



**Respiratory Surveillance: January 2 – January 8, 2022
Updated January 13, 2022**

COVID-19 Key Findings

Statewide Updates	<p>During the week ending January 8, 2022, the percentage of emergency department visits for COVID-like illness increased from the previous week.</p> <p>The total number of hospital admissions and ICU admissions in the Public Health Epidemiologist (PHE) network for COVID-19 went up, and the percentage admitted to the ICU went down.</p> <p>3 new MIS-C cases were reported this week.</p>
Regional Updates	<p>Among neighboring states (SC, GA, VA, TN), SC, GA, TN, and VA saw an increase in COVID-19 activity based on total case numbers and rate of new cases per 100,000 population over the last 7 days (01/05/2022-01/11/2022). https://covid.cdc.gov/covid-data-tracker/#compare-trends_newcasesper100k</p>
National Updates	<p>The national 30 day percent positive was 21.63% on 01/08/22.</p> <p>The nationwide rate of new cases per 100,000 population has increased over the past 7 days (01/05/2022-01/11/2022). https://protect-public.hhs.gov/pages/vaccination-and-testing</p>
International Updates	<p>Worldwide, Europe has accounted for a majority of COVID-19 infections since the week of September 27, 2021. For more country specific details please visit: https://covid19.who.int/</p>

Influenza Key Findings

Statewide Updates	<p>Influenza-like illness (ILI) decreased the week ending January 8, 2022. The geographic spread of flu was WIDESPREAD this week.</p> <p>Of the 123 specimens submitted to the State Laboratory of Public Health (SLPH) for viral testing this week, three were positive for influenza A (unsubtyped) and eight were positive for influenza A (H3). PHEs reported 93 positive influenza A (unsubtyped), 15 influenza A (H3), and five influenza B (unsubtyped) results out of 11,379 samples tested during the week ending 01/08/2022.</p>
Regional Updates	<p>The proportion of visits due to ILI in Region 4 (Southeastern US) was at 6.01% for week 52 (ending 01/01/2022). The regional baseline for ILI is 3.1%.</p>
National Updates	<p>The proportion of visits due to ILI nationwide was at 4.76% for week 52 (ending 01/01/2022). The national baseline for ILI is 2.5%.</p>
International Updates	<p>In worldwide influenza laboratories, seasonal influenza A viruses accounted for a majority of detections followed by influenza B viruses for week 52 (ending 01/01/2022). For more country specific details please visit: https://apps.who.int/flu/mart/Default?ReportNo=6</p>

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 seven of the state's largest healthcare systems. Data sources used to gather the information presented here 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. Two syndromes used to track COVID-like illness (CLI) and influenza-like illness (ILI) are presented in this report.

CLI and ILI data track the number and percent of emergency department visits that are for illnesses compatible with COVID-19 or influenza. This includes visits that do not have positive test results for either disease.

The CLI and ILI syndromes have similarities because COVID-19 and influenza share many of the same symptoms. However, there are a few key distinctions between the two syndrome definitions. ILI includes the key word term "sore throat" while CLI does not. CLI contains keyword terms that ILI does not, including ones regarding the loss of taste and smell, pneumonia, and specific terms like "COVID" and "corona." CLI also includes ICD-10-CM diagnosis codes¹ specific to COVID-19 and ILI does not include any ICD-10-CM codes. The syndrome definitions are as follows:

¹ The International Classification of Disease, Tenth Edition, Clinical Modification (ICD-10-CM) system is used by physicians and healthcare providers to code diagnoses for all patient visits.

	Influenza-like illness (ILI)	COVID-19-like illness (CLI)
Chief complaint only	N/A	COVID or corona or coronavirus
Chief complaint or triage notes	((fever OR febrile OR FUO OR temperature OR Documented Initial ED Temp > 38C) AND (cough or sore throat))	loss of sense of smell / taste or no taste / smell or unable to smell / taste or loss sense of smell / taste or lost taste / smell OR ((Chief complaint or triage notes: (cough or shortness of breath or SOB or SHOB or respiratory distress or cannot breathe or cyanosis or difficulty breathing or dyspnea or hypoxia or pleural effusion or pneumon or stridor) AND (Febrile or fev* or fvr or temp or chills or rigor or shivers or initial ED temp > 38)) OR Specific COVID-19 ICD-10-CM codes -B97.2% OR B34.2 OR J12.81 OR J12.82 OR U07.1 OR U07.2 And Exclusions: Influenza ICD-10-CM Codes: J09-J11.89 Note: if an ED visit has an influenza diagnosis (J09-J11.89) AND one of the inclusion codes (B97.2% OR B34.2 OR J12.81 OR J12.82 OR U07.1 OR U07.2) the visit is NOT excluded from CLI_no_Flu
ICD-10-CM Codes	N/A	B97.2% OR B34.2 OR J12.81 OR U07.1 OR U07.2

In order to better differentiate between CLI and ILI, the CLI syndrome definition has been modified to exclude any visits that contain a diagnosis code for influenza.

- If an ED visit has the signs and symptoms of CLI or a diagnosis of COVID-19 they are included.
- If an ED visit has the signs and symptoms of CLI and receives a diagnosis of influenza AND COVID they are included.
- If an ED visit has the signs and symptoms of CLI but receives an influenza diagnosis without also receiving a COVID diagnosis they are excluded.

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

Public Health Epidemiologists Program

In 2003, NCDPH 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 38 percent of general/acute care beds and 40 percent of ED visits in the state. PHEs play a critical role in assuring routine and urgent communicable disease control, hospital reporting of communicable diseases, outbreak management and case finding during community wide outbreaks.

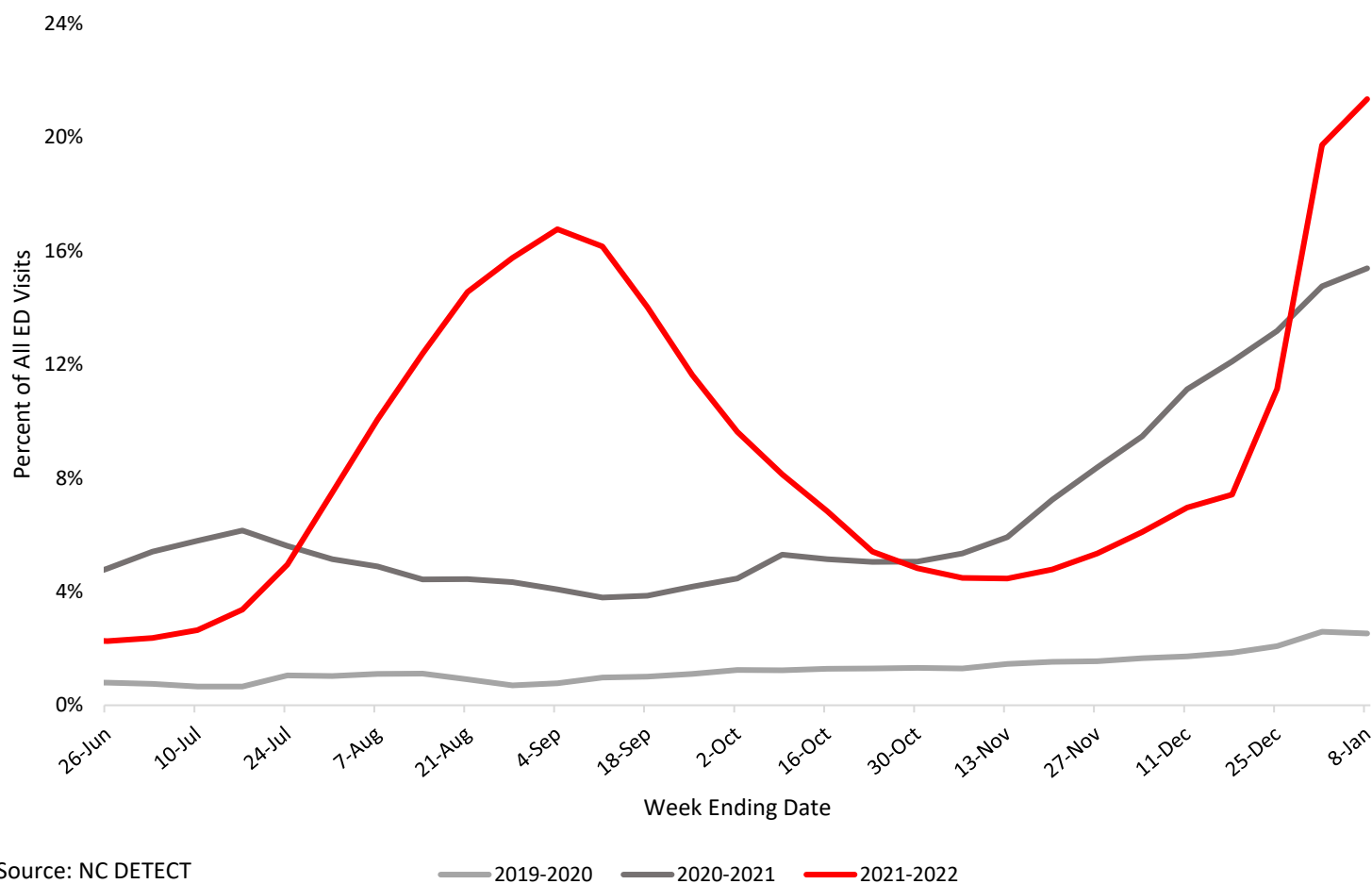
Influenza-like Illness Network

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.

Hospitalization Vaccination Status

As part of North Carolina's hospital surveillance, hospitals provide information about COVID-19 related hospitalization and intensive care unit patients by vaccination status. Patients are asked their vaccination status at triage. Patients are counted as vaccinated if they provide proof of vaccination or if their vaccination status can be verified through North Carolina's Covid-19 Vaccination Management System (CVMS). Patients who are not vaccinated, partially vaccinated, cannot provide proof of vaccination, or whose vaccination status cannot be confirmed in CVMS are categorized as unvaccinated.

