI is defined as fever and cough and/or sore throat without a known cause other than influenza.
- The Sentinel System is an active surveillance system that uses routine querying tools and pre-existing electronic healthcare data from multiple sources to monitor safety of regulated medical products.

## OBJECTIVE

To assess whether Sentinel may be a new data source for influenza surveillance by calculating the rate of incident influenza antiviral drug dispensings over multiple seasons and comparing the Sentinel trends to routine surveillance data.

## METHODS

**Study period:** Jan. 1, 2010 – Dec. 31, 2015

### Influenza antiviral data in Sentinel

- 16 Sentinel Data Partners
- Health plan members of all ages with medical and drug coverage for ≥90 days prior to dispensing of interest were included
- Excluded members with any influenza antiviral in 45d prior to dispensing of interest
- Outpatient pharmacy dispensings of oseltamivir and zanamivir were identified
- All valid dispensings were included per member; episode gap = 10 days

### ILINet data

- Data were downloaded from the CDC website and were reported by surveillance week as defined in the Morbidity and Mortality Weekly Report (MMWR); the data were manually converted from MMWR week to month-year
- The unweighted proportion of encounters with ILI were calculated across all age groups

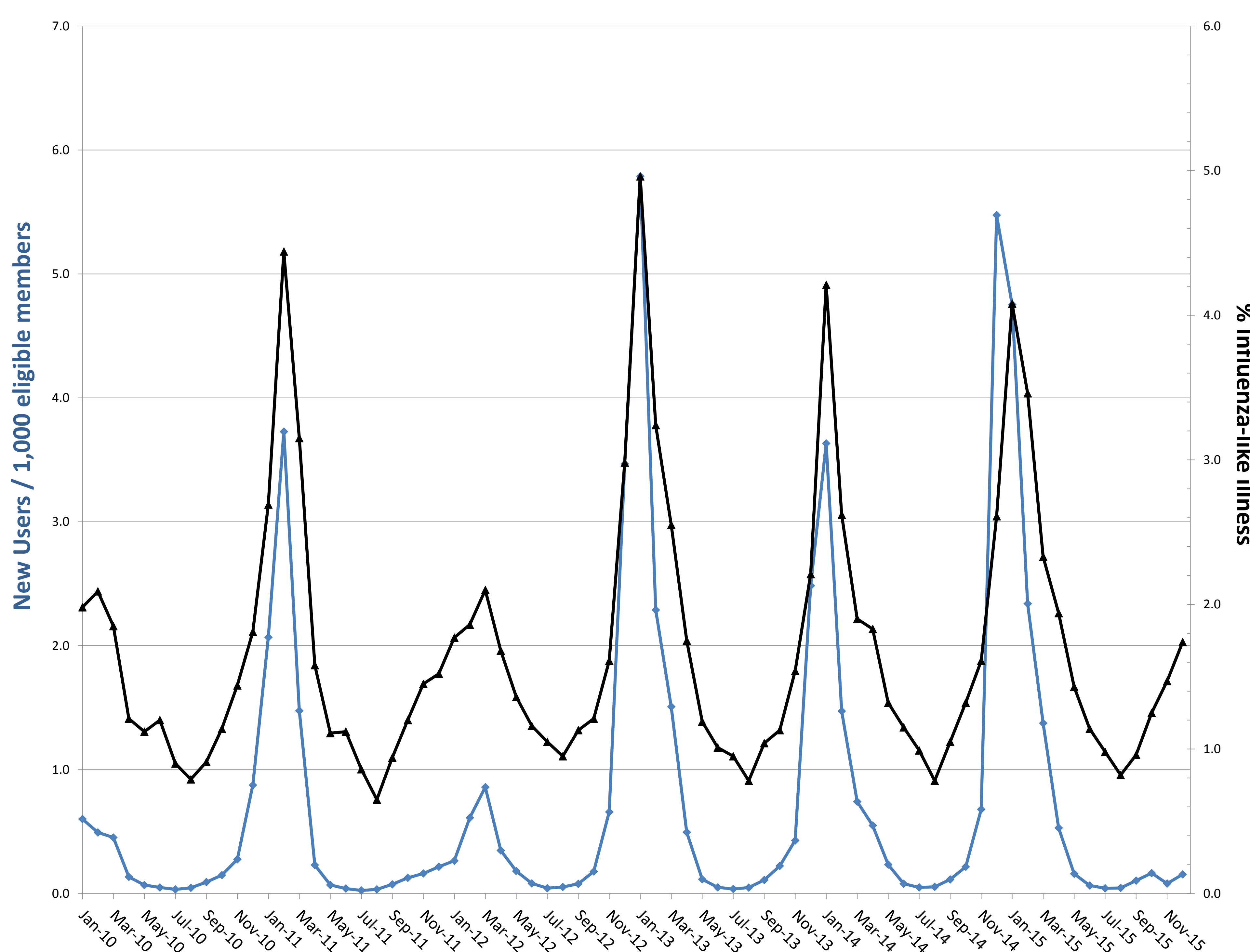
## RESULTS

- In Sentinel, there were 2,102,885 episodes of oseltamivir capsules, 494,188 of oseltamivir powder, and 7,955 of zanamivir.
- There was little zanamivir use with almost none in young children. Adults were more likely to receive oseltamivir capsules, children more likely to receive powder.
- When the monthly rates of outpatient oseltamivir capsule dispensings were compared to outpatient ILI trends, we observed very good overlap with respect to timing.
- The general magnitude of each season, as depicted in the ILI data, is evident in the dispensing data for oseltamivir capsules. For example, the 2011-12 season was mild and we correspondingly observed a low rate of oseltamivir use.

**Table 1. Influenza antiviral dispensings in Sentinel, Jan 2010 - Dec 2015**

	New Users	New Episodes	Days supplied per dispensing	Dispensings per user
<b>OSELTAMIVIR CAPSULES</b>				
All ages	1,987,276	2,102,885	5.70	1.07
<5 yrs	44,119	44,572	6.06	1.01
5-18 yrs	398,317	416,167	5.68	1.05
≥19 yrs	1,553,292	1,642,146	5.69	1.06
<b>OSELTAMIVIR POWDER</b>				
All ages	459,758	494,188	6.40	1.08
<5 yrs	205,789	214,037	6.41	1.05
5-18 yrs	261,539	274,756	6.39	1.06
≥19 yrs	5,353	5,395	6.33	1.02
<b>ZANAMIVIR</b>				
All ages	7,559	7,955	7.33	1.06
<5 yrs	17	17	5.12	1.00
5-18 yrs	1,917	1,958	7.03	1.03
≥19 yrs	5,653	5,980	7.43	1.07

**Figure 1. Dispensings of oseltamivir capsules in Sentinel compared to the proportion of ILI encounters in ILINet**



## CONCLUSIONS

- Trends in dispensings of influenza antivirals in Sentinel were highly comparable to the percent ILI encounters in ILINet, a cornerstone of the national influenza surveillance system.
- Influenza antiviral dispensing data in Sentinel may be a useful source of influenza surveillance data.
- Limitations: CDC tracks ILINet data by MMWR week; we assigned weeks that crossed two months to the month where ≥4 days of the week occurred. Sentinel data were assessed by month-year. We therefore could not make exact monthly comparisons between the sources.

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\*M. Reichman was an FDA employee at the time the work was performed.