NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

Influenza Surveillance Report

North Carolina Influenza Surveillance Summary: 2023-2024 Season (October 1, 2023 – September 28, 2024)

Key Findings

Statewide Updates	Influenza-like illness (ILI) in the 2023-2024 influenza season followed a seasonal pattern with a later peak compared to the 2022-2023 season. Influenza cases showed an increase from October to December 2023, with a peak the last week of 2023. There were 319 influenza associated deaths during the 2023-2024 influenza season, including 16 pediatric deaths. **This season had the highest number of reported pediatric deaths since reporting started in 2004.** A review of Immunization Registry records showed that 75% of these children were not vaccinated during the 2023-24 season. Over 30,000 influenza tests from PHE sentinel sites and the North Carolina State Laboratory of Public Health (NC SLPH) were positive during the 2023-2024 influenza season. Influenza A(H1N1)pdm09 represented the predominant influenza viruses subtyped during this season. Influenza B Yamagata lineage has not been detected since 2020.
Regional Updates	The proportion of visits due to ILI in Region 4 followed a seasonal trend with a peak around the last week of December at 9.7%. The regional baseline for ILI is 3.3%.
National Updates	The proportion of visits due to ILI nationwide followed a seasonal trend with a peak around the end of the year at 6.7%. The national baseline for ILI is 2.9%.
International Updates	In worldwide influenza laboratories, seasonal influenza A(H3) viruses accounted for a majority of influenza viruses subtyped followed by influenza B(Victoria) viruses. More country specific details can be found here.

Introduction

The North Carolina Department of Health and Human Services (NCDHHS) uses multiple surveillance systems to monitor respiratory diseases across the state. These surveillance systems include information related to outpatient visits, emergency department visits, laboratory data, as well as hospital data from epidemiologists at eight of the state's largest health care systems. Data sources used to gather the information presented in this report are described below.

NC DETECT

The North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) is North Carolina's statewide, electronic, real-time public health surveillance system. NC DETECT was created to provide early event detection and timely public health surveillance using a variety of secondary data sources, including data from the NC Emergency Departments (EDs). Each ED visit is grouped into syndromes based on keywords in several different fields and/or diagnosis codes.

The syndrome used to track influenza-like illness (ILI) is presented in this report. ILI is defined as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat. ILI data track the number and percent of emergency department visits that are for illnesses compatible with influenza. This includes visits that do not have positive test results.

NC DETECT was created by the Division of Public Health (DPH) in collaboration with the Carolina Center for Health Informatics (CCHI) in the UNC Department of Emergency Medicine.