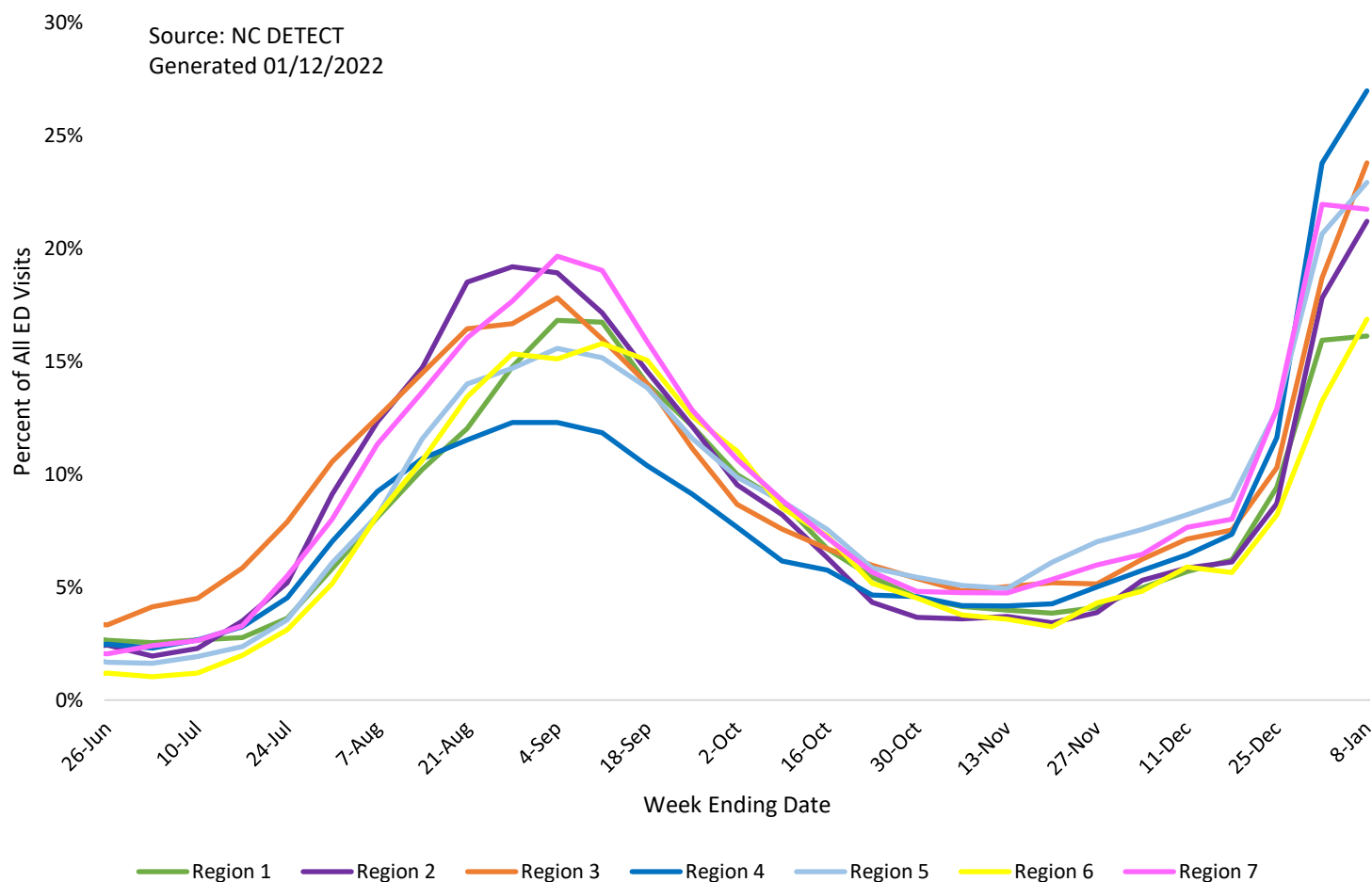
What percent of ED visits this season are for COVID-like illness compared to previous seasons?



The above graph shows how the percentage of ED visits for CLI this season compares to previous seasons. COVID-19 and influenza can both cause fever and respiratory illness, so CLI syndrome and ILI syndrome detect some of the same ED visits.

The percentage of ED visits for COVID-like illness **INCREASED** the week ending January 8, 2022.

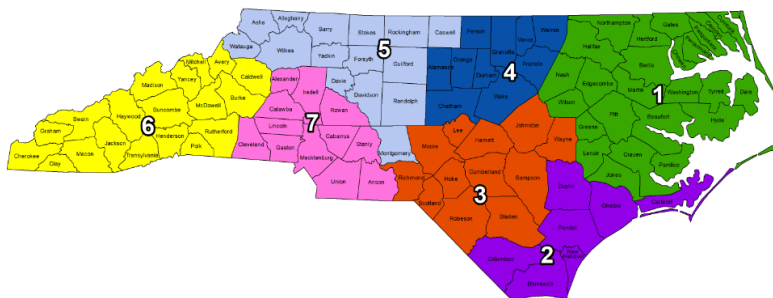
How does the percentage of ED visits for COVID-like illness compare between regions of the state?



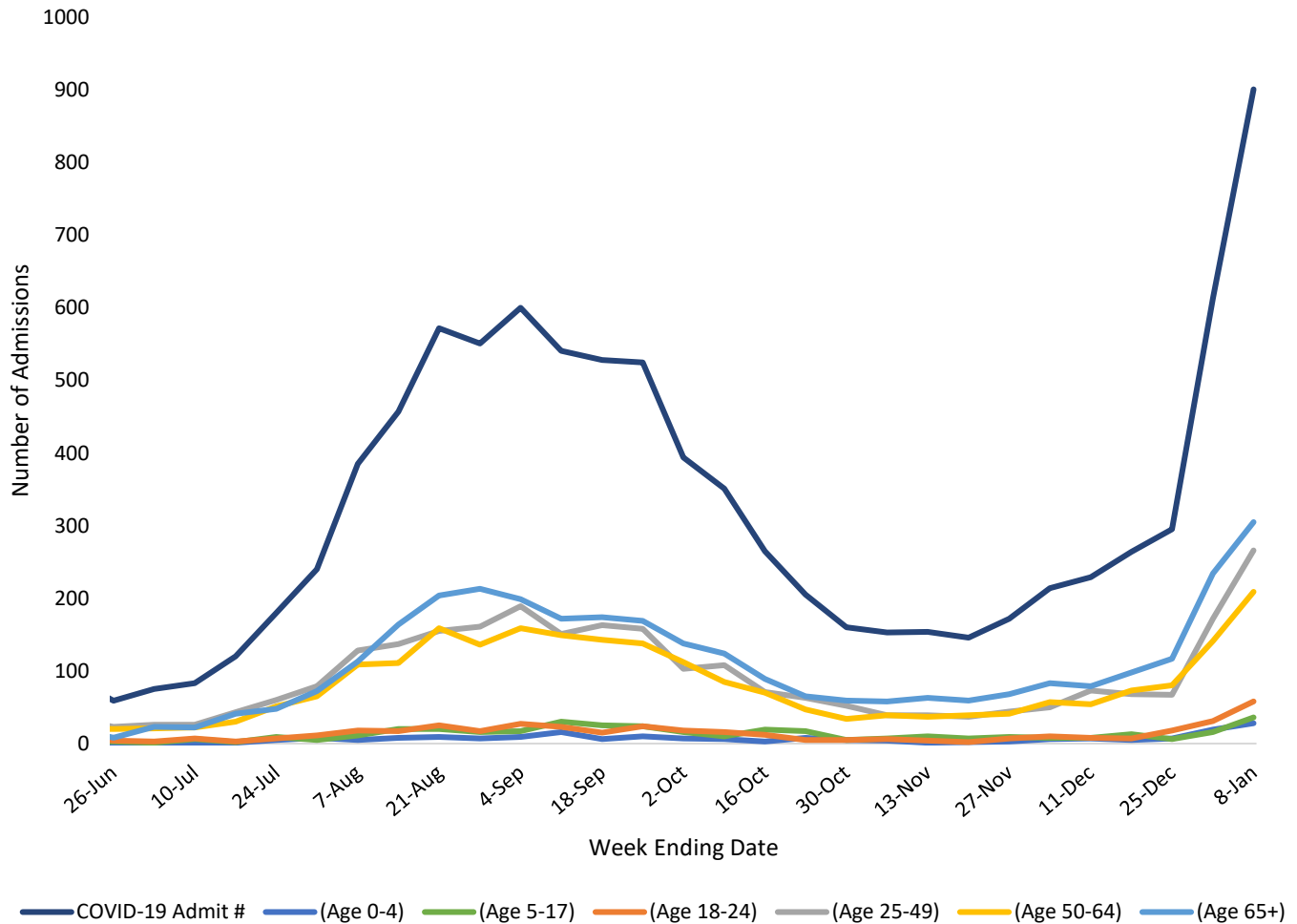
Diseases, including COVID-19, do not spread across the state evenly. The above graph shows the differences between regions in the percentage of ED visits for CLI. The colors of the lines correspond to the colors on the region map below.

Region 7 showed a DECREASE in the percent of ED visits for CLI the week ending January 8, 2022. **Regions 1, 2, 3, 4, 5, and 6 showed an INCREASE** in the percent of ED visits for CLI the week ending January 8, 2022.

