

Assessment of State-Level Influenza Season Severity — Utah, 2017–18

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Background

- Seasonal influenza severity had not yet been assessed at the state level in the United States (US)
- US implemented World Health Organization's Pandemic Influenza Severity Assessment (PISA) framework nationally starting in 2017–18 season (1)
- Given variability in influenza activity from season to season and geographically, real-time state-specific estimates of seasonal influenza severity may help states tailor their public health communications and resource allocation during influenza seasons
- We developed disease severity thresholds to characterize the severity of the influenza season in Utah

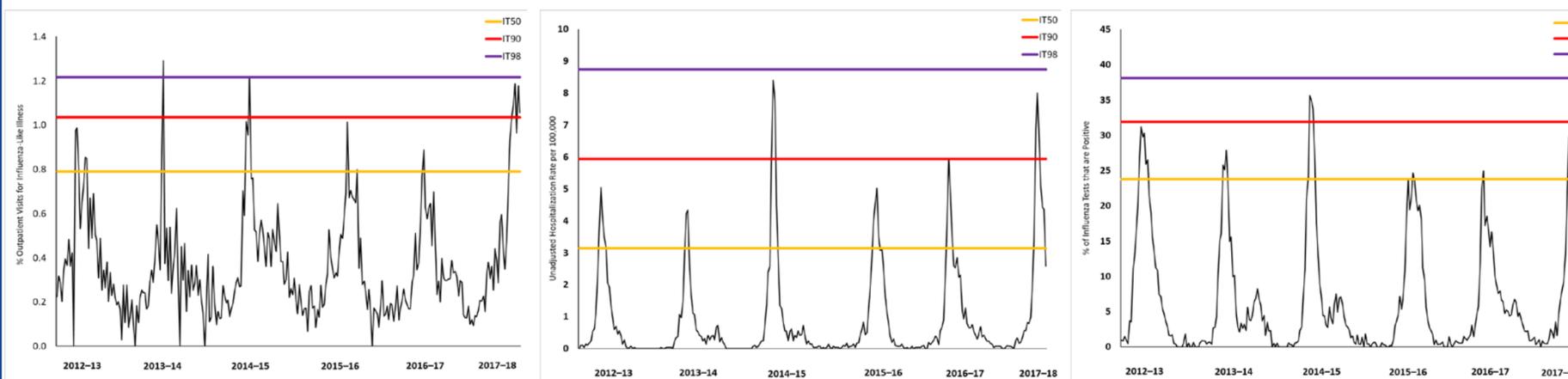
Methods

- During February 2018 we met with stakeholders at the national, state, and local levels to identify appropriate and available indicator sources to assess the severity of the influenza season in Utah
- Applied the Moving Epidemic Method (MEM) for a rapid mid-season assessment of weekly influenza season severity to 3 Utah influenza indicators with at least 5 seasons of data
- MEM calculates intensity thresholds (ITs) using the geometric mean and standard deviation of the 30 highest weekly values, distributed evenly across seasons to find one-sided confidence intervals
- We established 3 ITs that corresponded to a 50% (IT₅₀), 10% (IT₉₀) and 2% (IT₉₈) chance of exceedance during a given influenza season
- For each surveillance indicator, we graphed weekly data against the calculated severity thresholds
- We made an overall seasonal severity assessment based on where the majority of indicators peaked

Results

We selected three indicators for inclusion in an overall seasonal severity assessment for the 2012–13 season through the interim 2017–18 season (Figure 1).

Figure 1. Three Selected Utah Influenza Indicators and Intensity Thresholds, Utah 2012–2018



Panel A. Outpatient Visits for Influenza-Like Illness. Source: Outpatient visits reported to ILINet restricted to one healthcare system

Panel B. Influenza-Associated Hospitalizations. Source: State-wide influenza-associated hospitalizations reported to the Utah Department of Health

Panel C. Influenza Testing. Source: Influenza test results reported to National Respiratory and Enteric Virus Surveillance System (NREVSS) Laboratories

- We categorized the 2017–18 season (through February 10, 2018) and the 2014–15 season, as high severity because ≥ 2 priority indicators peaked above their IT₉₀ (Figure 2)
- All other seasons in Utah were categorized as moderate severity because ≥ 2 indicators peaked between IT₅₀ and IT₉₀
- Utah's severity assessments matched those at the national level for all seasons, including the interim 2017–18 season

Figure 2. Overall Seasonal Severity Assessments, Utah & U.S., 2012–2018

Indicator	2012–13	2013–14	2014–15	2015–16	2016–17	2017–18
Outpatient - ILINet	≥50 th	≥98 th	≥90 th	≥50 th	≥50 th	≥90 th
Inpatient - State-Wide Reported Hospitalizations	≥50 th	≥50 th	≥90 th	≥50 th	≥90 th	≥90 th
Laboratory - NREVSS	≥50 th	≥50 th	≥90 th	<50 th	≥50 th	≥50 th
Utah Overall Severity Assessment	Moderate	Moderate	High	Moderate	Moderate	High
U.S. Overall Severity Assessment	Moderate	Moderate	High	Moderate	Moderate	High

Conclusions

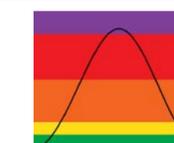
- At the time of the investigation, this was the first known application of MEM to assess influenza season severity at the state level in the US
- Using tools developed by CDC, Utah may implement this method starting in the 2018–19 influenza season. Understanding state-specific severity assessments during a season may help to:
 - Inform states and local health departments' messaging and response to media requests about influenza season severity
 - Provide early indicators to providers and individuals to promote vaccination recommendations and to communicate the importance of seeking care if one develops symptoms
 - Support health care sector's response in terms of adequate supply of antivirals and hospital surge capacity

Partners



References

(1) Biggerstaff M, Kniss K, Jernigan DB, Brammer L, Bresee J, Garg S, et al. Systematic Assessment of Multiple Routine and Near-Real Time Indicators to Classify the Severity of Influenza Seasons and Pandemics in the United States, 2003-04 Through 2015-2016. *Am J Epidemiol.* 2017.



Source: WHO PISA

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