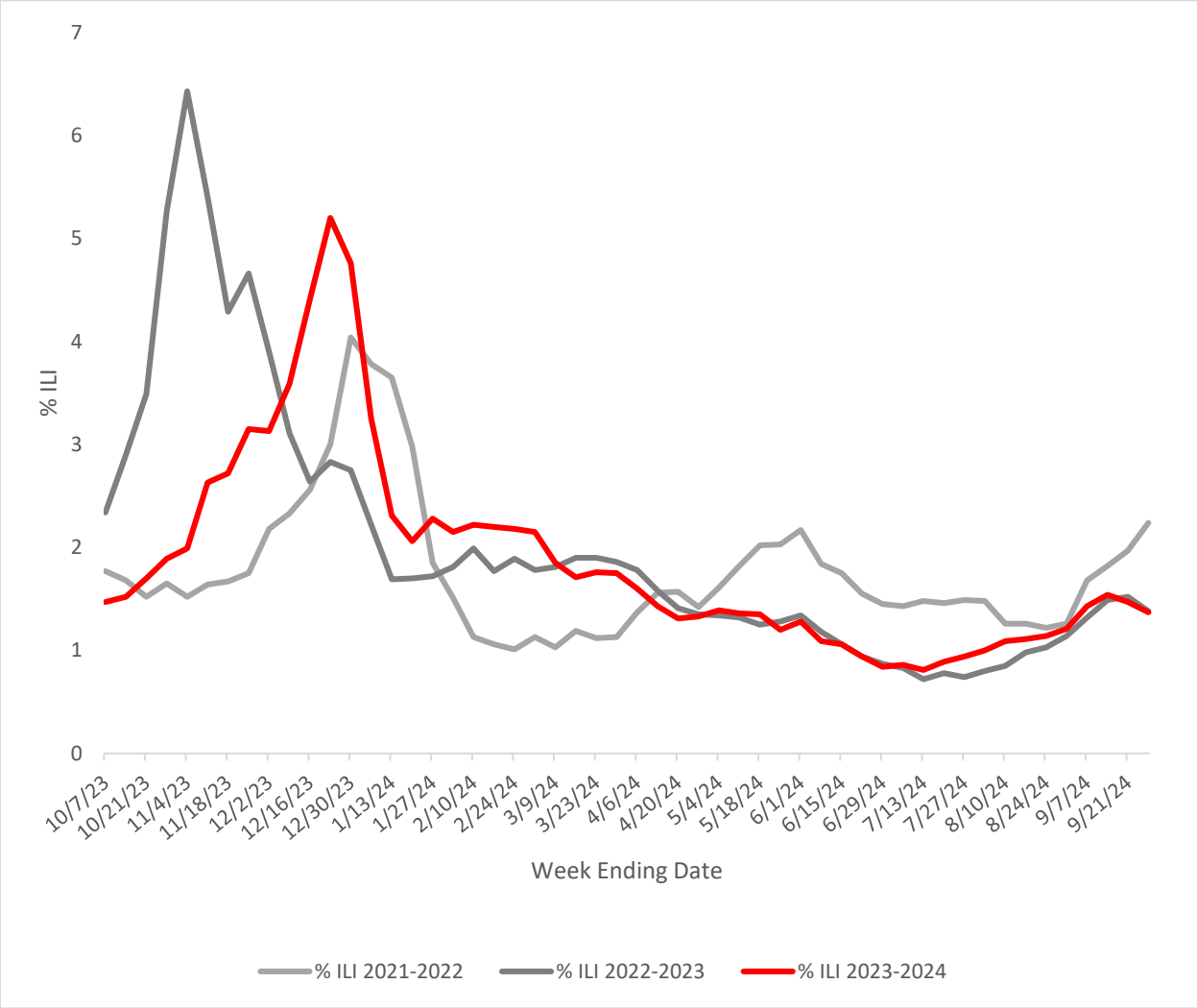
Public Health Epidemiologists Program

In 2003, DPH created a hospital-based Public Health Epidemiologist (PHE) program to strengthen coordination and communication between hospitals, health departments, and the state. The PHE program covers approximately 30 percent of general/acute care beds and 35 percent of ED visits in the state. PHEs play a critical role in assuring routine and urgent communicable disease control, hospital-based reporting of communicable diseases, outbreak identification and management as well as case finding during community outbreaks. More information can be found here.