Flu Surveillance Regions



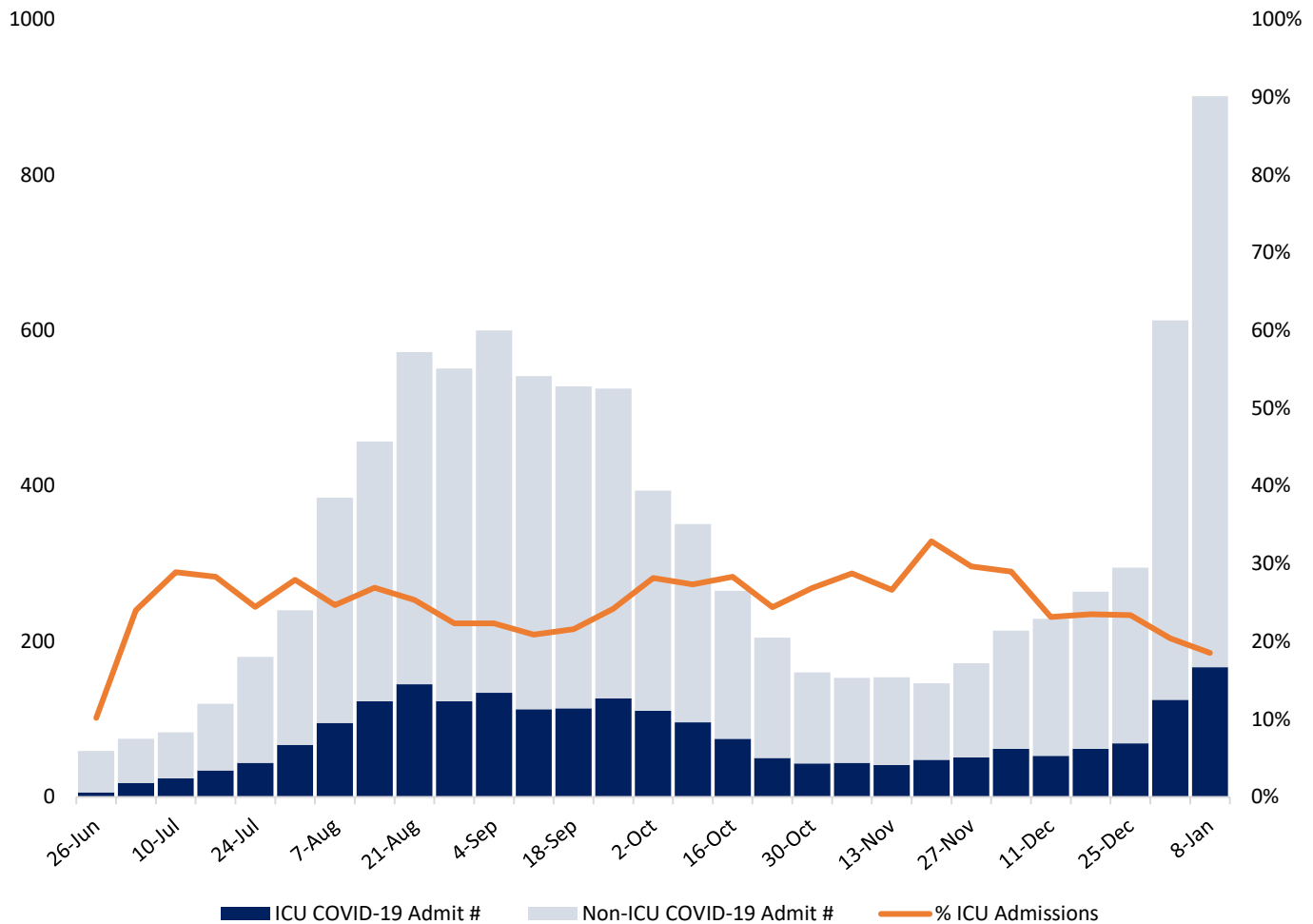
How many people were admitted to a hospital in the PHE network with COVID-19? What age groups were admitted most often?



The number of people admitted to hospitals in the PHE network for COVID-19 **INCREASED** the week ending January 8, 2022.

The most hospital admissions were among those **65+ years old** the week ending January 8, 2022.

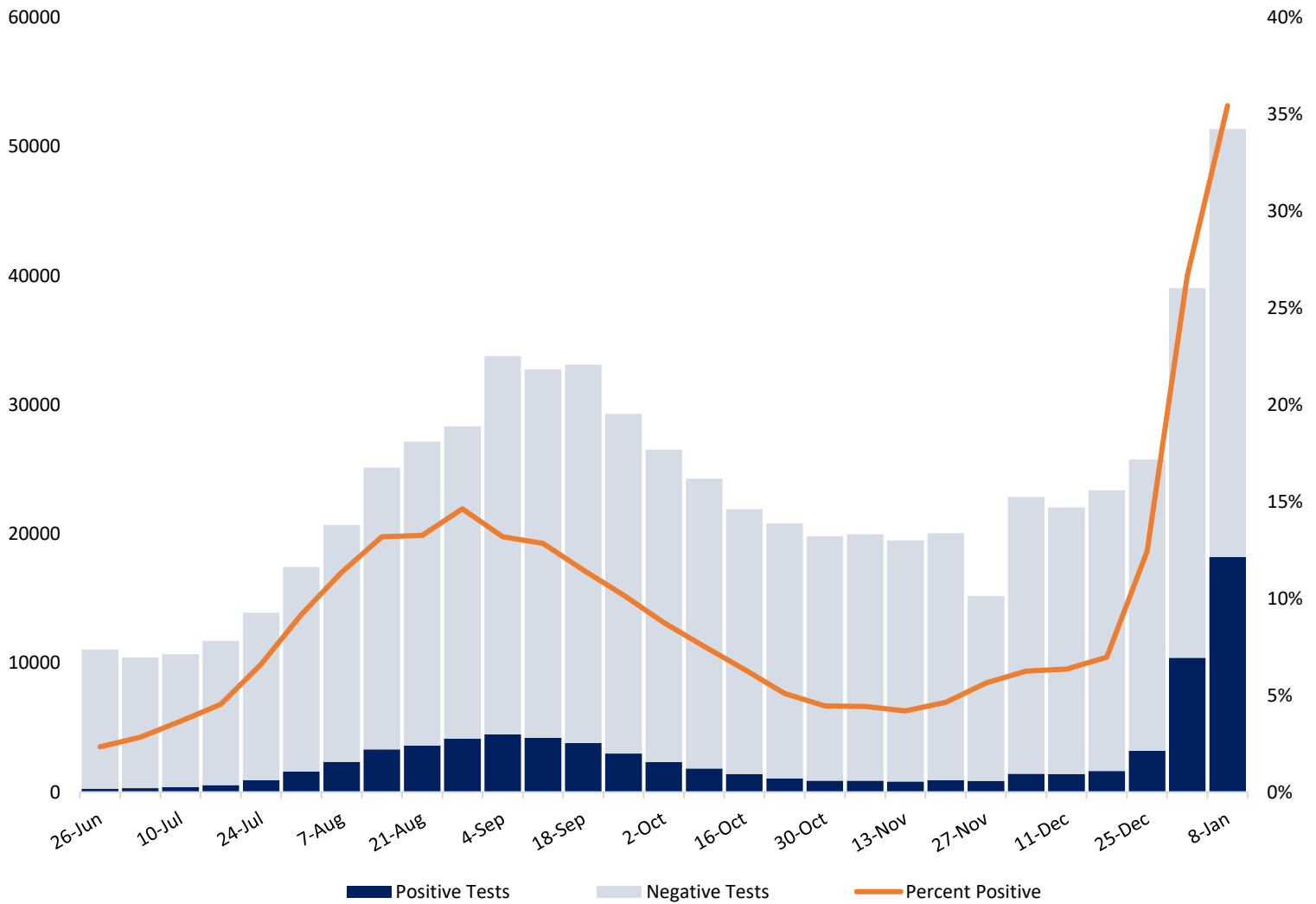
What level of care did COVID-19 patients admitted to a hospital in the PHE network require?



Patients who are admitted to the ICU versus other parts of the hospital require a higher level of care, may require a ventilator to help them breath, and are more likely to die from their illness.

COVID-19 hospital admissions **INCREASED**, and COVID-19 ICU admissions **INCREASED** the week ending January 8, 2022. The percentage of patients with COVID-19 requiring ICU level of care **DECREASED** the week ending January 8, 2022.

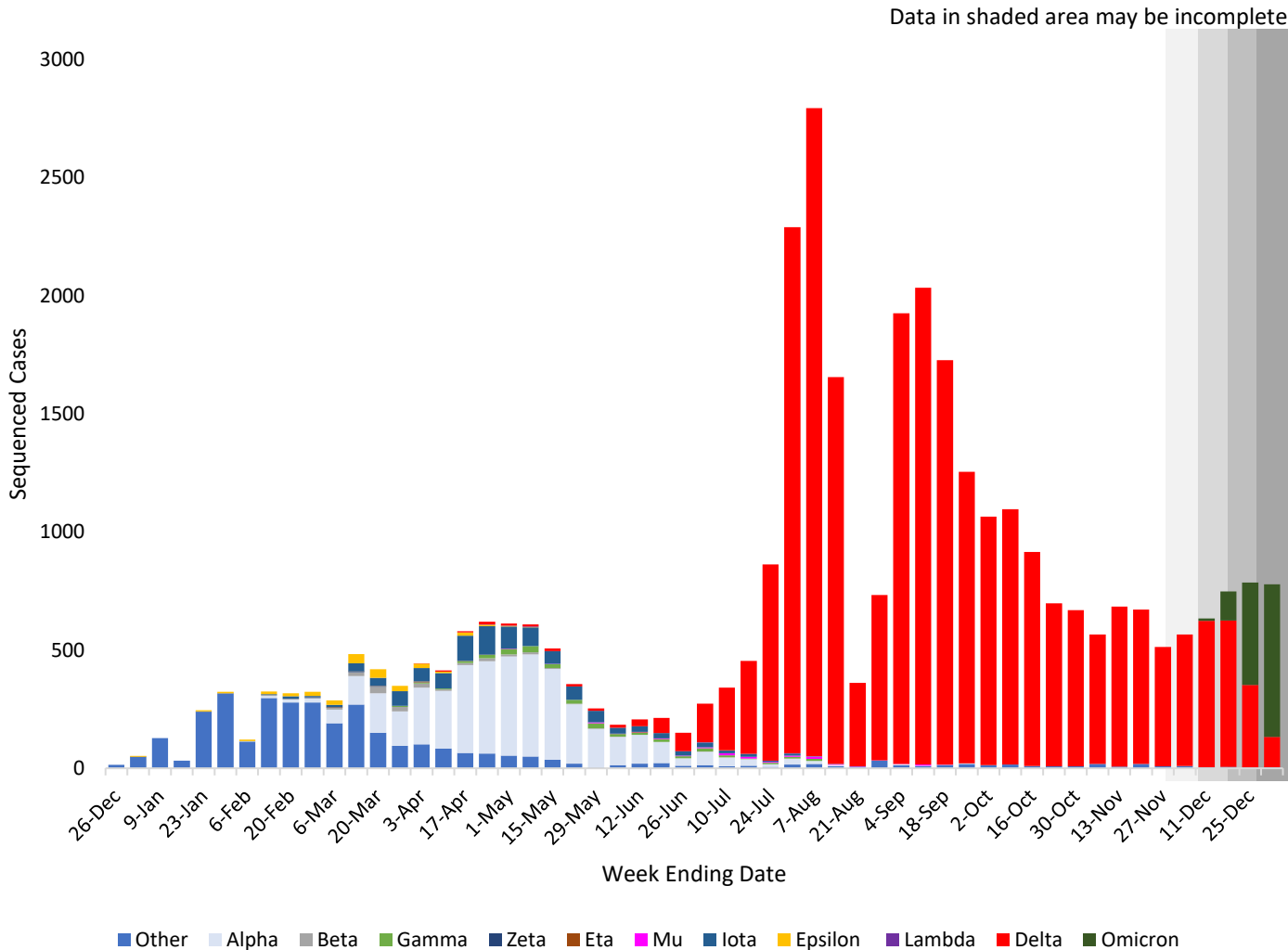
What percentage of people tested for the virus that causes COVID-19 at PHE facilities are positive?



