Influenza Surveillance in the Department of Veterans Affairs (VA): 2015-2016 Season

Cynthia Luceo-Obusan MD, Patricia Schimmer MD, Aaron Wendelboe PhD1,2, Mark Holodzy MD,3
1Public Health Surveillance and Research, Office of Quality, Safety and Value, Department of Veterans Affairs, Palo Alto, CA
2University of Oklahoma Health Sciences, Oklahoma City, OK
3Stanford University, Stanford, CA

INTRODUCTION
VA conducts ongoing surveillance for seasonal influenza which is associated with significant annual morbidity and mortality and VAs large elderly population is at risk. Surveillance includes influenza vaccinations, influenza and influenza-like illnesses (ILI) visits, influenza-coded hospitalizations and outpatient encounters, telephone triage (T&T) calls, influenza laboratory testing, and antiviral prescriptions. Herein we report 2015-2016 national influenza activity and vaccination data in VA.

METHODS
Influenza vaccinations were captured starting 8/1/2015 from sources: 1) outpatient from bar-coded medication administration (BCMA) data; 2) verified retail pharmacy vaccination from the VA Choice Program Manager/Chief Business Office (PBM/CBO); Percent ILI influenza hospitalizations and deaths; telephone triage; antiviral usage; and laboratory testing from 10/4/2015-10/2016 were obtained using VA data sources (Centers for Disease Control and Prevention, Management and Medical Data Warehouse, and Corporate Data Warehouse) and compared to previous seasons. Pearson correlation coefficients were calculated for ILI visits, hospitalizations and influenza testing for comparison with national CDC FluView data.4

Table 1. Selected VA Influenza Surveillance Metrics, by Season

<table>
<thead>
<tr>
<th>Year</th>
<th>Influenza Vaccinations</th>
<th>Influenza-Coded Hospitalizations</th>
<th>ICU Admit</th>
<th>Outpatient</th>
<th>Positive ILI Test%</th>
<th>Positive ILI Test Calls</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>1,083,000</td>
<td>1,146,361</td>
<td>1,175,582</td>
<td>1,235,576</td>
<td>1,286 (29.9%)</td>
<td>1,286 (29.9%)</td>
</tr>
<tr>
<td>2016</td>
<td>1,183,600</td>
<td>1,245,077</td>
<td>1,297,655</td>
<td>1,321,576</td>
<td>1,321 (29.9%)</td>
<td>1,321 (29.9%)</td>
</tr>
</tbody>
</table>

RESULTS
- **From Aug. 1, 2015-July 31, 2016, 1,827,119 influenza vaccinations were recorded, representing approximately 27% of 6.74 million patients treated in Fiscal Year 2015. This was similar to the previous season (Table 1).**
- Outpatient VA vaccinations: 1,757,732 (94.3% total flu vaccine)
- Inpatient VA vaccinations: 27,952 (1.5% of total flu vaccine)
- Retail pharmacy vaccinations: 4,445 (2.3% total flu vaccine)
- High dose vaccine formulation: 176,798 (9.9% of all VA-administered vaccine)
- 2015-16 influenza season peaked later and activity was lower than 2014-15 season. Overall, activity was similar to 2013-14 season based on mail indicators. Activity was up mid-March (Week 10). This matches trends with previous seasons (Table 1, Figures 1, 2).
- During the season, ILI ranged from 0.4%-1.3% for all outpatient setting and from 0.8%-2.8% in primary and urgent care settings.
- Outpatient encounters with a diagnosis code of influenza (ICD-10: J09-J11) 8,633
- Number of VA laboratory confirmed cases for 2015-16 season: 6,399/4,958.0,588 (13.3%)
- Based on the percentage of specimens testing positive, activity peaked in Week 10. This was the same as observed by CDC for the US nationally (Figure 1).
- The highest number of lab-confirmed flu tests were seen in CA (404), FL (381), TX (458), IL (404) and AZ (277).
- Total influenza coded hospitalizations for the 2015-16 season: 2,487 (includes 424 non-VA coded hospitalizations)
- Of these hospitalizations (14.6%) had a critical care/ICU stay and there were 124 deaths (5.8%)
- Median length of Stay was 3 days and median age was 66 years
- Outpatient visits for 2013-14 through 2015-16 between VA and CDC were very similar (92.9%); flu hospitalizations (90.2%); positive flu tests (90.3%).

CONCLUSIONS
- Vaccinations were similar to the previous season but lower than 2012-13 and 2013-14 seasons.
- Percentage of all VAs high dose vaccines in VA is high due to subject to missing errors. CDC/VA inpatient influenza vaccination data was not available for 14 VA facilities. Vaccination data may not include all vaccines performed in non-VA settings.
- Laboratory testing data from non-VA influenza-coded hospitalizations was not available.
- Vaccination status was not correlated with outpatient or inpatient/ILI diagnosis.

LIMITATIONS
- ICD-10 codes were utilized for identifying ILI visits, influenza hospitalization and outpatient encounters and do not necessarily represent laboratory-confirmed cases.
- Outpatient vaccination data was based on procedure codes, which may be subject to miscoding errors. CDC/VA inpatient influenza vaccination data was not available for 14 VA facilities. Vaccination data may not include all vaccines performed in non-VA settings.
- Laboratory testing data from non-VA influenza-coded hospitalizations was not available.
- Vaccination status was not correlated with outpatient or inpatient/ILI diagnosis.

REFERENCES
2. CDC: FluView National Level Influenza Activities. From: https://www.cdc.gov/flu/fluview.htm
3. CDC: FluView State Level Influenza Activities. From: https://www.cdc.gov/flu/fluview.htm

Figure 2. Comparison of Key VA Influenza Indicators, by Season

**Figure 2. Comparison of Key VA Influenza Indicators, by Season**