Influenza-like Illness Network

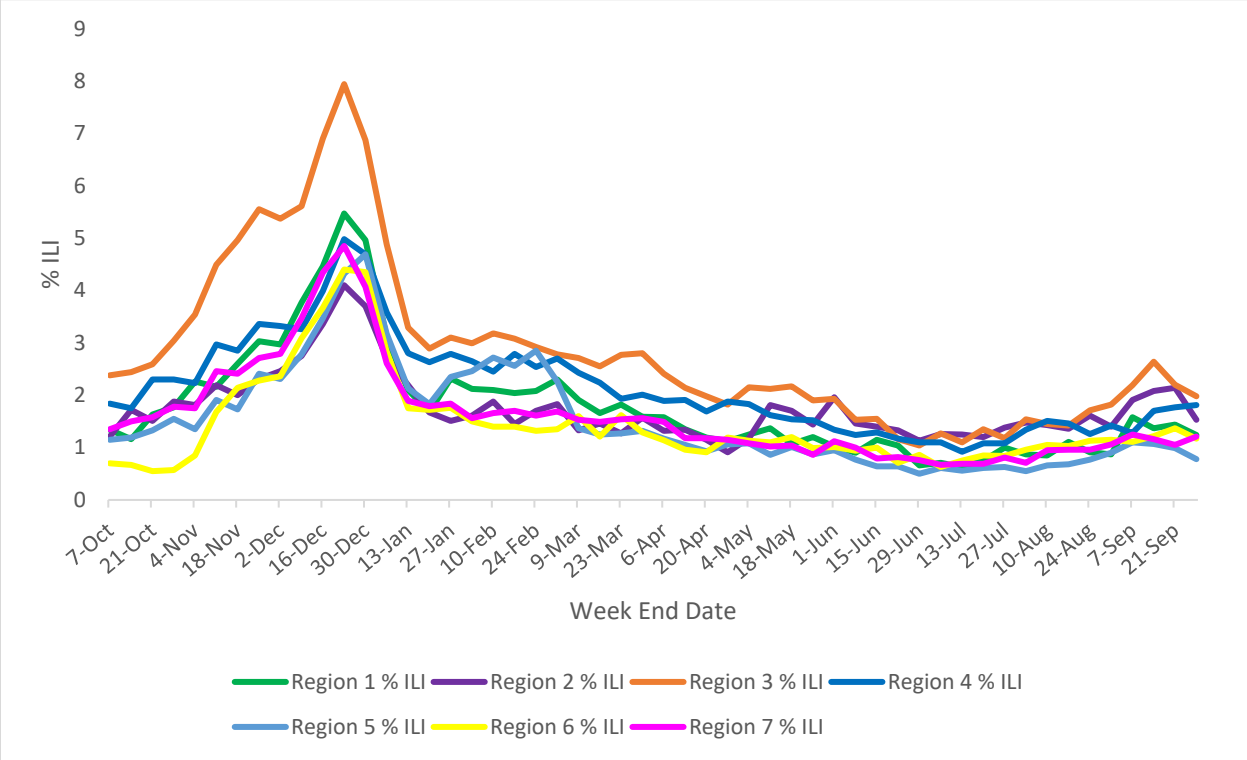
The U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet) is a collaboration with providers, state health departments, and CDC to conduct surveillance for influenza-like illness. ILINet providers in primary care clinics and hospitals across the state send samples collected from patients with influenza-like illness to the North Carolina State Laboratory of Public Health for testing. With the current COVID-19 pandemic, ILINet has been expanded to include testing for SARS-CoV-2. Providers are asked to submit up to 10 samples from symptomatic patients each week. For ILINet surveillance purposes symptomatic is defined as fever (>100°F) and cough or sore throat. More information about ILINet can be found at flu.nc.gov.

What percent of ED visits this season are for influenza-like illness compared to previous seasons?

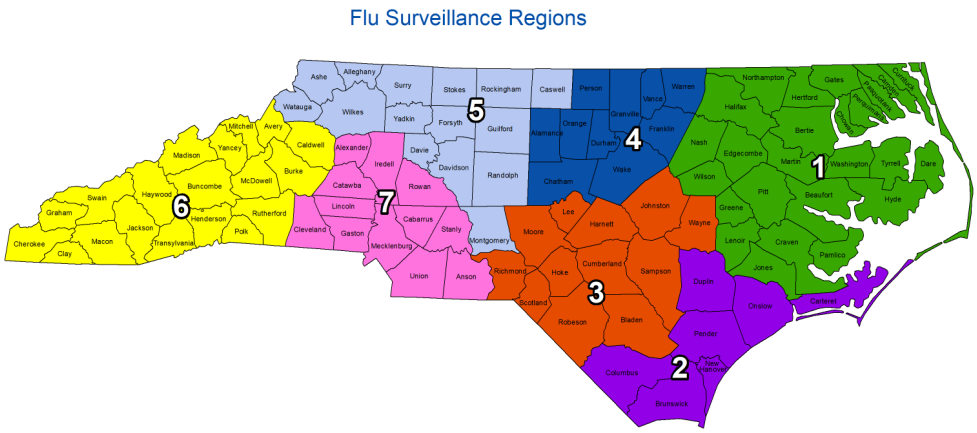


The above graph shows how the percentage of ED visits for influenza-like illness this season compares to previous seasons. Compared to the previous season, 2023-24 saw a later ILI peak. ILI includes key words including fever, cough, and sore throat. Many respiratory diseases share similar symptoms. ILI surveillance may capture other respiratory diseases.

How does the percentage of ED visits for influenza-like illness compare between regions of the state?