In the week ending January 8, 2022 a total of **51,365** people were tested for the virus that causes COVID-19 at PHE facilities of which **18,210** were positive. The percentage of people who were tested and were positive helps us to understand how common the virus is in people who get tested for COVID-19.

The percentage of people tested who were positive for the virus that causes COVID-19 **INCREASED** the week ending January 8, 2022.

What COVID-19 variants are being detected in North Carolina?



Whole genome sequencing (WGS) allows tracking of genetic changes in the SARS-CoV-2 virus, the virus that causes COVID-19. These genetic changes occur over time and lead to the emergence of new variants that may have different characteristics. [CDC classifies some variants as variants of concern \(VOC\) or variants of interest \(VOI\) based on suspected or shown differences](#) in how that variant behaves, such as being more transmissible, more able to evade the immune system, or causing more severe disease. Currently several laboratories in North Carolina do WGS of SARS-CoV-2 viruses and seven of those laboratories report all WGS results to NC DHHS (Atrium/Wake Forest Baptist Hospital, LabCorp, Aegis, Mako, UNC McClendon Laboratory, UNC Dittmer Laboratory, and the NC State Laboratory of Public Health).

This graph shows the variants identified each week among specimens sequenced by laboratories that report all WGS results to NC DHHS. The number of sequenced specimens shown is a small proportion of the total number of COVID-19 cases.

The **Omicron Variant** has been the most commonly circulating variant since the week ending December 25, 2021.

The **Omicron Variant** was first detected in North Carolina the week ending December 11, 2021. For the week ending January 1, 2022, the most recent data available, Omicron represented 83% of sequenced viruses.

Post-vaccination Cases

COVID-19 vaccines are highly effective at preventing severe illness, hospitalization and death from COVID-19, including from the Delta variant. Even when a vaccine is highly effective, post-vaccination cases are expected. A small percentage of people who are fully vaccinated will still get COVID-19 if they are exposed to the virus. When infections do occur after vaccination, they are generally less severe than infections in people who are unvaccinated, and vaccinated people are much less likely to be hospitalized or die.

What is a post-vaccination case?

A case is considered a post-vaccination case if an individual tested positive at least 14 days after completing an FDA authorized SARS-CoV-2 (COVID-19) vaccine series (two doses of an mRNA vaccine or one dose of the Janssen vaccine) and has not had a positive test result in the preceding 45 days. People who are not fully vaccinated (e.g., only one dose of a two-dose series or less than 14 days from vaccination) are included in the unvaccinated cases.

How are post-vaccination cases identified?

Every week, NCDHHS compares vaccination records with case records by running a query to match records in the North Carolina COVID-19 Vaccine Management System and the Federal Pharmacy Program with records in the database of COVID-19 cases reported to NCDHHS. This matching is done based on information such as name, date of birth, and address in each system. These data are then analyzed to determine which cases meet the definition of a post-vaccination case. These data do not include people who were vaccinated by the Department of Defense, Veterans' Administration, or Indian Health Service.

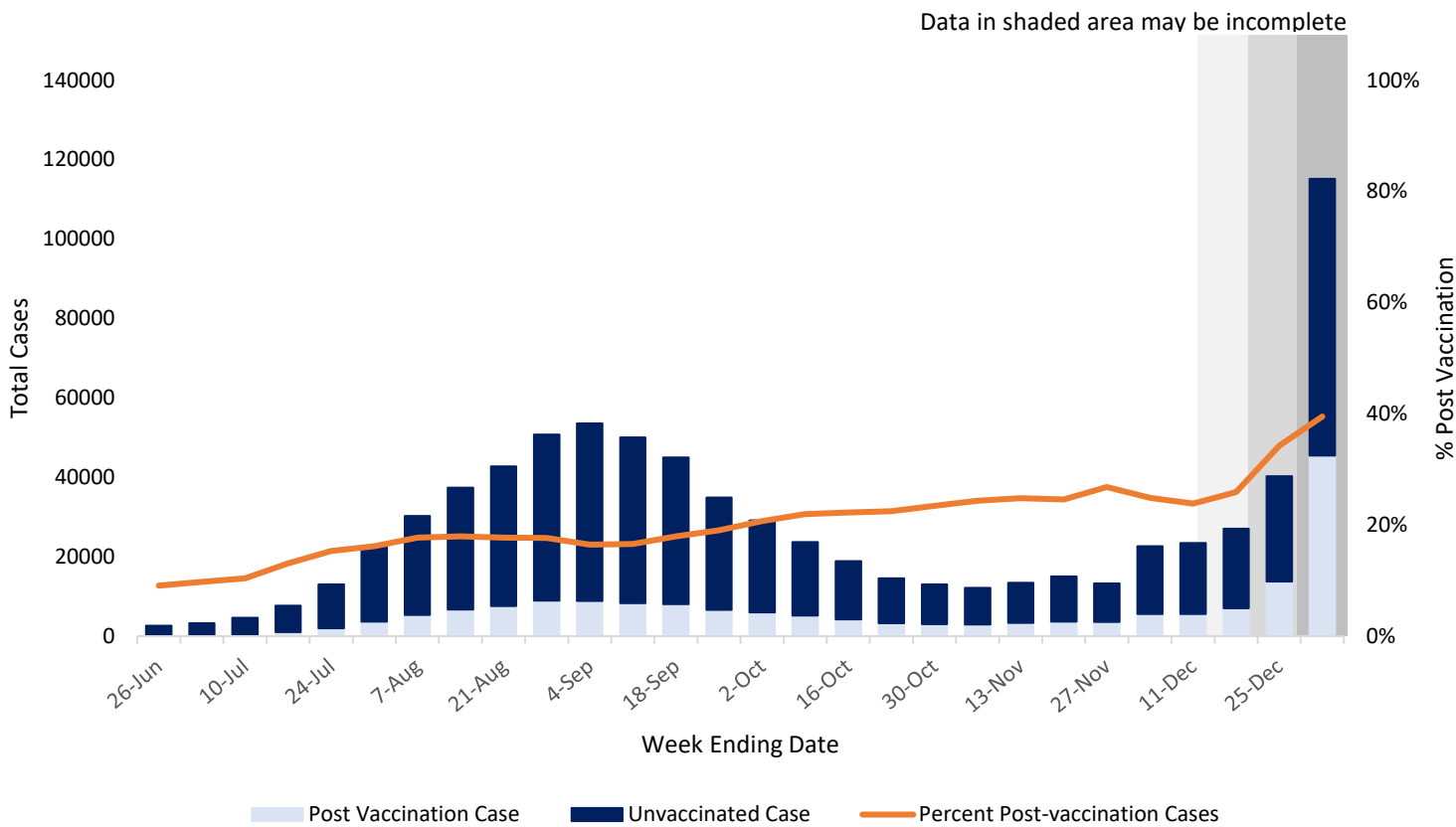
When viewing post-vaccination case data there are several important things to keep in mind

- Even with highly effective vaccines, the number of post-vaccination cases is expected to rise as virus transmission goes up and as more people are vaccinated.
- Although we continue to see stable and highly effective protection against hospitalizations and severe outcomes for people who are fully vaccinated, we are seeing a decrease in vaccine effectiveness against infection with the Delta and Omicron variants.
- Post-vaccination case rates are affected by who gets tested, which could be different for vaccinated and unvaccinated people. Because of that, post-vaccination case rates are not the same as vaccine effectiveness studies.
- Age-adjustment takes into account differences in age distribution between people who are vaccinated and people who are unvaccinated.
- This data is preliminary and subject to change. Rates and ratios for previous weeks may change slightly as new data are received. As we improve our matching process, we may find post-vaccination cases that were not previously identified.
- Vaccination is the most effective way to prevent the spread of COVID-19 as well severe, hospitalization and death due to the virus.

* A technical issue with attack rate and mortality rate data was identified. This information will be updated when that issue has been resolved.

Cases identified in North Carolina among unvaccinated and vaccinated people during January 1, 2021 — January 1, 2022

For the week ending January 1, 2022, there were 5,838,242 North Carolinians vaccinated against COVID-19. There have been 184,707 post vaccination COVID-19 cases and 1,124 post vaccination COVID-19 deaths since January 1, 2021.



Post-vaccination cases made up **40%** of COVID-19 cases in North Carolina the week ending January 1, 2022. The percent of post-vaccination cases **INCREASED** the week ending January 1, 2022, compared to the previous week.

