# NEVADA VACCINE LANDSCAPE REPORT

Nevada Department of Health and Human Services
DIVISION OF PUBLIC AND BEHAVIORAL HEALTH

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**Nevada Department of Health and Human Services**
**Division of Public and Behavioral Health**

*Nevada State Immunization Program*
- Pamela Forest, MD, Retired Provider Quality Assurance Manager
- Cathy Looc, Centers for Disease Control and Prevention Public Health Associate

*Office of Analytics (OOA)*
- Emily Maitino, MPH, Health Resource Analyst II
- Po-Ju Wu, MS, Biostatistician III

*Office of Public Health Investigation and Epidemiology (OPHIE)*
- Maximillian Wegener, MPH, Influenza Surveillance Coordinator

**Center for Health Information Analysis**

*UNLV School of Public Health*
- Joseph Greenway, MPH, Director

**Centers for Disease Control and Prevention**
**National Center for Immunization and Respiratory Diseases - Immunization Services Division**

*Assessment Branch*
- Jennifer L. Kriss, PhD, MPH, Epidemiologist

**Prepared by:**

Anjin Singh, MPH, *Senior Epidemiologist*
Nevada State Immunization Program (NSIP), Division of Public and Behavioral Health (DPBH), Department of Health and Human Services (DHHS), CDC Foundation Field Employee

Kendall Lyons, MPH, *Epidemiologist*
NSIP, DPBH, DHHS, CDC Foundation Field Employee

Sabra Arias, MPH, *COVID-19 Vaccine Data Analyst*
NSIP, DPBH, DHHS, CDC Foundation Field Employee

Winter Tucker, MPH, *COVID-19 Vaccine Data Analytics Manager*
NSIP, DPBH, DHHS, CDC Foundation Field Employee

Elizabeth Quintero, *Contract Administrative Assistant*
NSIP, DPBH, DHHS

**Reviewed by:**

Kristy Zigenis, MA, *Immunization Program Manager*
NSIP, DPBH, DHHS

Vickie Ives, MA, *Bureau Chief*
BCFCW, DPBH, DHHS

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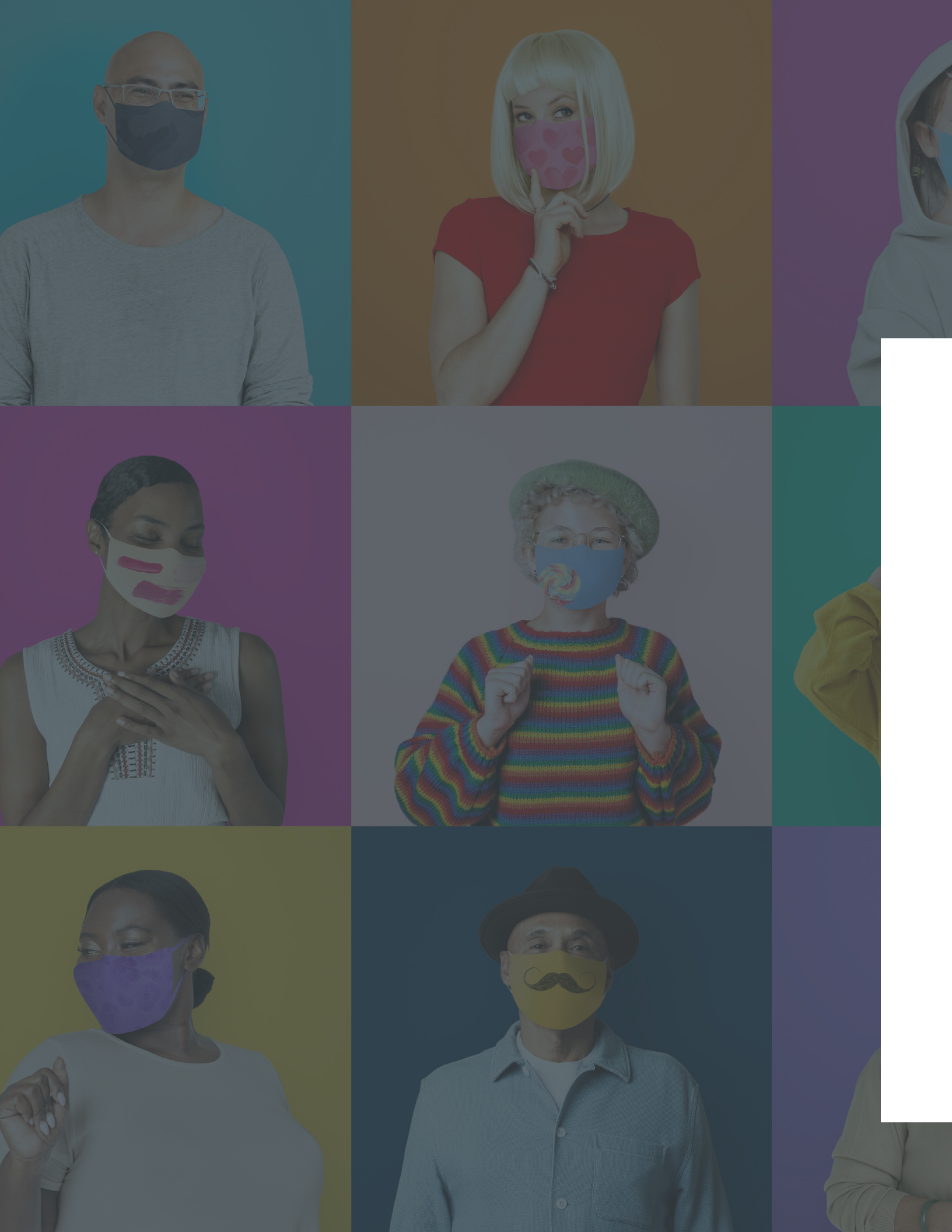


# EXECUTIVE SUMMARY

Life as we all knew it was changed when COVID-19 took the world by storm in late 2019. Due to the highly contagious nature of this novel virus, it didn't take long for it to be determined a pandemic. Scientists, doctors, nurses, first responders, hospitals and care facilities, pharmacies, supplies and logistics companies, public officials, schools, businesses, and the public at large had entered a new arena — with no playbook.