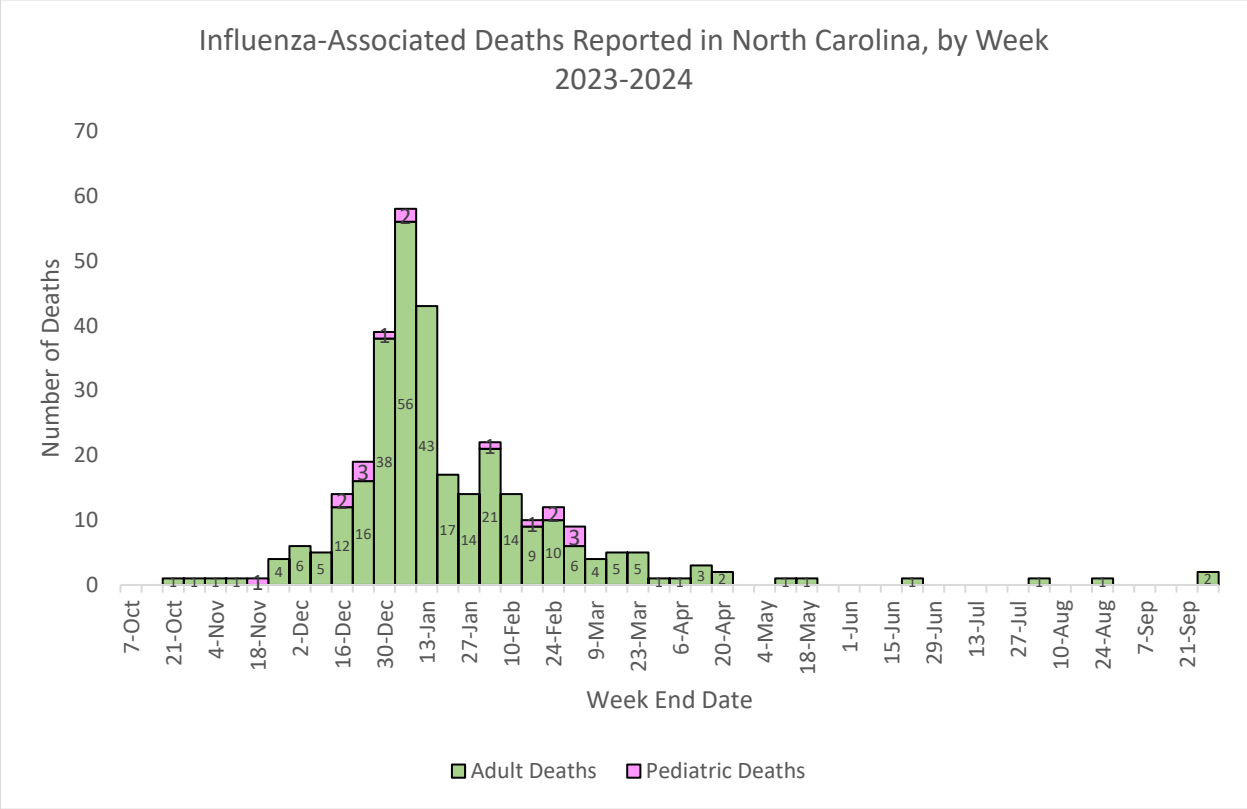


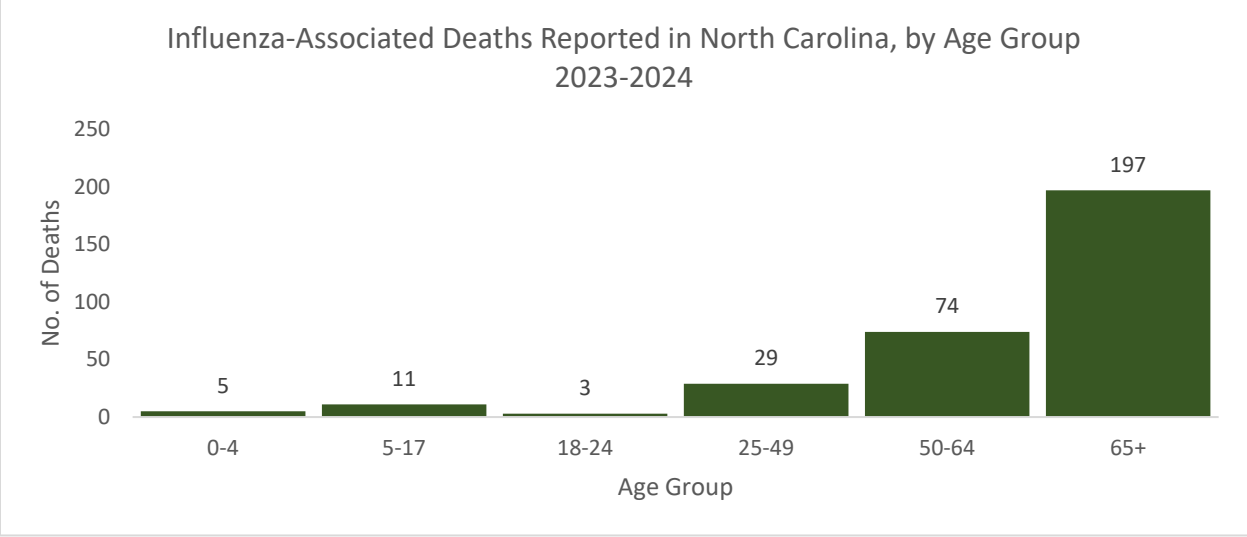
Diseases, including influenza, do not spread across the state evenly. The above graph shows the differences between regions in the percentage of ED visits for influenza-like illness. The colors of the lines correspond to the colors on the region map below.

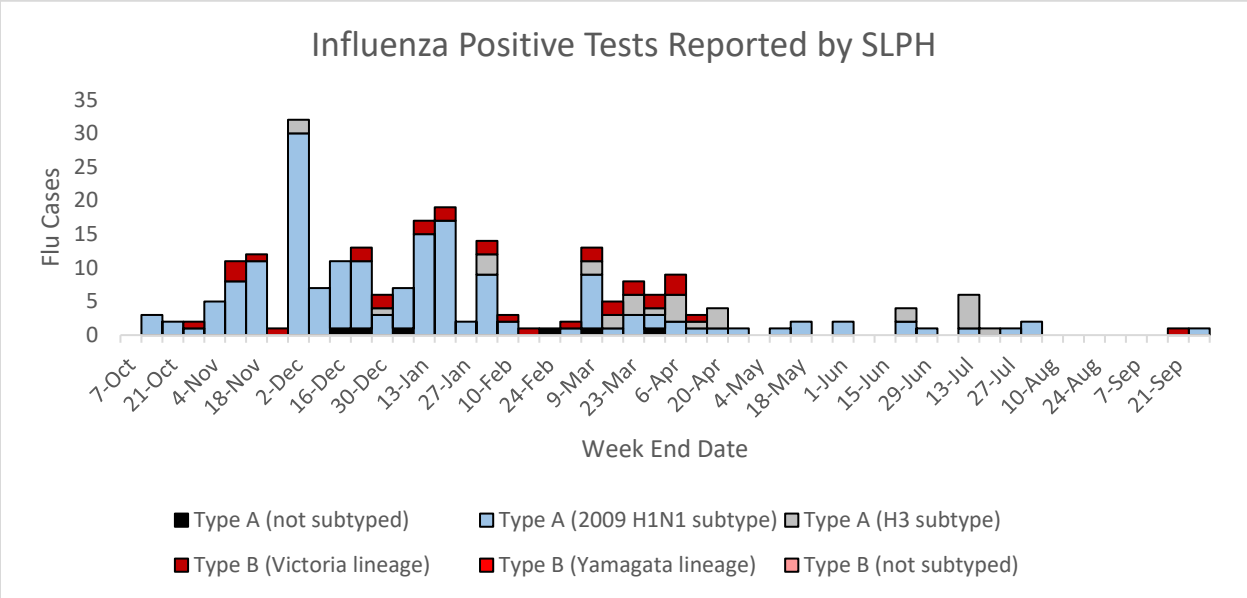


How many patients had an influenza-associated death this flu season?

An influenza-associated death is defined for surveillance purposes as a death (adult or pediatric) resulting from a clinically compatible illness that was confirmed to be influenza by an appropriate laboratory or rapid diagnostic test with no period of complete recovery between the illness and death. During the 2023-2024 influenza season, there were 319 influenza-associated deaths.