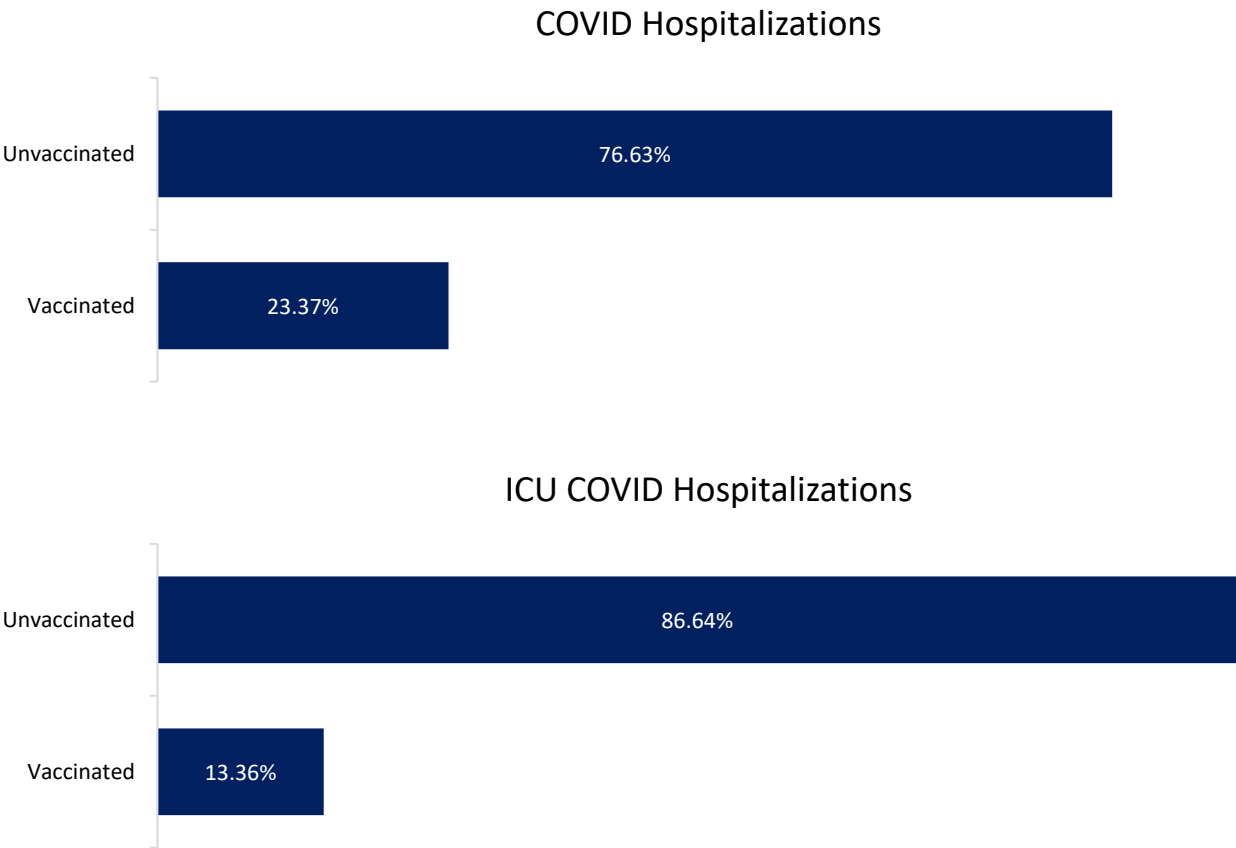
*A case is considered a post-vaccination case if an individual tested positive at least 14 days after completing an FDA authorized SARS-CoV-2 (COVID-19) vaccine series (two doses of an mRNA vaccine or one dose of the Janssen vaccine) and has not had a positive test result in the preceding 45 days.

What percent of people hospitalized or in the ICU with COVID-19 are vaccinated based on self-reported vaccination status?

Vaccination Status of Hospitalized Patients	
Daily Average COVID Hospitalizations	Daily Average ICU COVID Hospitalizations
3,282	642
(2,957 REPORTED VACCINATION STATUS)	(599 REPORTED VACCINATION STATUS)

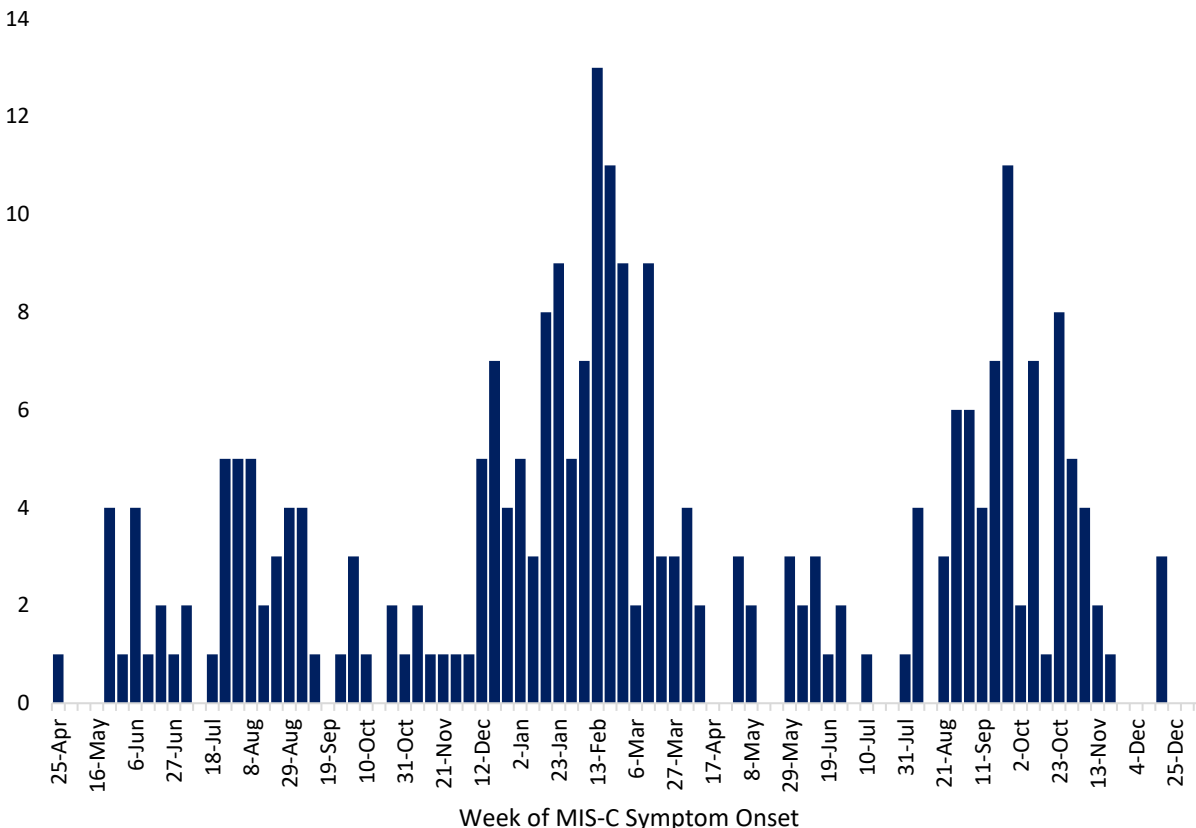
For the week ending January 8, 2022, the daily average COVID hospitalizations was 3,282 and the daily average COVID ICU hospitalizations was 642. Among COVID hospitalizations and COVID ICU hospitalizations 2,957 and 642 reported vaccination status respectively. Currently 114 out of 117 reporting hospital metrics are also reporting patient vaccination status.

Patients are counted as vaccinated if they provide proof of vaccination or if their vaccination status can be verified through North Carolina’s Covid-19 Vaccination Management System (CVMS). Patients who are not vaccinated, partially vaccinated, cannot provide proof of vaccine or whose vaccination status cannot be confirmed in CVMS are categorized as unvaccinated.



How many cases of Multisystem Inflammatory Syndrome in Children (MIS-C) associated with COVID-19 have been reported in North Carolina?

Number of New Cases Reported Week Ending January 8, 2022	Total Reported Cases in NC
3	261

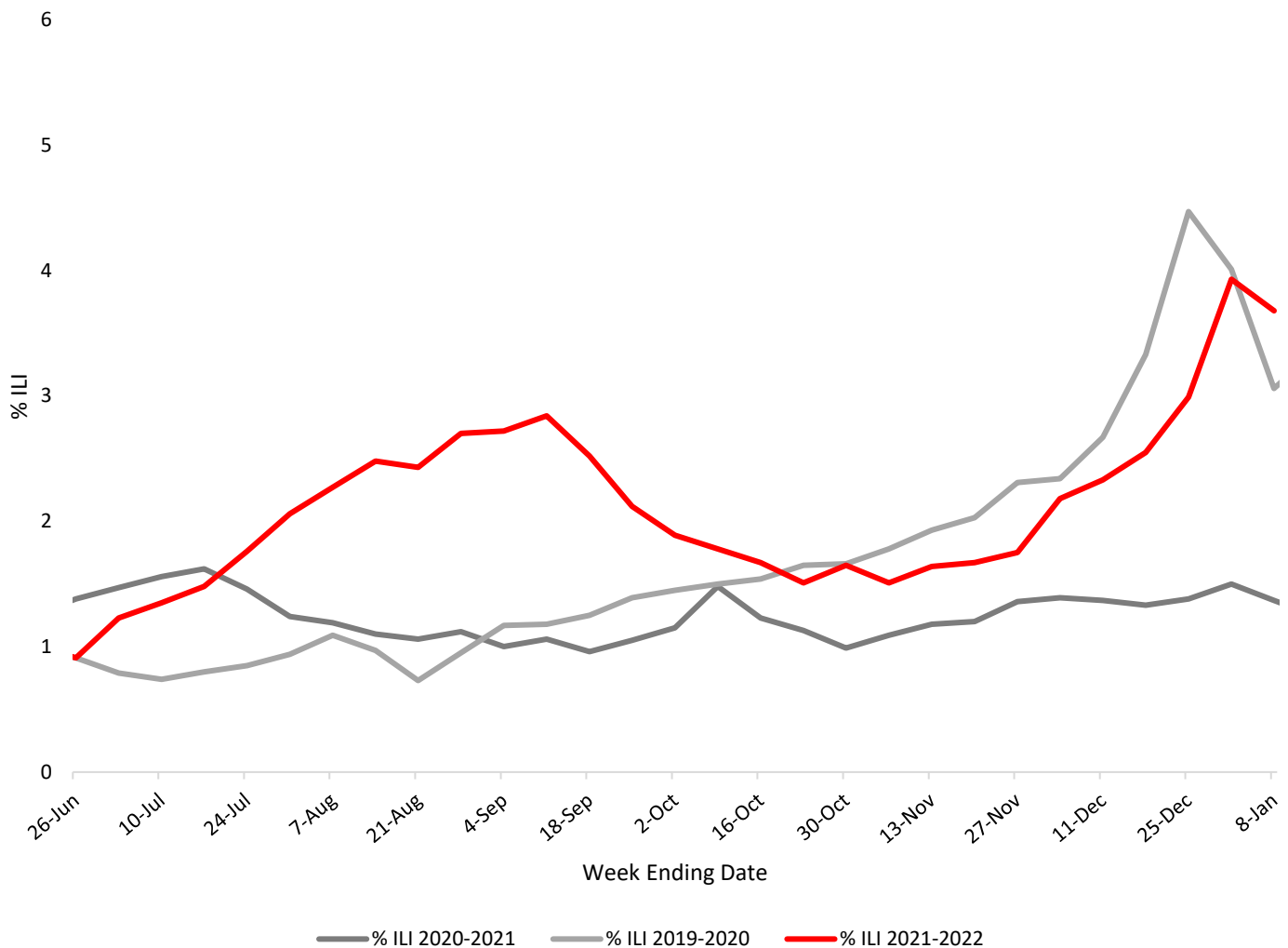


Multisystem inflammatory syndrome in children (MIS-C) is a rare health condition that has been identified in a small subset of children with current or recent COVID-19. MIS-C is similar to other serious inflammatory conditions such as [Kawasaki disease](#) and toxic shock syndrome. Children with MIS-C can have problems with their heart and other organs and need to receive medical attention.

