

DISCLOSURE STATEMENT

This work was funded by FDA contract HHSF22301001T. The authors have no relationships to disclose.

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

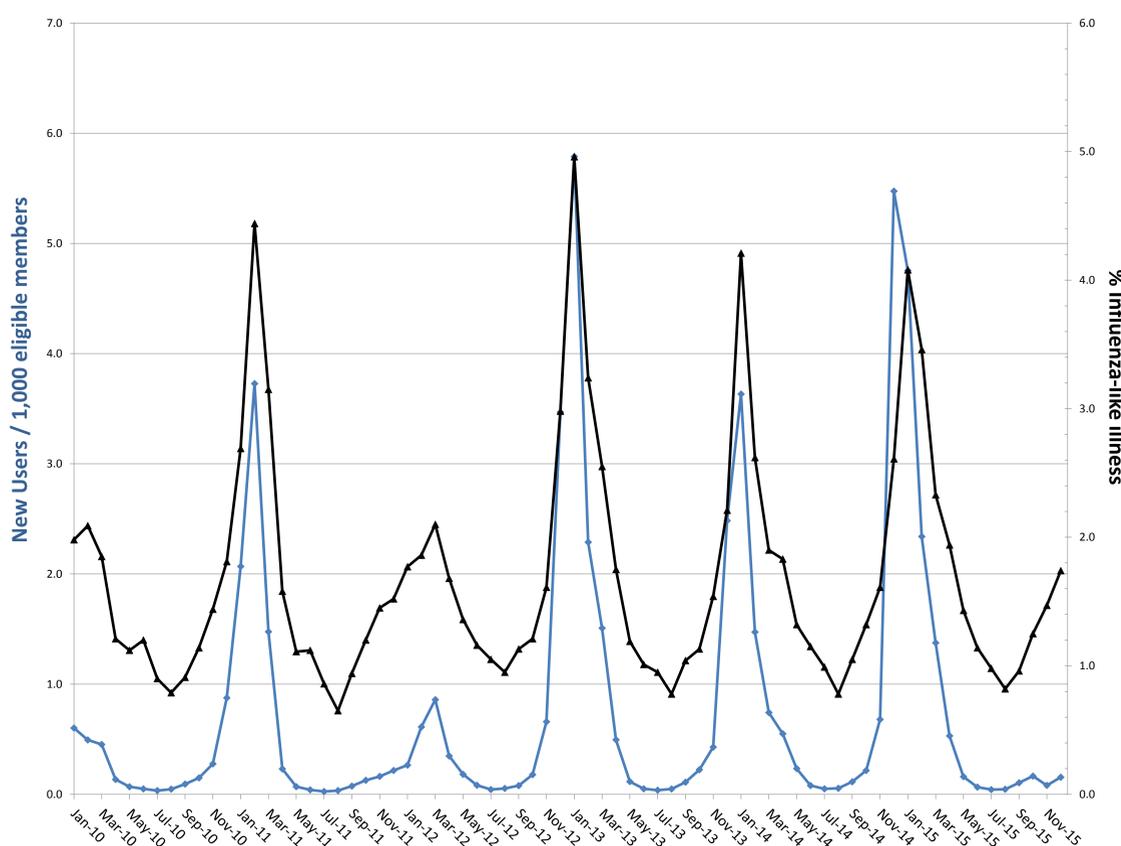
RESULTS

- 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
OSELTAMIVIR CAPSULES				
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
OSELTAMIVIR POWDER				
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
ZANAMIVIR				
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.