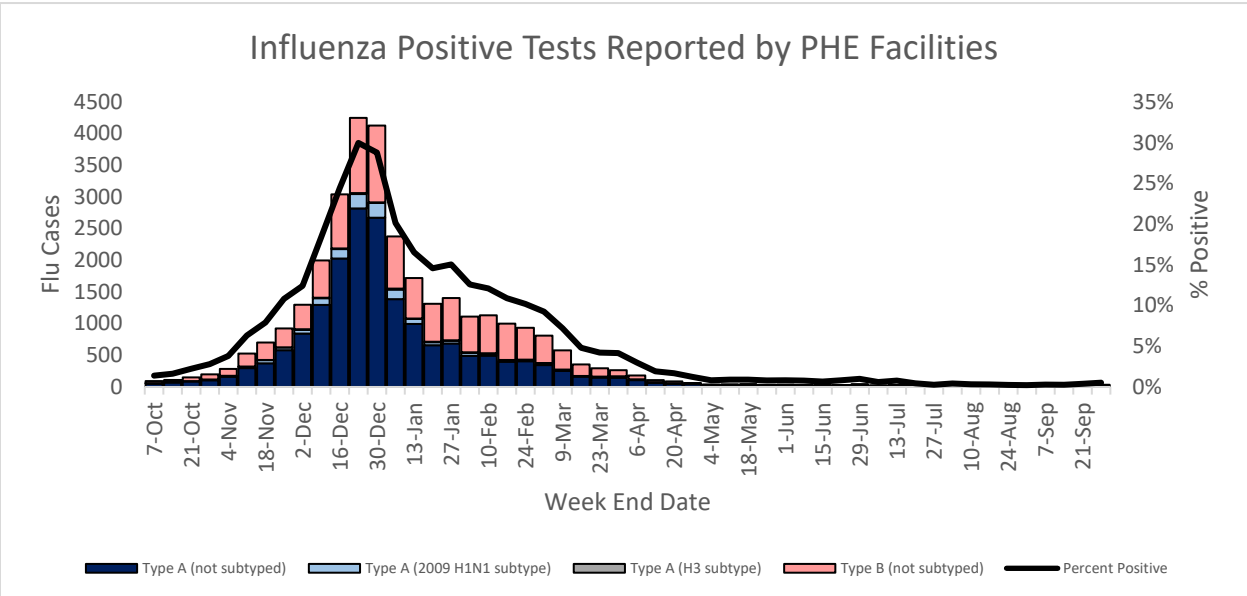




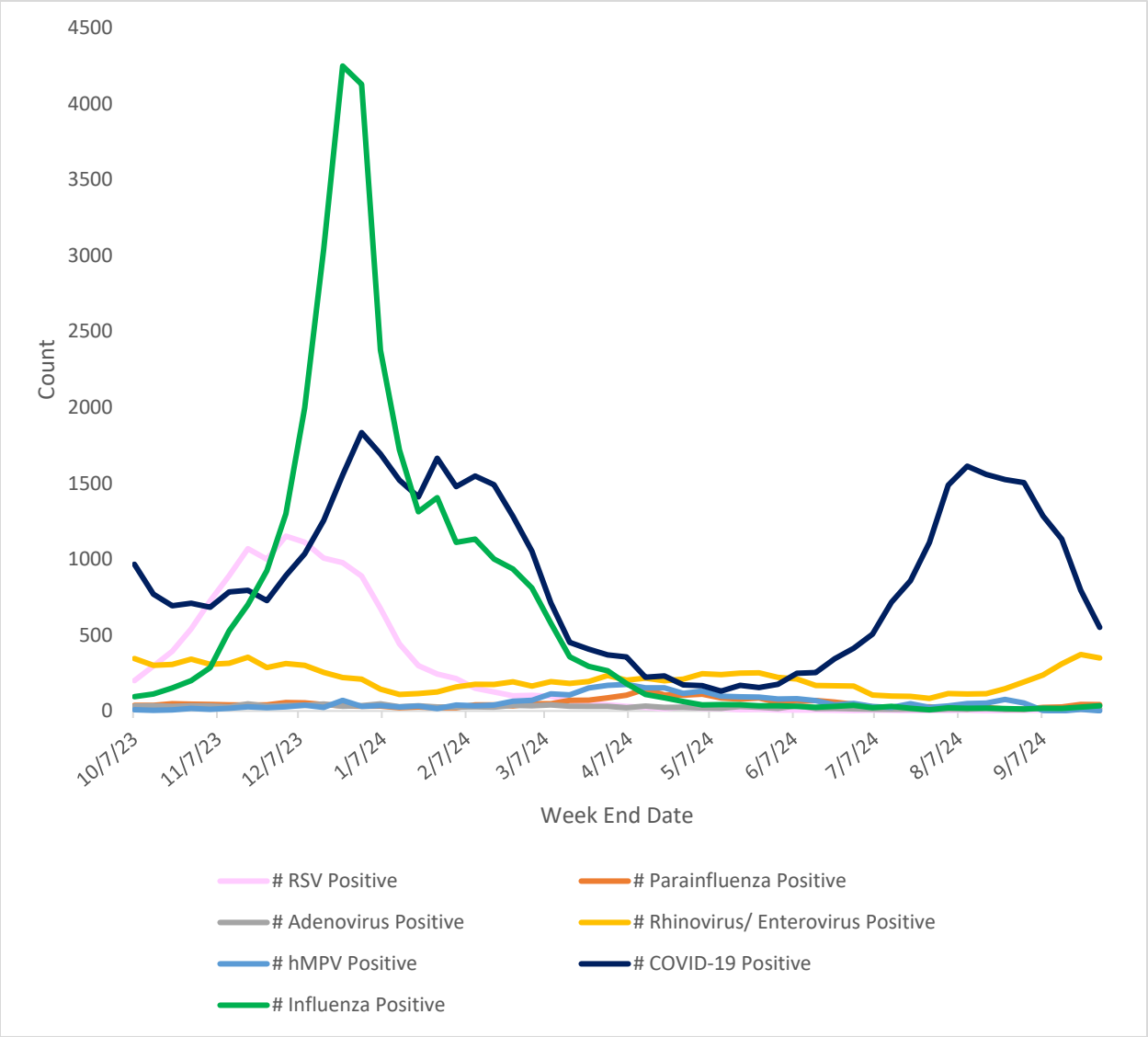


Influenza Virus Isolate Results for 2023–2024*		
Virus Type	**Total Positive for SLPH (10/1/23-9/28/24)**	**Total Positive for PHE (10/1/23-9/28/24)**
A (unknown)	6 (2%)	18,662 (58%)
2009 A(H1N1)	**174 (73%)**	1,458 (5%)
A(H3)	30 (12%)	233 (1%)
B (Victoria)	32 (13%)	N/A (0%)
B (Yamagata)	0 (0%)	N/A (0%)
B (unknown)	0 (0%)	11,667 (36%)
Total	242	32,020