NCDPH is looking for cases of this new syndrome in three different ways:

1. Physicians directly report suspect cases to NCDPH
2. PHEs report suspect cases to NCDPH
3. NC DETECT does surveillance for children with compatible symptoms
4. The graph above shows the number of cases that met the [CDC case definition](#) for MIS-C by the week their MIS-C symptoms first started. More information on MIS-C is available from CDC [here](#).

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

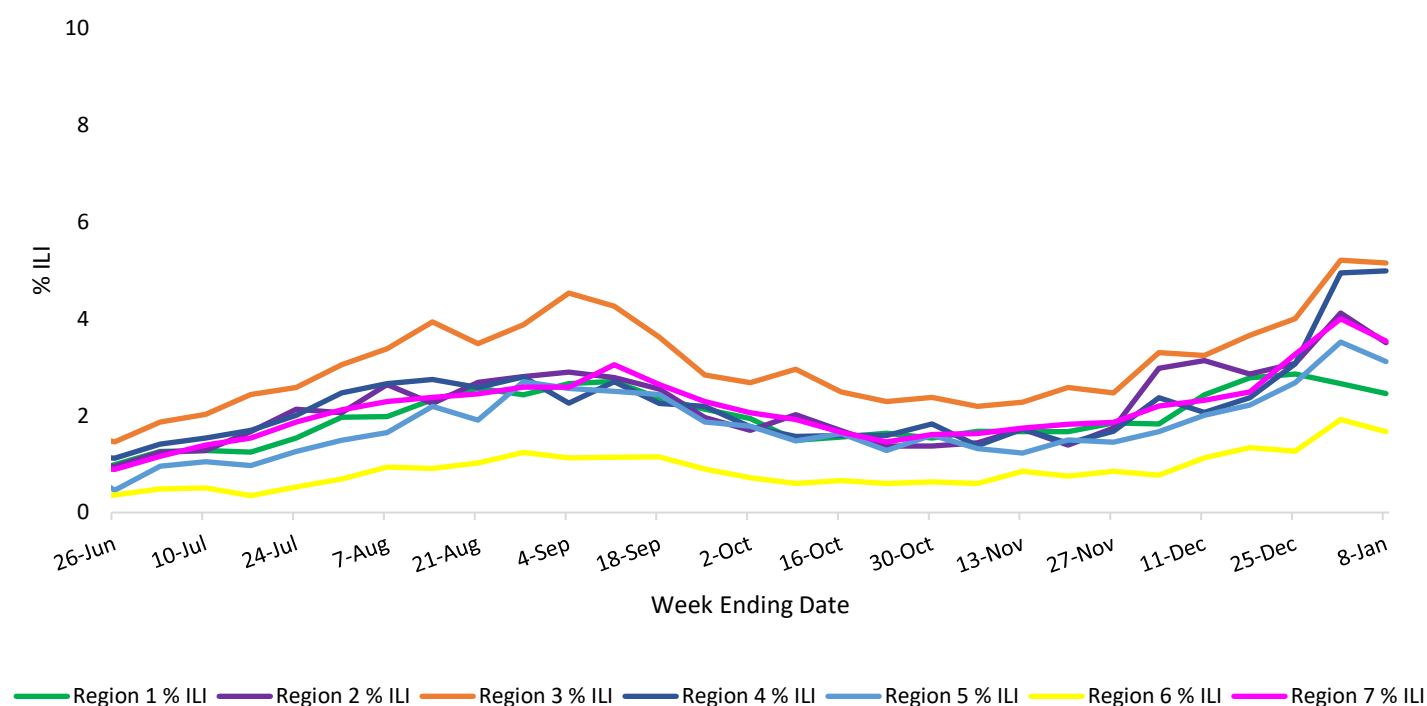


The above graph shows how the percentage of ED visits for influenza-like illness this season compares to previous seasons. Influenza and COVID-19 can both cause fever and respiratory illness, so influenza-like illness syndrome and COVID-like illness syndrome detect some of the same ED visits.

The percentage of ED visits for influenza-like illness **DECREASED** the week ending January 8, 2022.

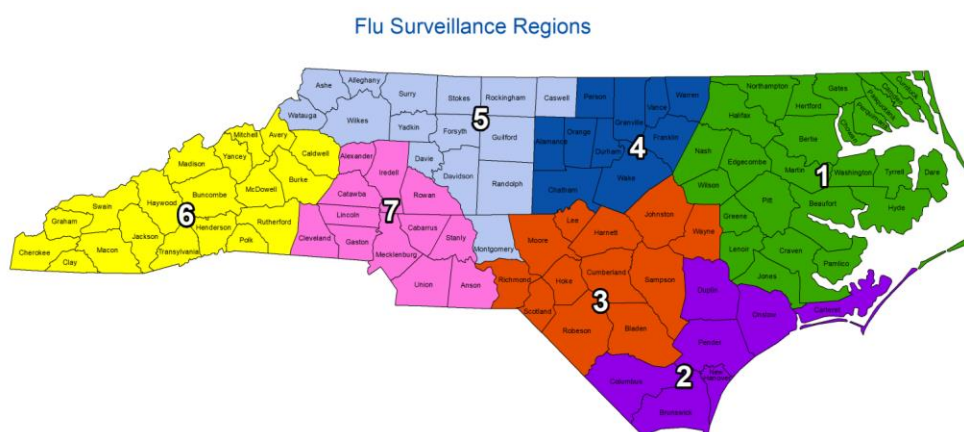
*ILI includes key words including fever, cough, and sore throat. Many respiratory diseases share similar symptoms. ILI surveillance may capture other respiratory diseases.

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.

Regions 1, 2, 5, 6, and 7 showed a DECREASE in the percent of ED visits for influenza-like illness the week ending January 8, 2022. **No regions showed an INCREASE** in the percent of ED visits for influenza-like illness the week ending January 8, 2022. **Regions 3 and 4 DID NOT CHANGE SIGNIFICANTLY*** the week ending January 8, 2022.



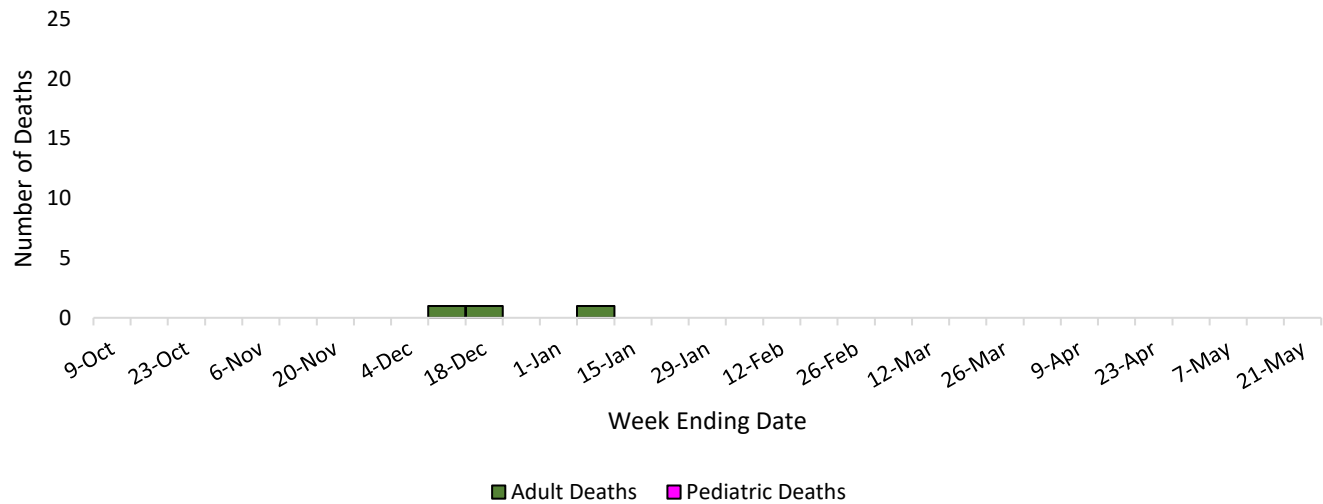
*Regions 3 and 4 showed < 0.1% change.

