Using TxS2 to Supplement Influenza Surveillance in PHR 8

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Background

Public health influenza surveillance helps to identify flu outbreaks and characterize the burden of flu. In the state of Texas, influenza is not a Notifiable Condition listed in the Texas Administrative Code, except under three circumstances: outbreaks, influenza-associated pediatric mortality, and/or when a novel/variant influenza strain is suspected. The Texas Department of State Health Services Public Health Region 8 (DSHS PHR 8) has recruited dozens of sites to voluntarily submit flu and influenza-like illness (ILI) data to monitor flu activity within its 28 county jurisdiction on a weekly basis using an online survey. Participation in this voluntary reporting program fluctuates throughout the year.

Texas Syndromic Surveillance (TxS2) is the first statewide syndromic surveillance program in Texas. Data from participating facilities is retrieved from their emergency department electronic medical records on a daily basis. This helps public health agencies identify and respond to increases in illness prior to receiving a formal diagnosis. TxS2 data can be queried to identify emergency department records related to ILI. This analysis characterized the effect of supplementing voluntary flu surveillance reports with TxS2 data in order to provide additional flu surveillance coverage.

Methods

All voluntary flu reports submitted to PHR 8 using the online survey during 2017 were categorized by month of submission and county of the reporting facility. Reporting facilities were categorized by type of facility (self-reported) and the percentage of flu reports submitted by each type of facility was calculated. Facilities submitting data to TxS2 at the time of analysis were categorized by county and were counted as reporting flu surveillance data each month. The percentages of counties with at least one reporting facility was calculated using only voluntary flu reports and both voluntary flu reports and TxS2 facilities. The percent change in county coverage due to the addition of TxS2 facilities was also calculated. All analyses were performed using Microsoft Excel 2016.

ArcMap 10.1 was used to create maps depicting the counties with participation in the PHR 8 voluntary flu surveillance program during July 2017 and November 2017 and counties with facilities participating in TxS2.

Results

The majority of voluntary flu reports received by PHR 8 in 2017 were submitted by schools (59.7%). Voluntary flu reporting varied throughout 2017, ranging from 29%-86% county coverage; the three months of lowest county coverage were January (43%), June (43%), and July (29%). Including TxS2 data resulted in a range of 46-93% coverage of Region 8 counties, with an average 21% increase. Including TxS2 data resulted in the greatest increases in the three months with lowest voluntary participation: a 41% increase in January, 33% increase in June, and a 63% increase in July.

Type of Facility	%
School	59.7
Hospital	18.1
Primary Care Office	6.4
Urgent Care	2.4
Other	13.1

Table 1: Total voluntary flu reports submitted to PHR 8 throughout 2017, categorized by facility type.