* 2023-2024 influenza season began October 1, 2023

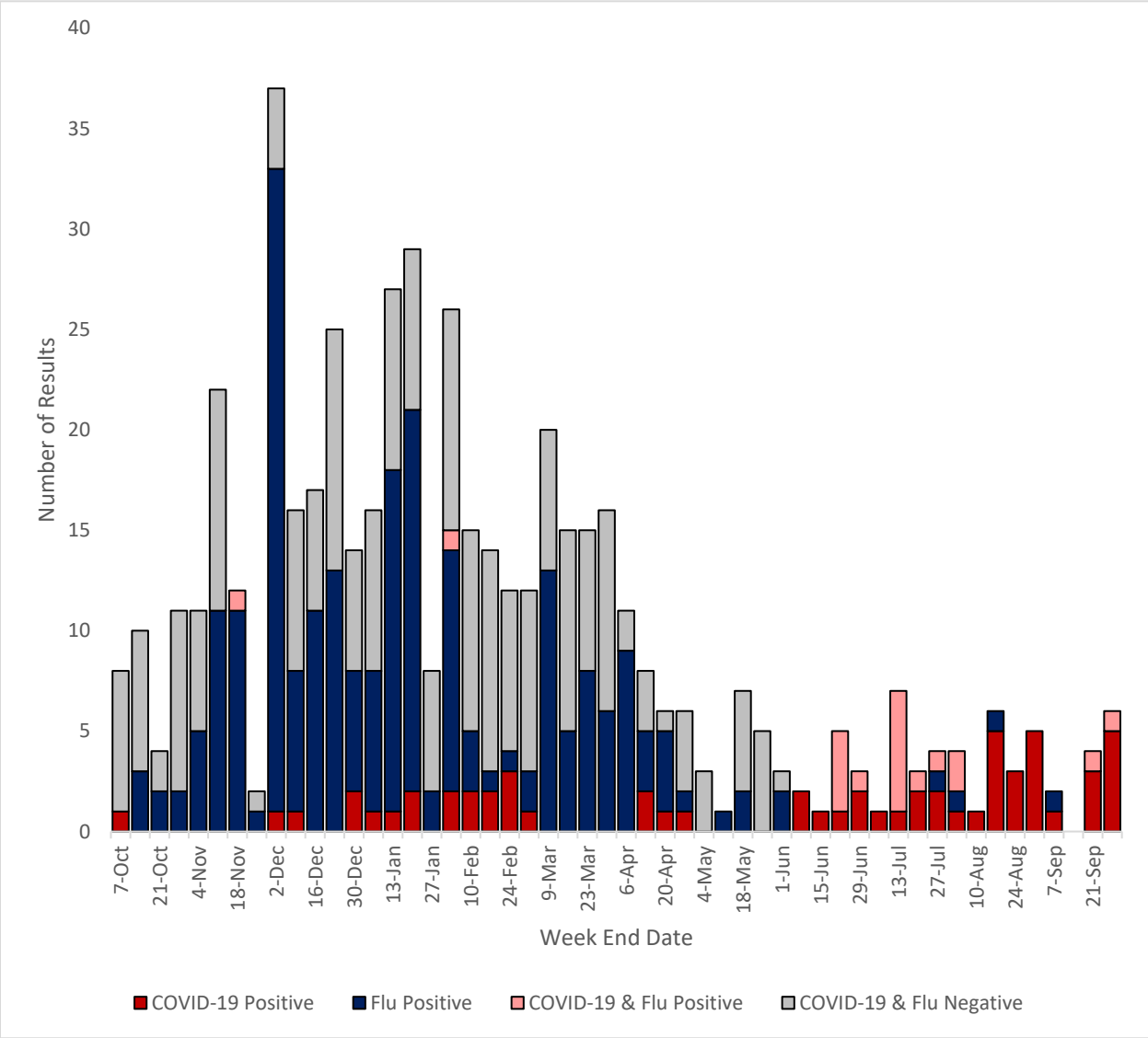


What respiratory viruses are being found in patients tested at hospitals in the PHE network?



Many viruses can cause respiratory illness. The graph above shows all positive tests for the listed respiratory viruses performed at hospital laboratories in the PHE network. Tracking test results for patients in this network of health systems can help us to better understand what viruses are making people sick. It is important to remember that the number of positive tests depends on how many tests are done and will change based on access to testing and testing priorities.

What respiratory viruses are being found in symptomatic patients tested at the State Laboratory of Public Health?



The State Laboratory of Public Health (SLPH) tests specimens submitted from symptomatic patients for influenza and COVID-19 using a multiplex assay. The graph shows the results from all tests for the respiratory viruses listed above and performed at SLPH on specimens from symptomatic patients. Some specimens are being submitted for subtyping so percent positivity cannot be calculated. Tracking test results for patients at SLPH can help us to understand the distribution of COVID-19 and influenza as well as potential co-infections.

Who are the non-hospital participants in North Carolina's influenza sentinel surveillance program reporting data and/or samples?

Local Health Departments	Other Practices	College/University Student Health Programs
Henderson County Department of Public Health	Roanoke Chowan/Ahoskie Comprehensive Care	Wake Forest University
Franklin County Health Department	Creswell Primary Care	ASU Health Services
Pender County Health Department	Duke Primary Care Butner-Creedmoor Family Medicine	UNC-Charlotte Student Health Center
Johnston County Health Department	Albemarle Community Care Clinic	UNC Chapel Hill
Wilkes County Health Department	App Healthcare – Ashe Health Center	Davidson College Student Health Center
Rockingham County Division of Public Health	App Healthcare – Watauga Health Center	UNC-Greensboro Student Health Services
Stanly County Health Department	App Healthcare – Alleghany Health Center	UNC-Pembroke Student Health Services
Union County Health Department		Winston-Salem State University Student Health Service
Northampton County Health Department		Wingate University Student Health Center
Jones County Health Department		
Guilford County Health Department