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

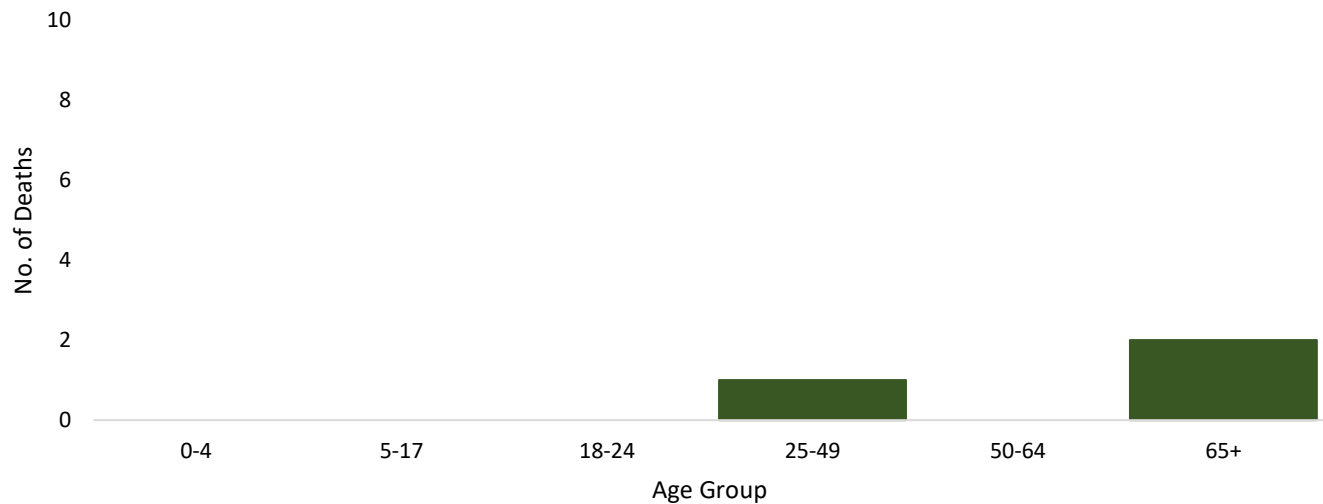
An influenza-associated death is defined for surveillance purposes as a death (adult or pediatric) resulting from a clinically compatible illness that was confirmed to be influenza by an appropriate laboratory or rapid diagnostic test with no period of complete recovery between the illness and death.

Influenza-Associated Deaths Reported in North Carolina (10/03/21-5/21/22)	
Flu Deaths Reported Week Ending in 01/08	Total Flu Deaths
1	3

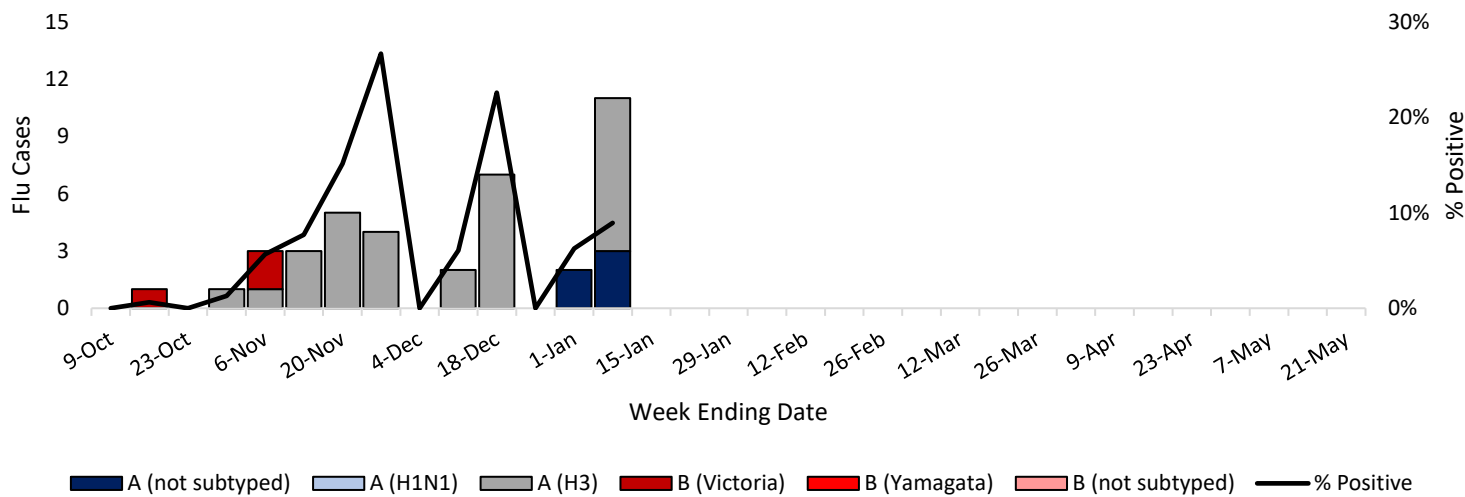
Laboratory Confirmed Influenza Deaths by Week, 2021-2022



Influenza-Associated Deaths Reported in North Carolina, by Age Group 2021-2022



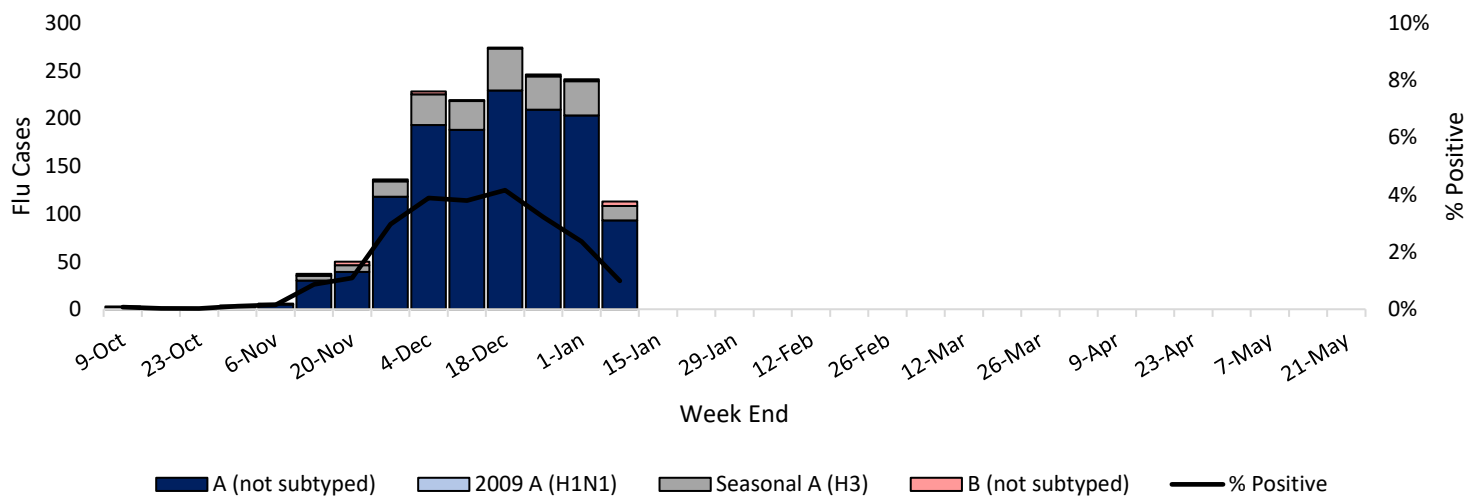
Influenza Positive Tests Reported by SLPH



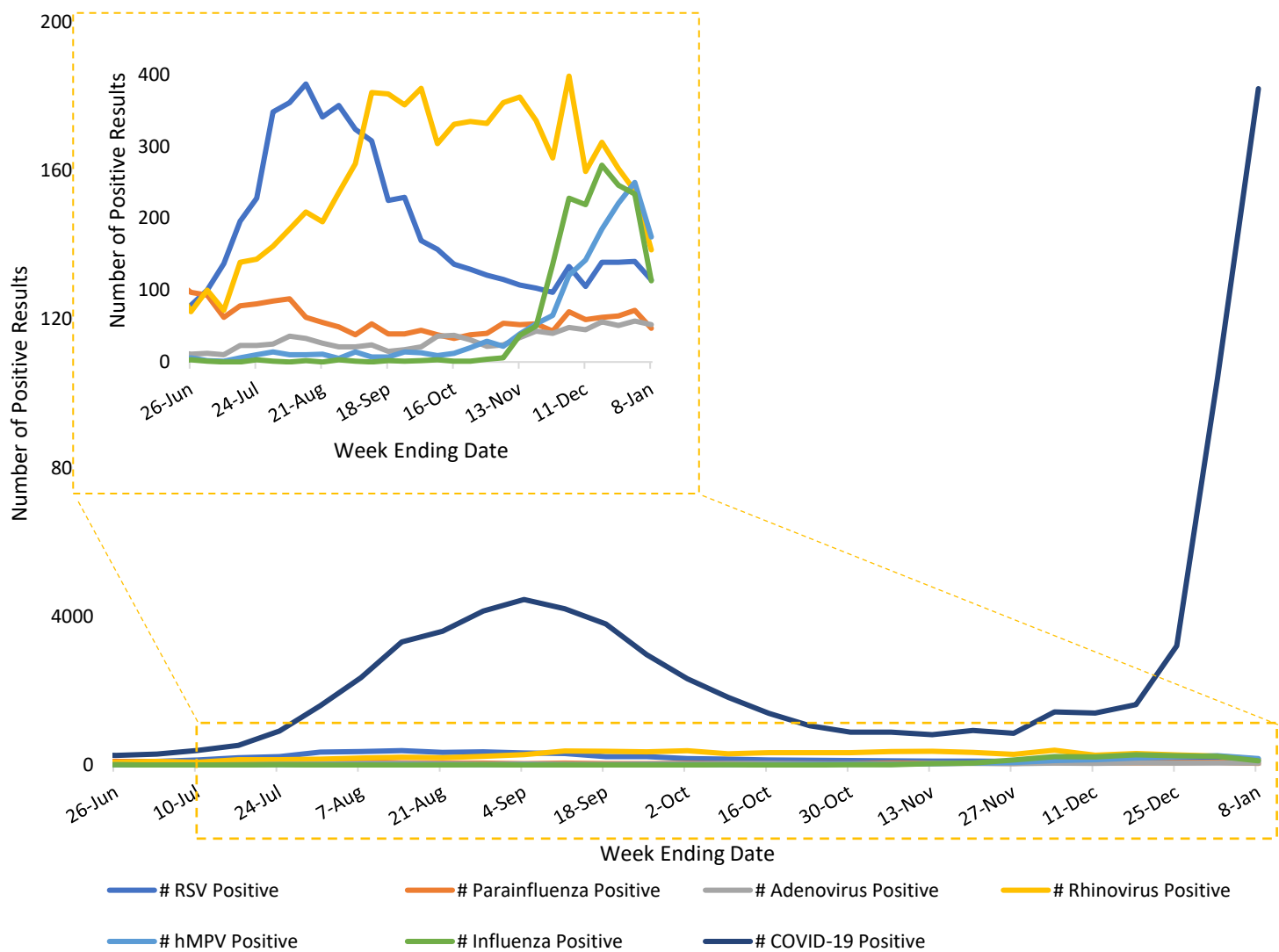
Influenza Virus Isolate Results for 2021–2022 Season*				
Virus Type	# Positive from SLPH (01/02/22-01/08/22)	Total Positive for SLPH (10/03/21-05/21/22)	# Positive from PHE (01/02/22-01/08/22)	Total Positive for PHE (10/03/21-05/21/22)
A (unknown)	3	5	93	1,310
2009 A(H1N1)	0	0	0	0
A(H3)	8	31	15	223
B (unknown)	0	0	5	26
B (Victoria)	0	3	N/A	N/A
B (Yamagata)	0	0	N/A	N/A
Total	11	39	113	1,559

