



Department of Health
Heidi Hedberg, Commissioner
Robert Lawrence, MD, MA, CMO

3601 C Street, Ste 540
Anchorage, AK 99503

Division of Public Health
Lindsey Kato, MPH, Director

<https://health.alaska.gov/dph/Epi>
24 Hour Emergency (800) 478-0084
Local (907) 269-8000

Editors:
Joe McLaughlin, MD, MPH
Louisa Castrodale, DVM, MPH

Bulletin No. 5
June 3, 2024

Using Syndromic Surveillance Data for Hospital Infection Control Purposes

Introduction

Syndromic surveillance is a public health monitoring system used to detect and respond to potential outbreaks or health-related events by analyzing data from emergency departments and urgent cares on symptoms and clinical syndromes rather than on laboratory-confirmed diagnoses. The Alaska Section of Epidemiology (SOE) started using syndromic surveillance in 2014. Syndromic surveillance data from Alaska health care facilities are routed to SOE via [healthEConnect Alaska's](#) health information exchange.¹

Syndromic surveillance provides an early warning of outbreaks (e.g., during the respiratory season), allowing for quicker public health and hospital infection control interventions.^{2,3} For example, syndromic surveillance data can provide health care facilities with evidence-based information about when to ramp up in-house infection prevention and control activities (e.g., masking and visitation policies) during the respiratory virus season and when to expect higher patient volumes and more staff out on sick leave. This *Bulletin* describes how Providence Alaska Medical Center (PAMC) used syndromic surveillance for respiratory virus tracking during the 2023–24 respiratory season to guide in-house infection prevention and control activities.

Methods

Syndromic surveillance data were collected using a computer-based process to abstract elements from the electronic health record, which are sent to the Section of Epidemiology (SOE) using HL7 ADT (admission, discharge, transfer) messaging standards. Data were analyzed using the ESSENCE platform. Standard definitions for influenza-like illness (ILI) and COVID-like illness (CLI) were used as proxies to track influenza and COVID-19 trends.

Using the myESSENCE dashboarding functionality, a dashboard was prepared with weekly counts of total visits and percentages of emergency department visits for ILI, CLI, and other respiratory conditions. Thresholds for low, medium, and high activity were calculated by averaging the proportion of ILI and CLI visits during the 2019–20 respiratory virus season. High activity was considered any proportion of ILI and CLI visits that exceeded the average proportion that occurred during November 2019 through January 2020, low activity was an average of the non-epidemic months (May 2019 through August 2019), and medium activity was everything in between high and low activity.

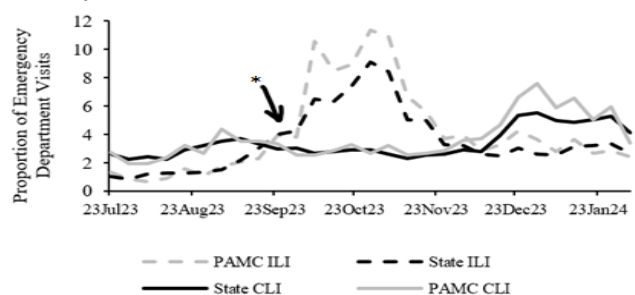
PAMC staff compiled weekly respiratory virus activity reports integrating various indicators, including the proportion of CLI and ILI in their emergency department and data on hospital inpatient cases. These reports were reviewed by a multidisciplinary team each week to adjust facility-wide infection control measures during the pandemic. A trend sustained for ≥ 2 weeks represented a meaningful change and prompted the need for action.

Results

During the 2023–24 respiratory virus season, PAMC experienced a somewhat different pattern of ILI and CLI than Alaska overall, with a less prominent increase in ILI in late-September and a more prominent increase in CLI starting in late November (Figure). During times of discrepancy between PAMC data and statewide data, PAMC used their own data to inform their hospital infection control policy decisions. For example, in late September 2023, PAMC continued to maintain standard practices (rather than implementing stronger infection

control policies) because their facility's data did not yet meet PAMC's identified triggers for action (Figure).

Figure. Proportion of Emergency Department Visits at PAMC and Alaska for CLI and ILI, July 2023 through January 2024



*The arrow indicates the time when PAMC decided to maintain standard precautions rather than implement stronger infection control policies despite a rise in statewide data.

Discussion

During respiratory virus season, hospitals are often operating at capacity. Infection control activities to mitigate the spread of respiratory viruses can cause frustration among staff and visitors. Using the proportion of emergency department visits due to ILI and CLI as a metric provides an evidence-based indicator that can be used to precisely time the implementation of site-specific actions. Since the same metric can be produced at both the hospital and statewide levels, facilities can also compare their patient load to that of other facilities.

In the example provide here, weekly assessments of facility-specific indicators like syndromic data and hospital onset/cluster cases provided a useful framework for PAMC's response to the 2023–24 viral respiratory reason. In the future, PAMC's thresholds for high, medium, and low activity will likely be adjusted as patterns for certain illnesses continue to normalize after the COVID-19 pandemic.

Using syndromic surveillance data with a robust platform like ESSENCE offers substantial benefit to healthcare facilities and health departments for a small amount of effort. These data are created by the EHR without additional work from clinicians, and software solutions automate most of the analyses. SOE epidemiologists remotely maintain the system and provide support to the hospital infection prevention staff who can focus on using their data to inform their infection control decisions.⁴ As advanced statistical methods for respiratory virus syndromic surveillance are developed, SOE will seek to implement them for all participating hospitals.

Recommendations

1. All acute care facilities (e.g., emergency departments and urgent care clinics) with sufficient informatics capacity are highly encouraged to participate in syndromic surveillance.
2. Acute care facilities interested in learning more about how to participate in syndromic surveillance should email anna.frick@alaska.gov or call 907-269-8000.

References

1. SOE Syndromic Surveillance website. Available at: https://health.alaska.gov/dph/Epi/id/Pages/synd_surv/default.aspx
2. Alaska Department of Health Respiratory Virus Snapshot. Available at: <https://health.alaska.gov/dph/Epi/id/Pages/COVID-19/covidandflu.aspx>
3. Respiratory Virus Activity Levels. CDC. Available at: <https://www.cdc.gov/respiratory-viruses/data-research/dashboard/activity-levels.html>
4. CDC. Infection Control Guidance: Respiratory Viruses. Available at: https://www.cdc.gov/project-firstline/hcp/infection-control/?CDC_AAref_Val=https://www.cdc.gov/infectioncontrol/projectfirstline/healthcare/respiratory-virus-prevention.html