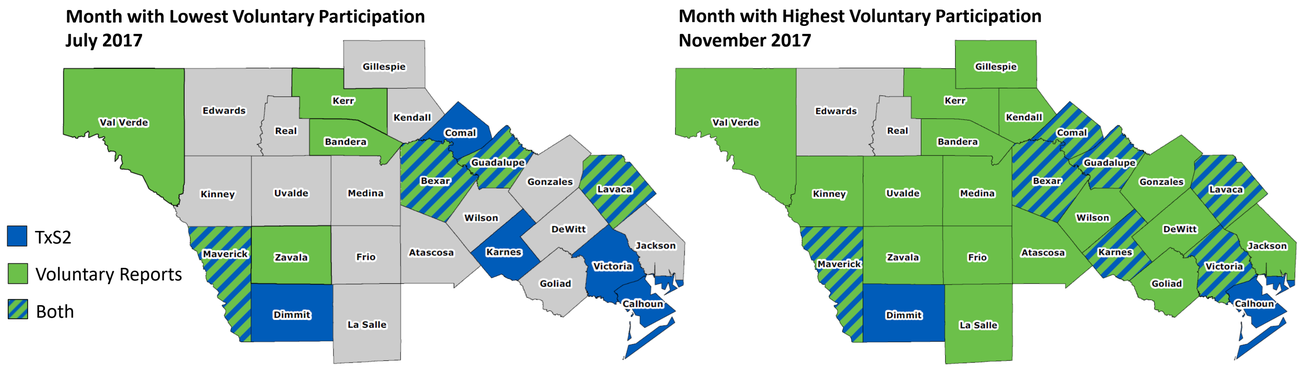

Figure 1: Map depicting PHR 8 counties with facilities participating in voluntary flu surveillance, counties with facilities participating in TxS2, and counties with both voluntary flu surveillance and TxS2 participation during two months of 2017: July 2017 on the left and November 2017 on the right.

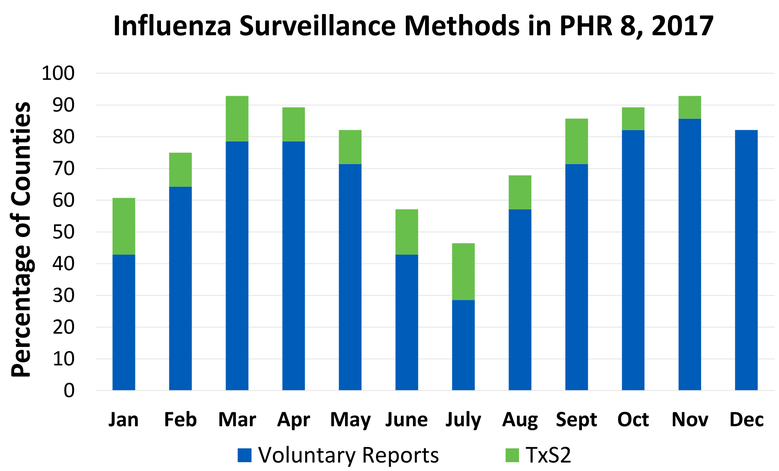

Figure 2: Percentage of counties with facilities participating in the PHR 8 voluntary influenza surveillance program and TxS2, by month of 2017.

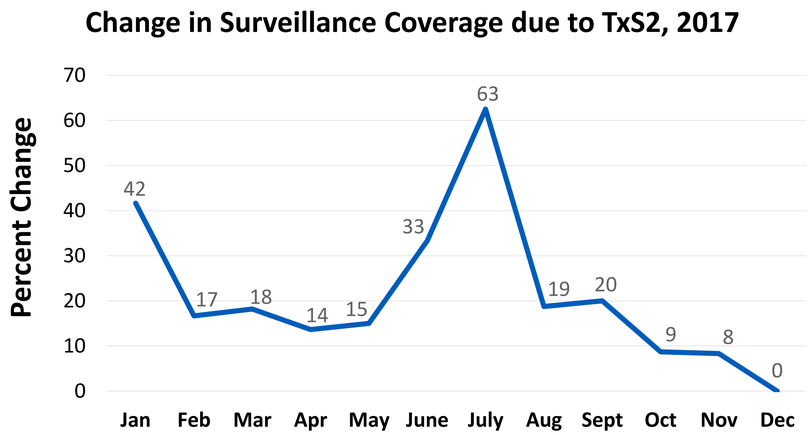

Figure 3: Percent change in PHR 8 flu surveillance county coverage due to the inclusion of TxS2 data, by month of 2017.

Discussion & Conclusions

This analysis demonstrated the variation of reporting in the PHR 8 voluntary flu surveillance program throughout the year and the importance of continuing to recruit eligible facilities to participate in TxS2 throughout the region. One factor likely driving variation is that nearly 60% of all voluntary flu reports in 2017 were submitted by schools, which do not report throughout the summer and winter breaks. The TxS2 ILI query provides reliable data that can be used to supplement the voluntary reports that are received throughout the year. The added county coverage provides additional information important for situational awareness regarding flu activity throughout PHR 8.