* 2021-2022 influenza season began October 3, 2021

Influenza Positive Tests Reported by PHE Facilities



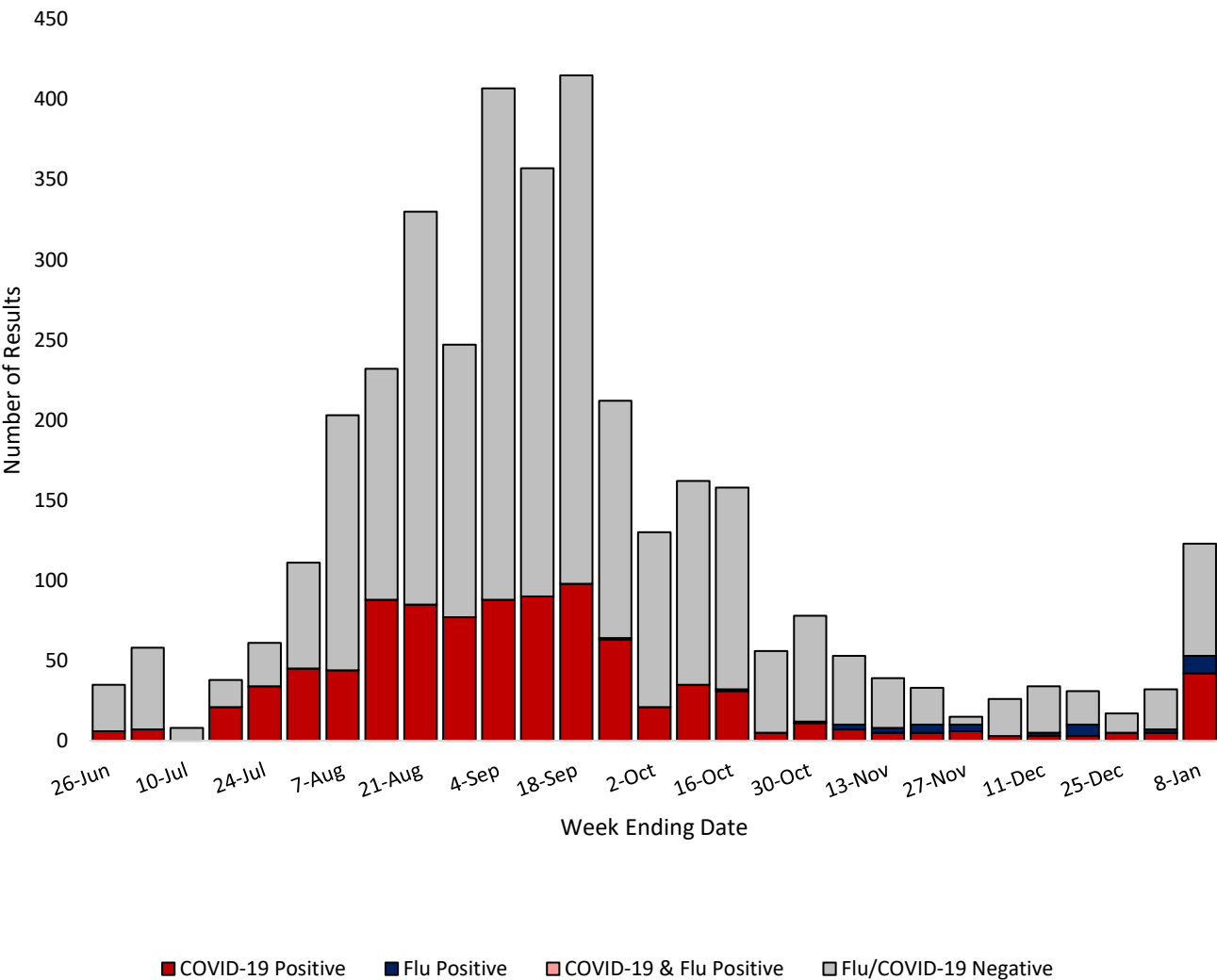
What respiratory viruses are being found in patients tested at hospitals in the PHE network?



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

The most common respiratory virus seen in PHE facilities was **SARS-CoV-2, the virus that causes COVID-19** the week ending January 8, 2022.

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

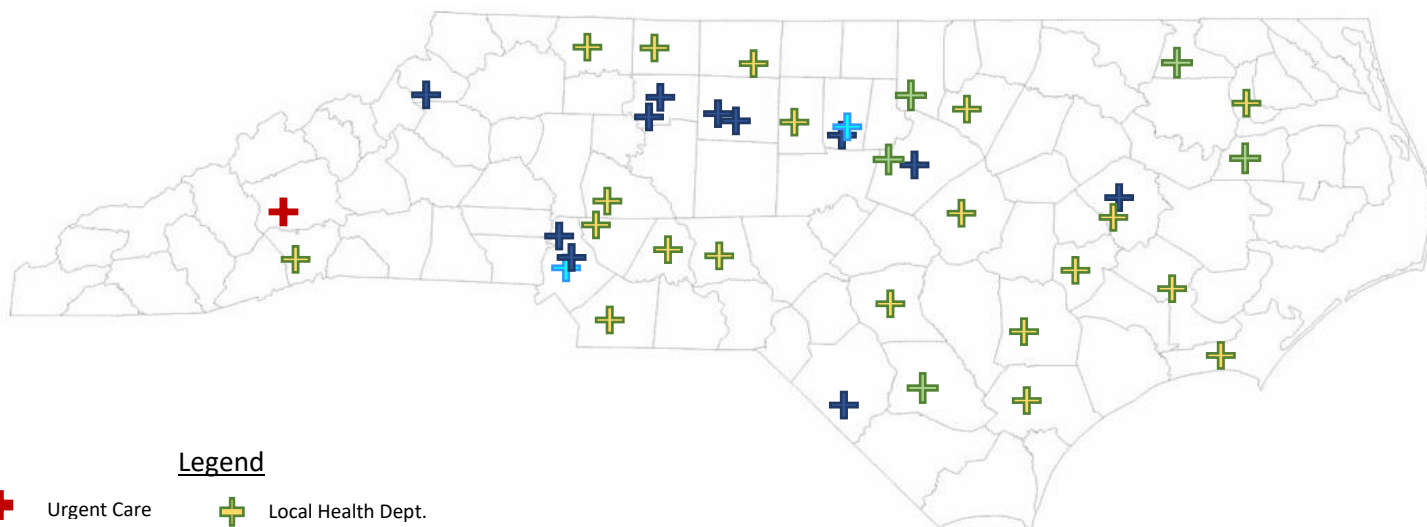


The State Laboratory of Public Health (SLPH) tests specimens submitted from symptomatic patients for influenza and COVID-19 using a multiplex assay. Depending on laboratory capacity, a small number of nasopharyngeal specimens may also be tested for other respiratory viruses if they are negative for both influenza and COVID-19. The graph shows the results from all tests for the respiratory viruses listed above and performed at SLPH on specimens from symptomatic patients. 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. Because testing at SLPH focuses on prioritized populations at increased risk for COVID-19 and all results in the graph came from specimens collected from symptomatic patients, the percentage of positive tests for COVID-19 is likely to be higher than the state average.

There were **42** specimens positive for COVID-19, **11** specimens positive for influenza, and **no** co-infections out of **123** specimens tested with the multiplex assay at the SLPH the week ending January 8, 2022.

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

Local Health Departments	Other Practices	Colleges and Universities Student Health Programs
<p>Alamance County Health Department</p> <p>Henderson County Department of Public Health</p> <p>Franklin County Health Department</p> <p>Pender County Health Department</p> <p>Stokes Family Health Center</p> <p>Craven County Health Department</p> <p>Johnston County Health Department</p> <p>Cabarrus Health Alliance</p> <p>Wilkes County Health Department</p> <p>Rockingham County Division of Public Health</p> <p>Stanly County Health Department</p> <p>Montgomery County Health Department</p> <p>Pitt County Public Health Center</p> <p>Union County Health Department</p> <p>Surry County Health and Nutrition Center</p> <p>Duplin County Health Department</p> <p>Rowan County Health Department</p> <p>Cumberland County Health Department</p> <p>Lenoir County Health Department</p> <p>Carteret County Health Department</p>	<p>Murfreesboro Primary Care</p> <p>Duke Primary Care Butner-Creedmoor</p> <p>Sisters of Mercy Urgent Care South</p> <p>Dilworth Pediatrics</p> <p>Blue Ridge Community Health Services</p> <p>Creswell Primary Care</p> <p>Chapel Hill Pediatrics and Adolescents</p> <p>CommWell Health</p> <p>SAS Institute Health Care Center</p> <p>Roanoke Chowan/Ahoskie Comprehensive Care</p> <p>Albemarle Community Care Clinic</p> <p>Unifour Pediatrics</p>	<p>NCSU Student Health Services</p> <p>NC A&T State University Student Health Center</p> <p>Wake Forest University</p> <p>ASU Health Services</p> <p>UNC-Charlotte Student Health Center</p> <p>UNC Chapel Hill</p> <p>ECU Student Health Services</p> <p>Davidson College Student Health Center</p> <p>UNC-Greensboro Student Health Services</p> <p>UNC-Pembroke Student Health Services</p> <p>WSSU Student Health Service</p>



Legend

- + Urgent Care
- + Local Health Dept.
- + Student Health
- + Pediatrics
- + Family Practice