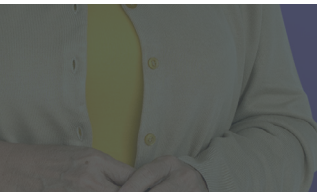
The COVID-19 vaccine, created and authorized for emergency use, needed to not only prove to be effective and safe but also needed to be perceived by society as safe, effective, and the best path to preventing the spread of severe disease, illness, and death.

Many countries, and even individual states within the U.S., handled the quickly moving and evolving virus differently. Nevada's approach was focused on safety and speed. Guided by Governor Sisolak and Centers for Disease Control and Prevention (CDC) recommendations, the Nevada State Immunization Program (NSIP) took the lead in vaccine response, confronting the pandemic head on with support from many incredible public and private partners and addressing the unprecedented challenge from multiple angles.

Yet, even as Nevada grappled with the COVID-19 pandemic, the NSIP and all types of healthcare organizations and providers around the state were also challenged to preserve the health of Nevadans by maintaining regular child and adult immunization programs. This report goes into depth about the who, what, where, when, why, and how of COVID-19 vaccines in Nevada and the U.S., as well as the status of other vaccination efforts affected by the pandemic. The goal with this report is to lay out in detail the impact of the COVID-19 pandemic on vaccinations, and to be able to apply the lessons and successes of Nevada's COVID-19 response to any future public health crisis.

**DATA AND EQUITY STATEMENT**

Demographic language may differ throughout this report depending on the sources from which data were retrieved. Some data sources may use conflicting language. To report the data accurately, variables such as race, ethnicity and sex are described in this report as they were in the source data. Every effort has been made to be inclusive and equitable across every demographic to provide a fair and accurate representation of the people of Nevada.



# NEVADA STATE OVERVIEW

## Demographics and Geography

### Nevada Population Overview

*This section aims to provide a comprehensive overview of the demographics and geography of Nevada to contextualize the findings and discussion of this immunization report.*

To understand the vaccine landscape in Nevada, it is crucial to understand the state overall to help illustrate planning considerations based on focus populations and geographical isolation. The following sections contain data estimates and projections for the Nevada population in 2020 and 2021, which come from the State Demographer and the Nevada Department of Taxation. As of the creation of this report, 2021 demographic numbers are projections of the population. Additional data used in this section (i.e., for socioeconomic considerations) was collected from the U.S. Census Bureau, American Community Survey (ACS) 1-Year Estimates, and the Nevada Department of Education.[1]

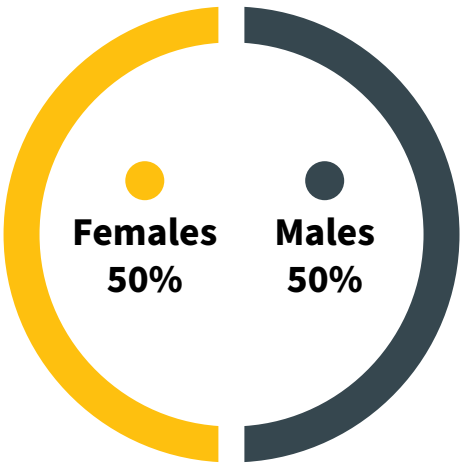
### 2020 Nevada Population by Demographics

Nevada has a rich and diverse culture, with unique communities, populations, and geography.

**Figure 1** shows the breakdown of females and males in Nevada in 2020, with an even distribution of 50% for both.

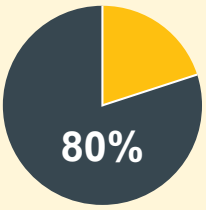
**Figure 1. 2020 Nevada Population by Sex**

(Source: 2020 Nevada Demographer Data)





It is the seventh largest state by landmass[2] in the United States.




Approximately 80% of Nevada's land is federally owned[3], which creates unique opportunities and challenges for the state when considering vaccine distribution.

**3,145,185**

In 2020, Nevada's population was 3,145,185 people.

## 2020 Nevada Population by Demographics

Over half of Nevada's population was under the age of 40.

**Figure 2** depicts the breakdown of Nevada's population by age in 2020, in five-year intervals.

**7.3%**

**The largest percentage of the population was made up of individuals ages 25-29.**

highlighted in yellow

**1.4%**

**The smallest percentage of the population was made up of individuals ages 85 and older.**

highlighted in grey

While older adults were considered the most at risk of severe illness from COVID-19, this poses a challenge in encouraging vaccination among the bulk of Nevadans who might not perceive the disease as a serious threat.

**Figure 3** further details each age cohort by describing the percentage of females and males that comprised each five-year age cohort.

**There was an even distribution between females and males, with females making up higher percentages of age cohorts 65 to 69 years and up.**

**Figure 2. 2020 Nevada Population by Age Cohorts**

(Source: 2020 Nevada Demographer Data)

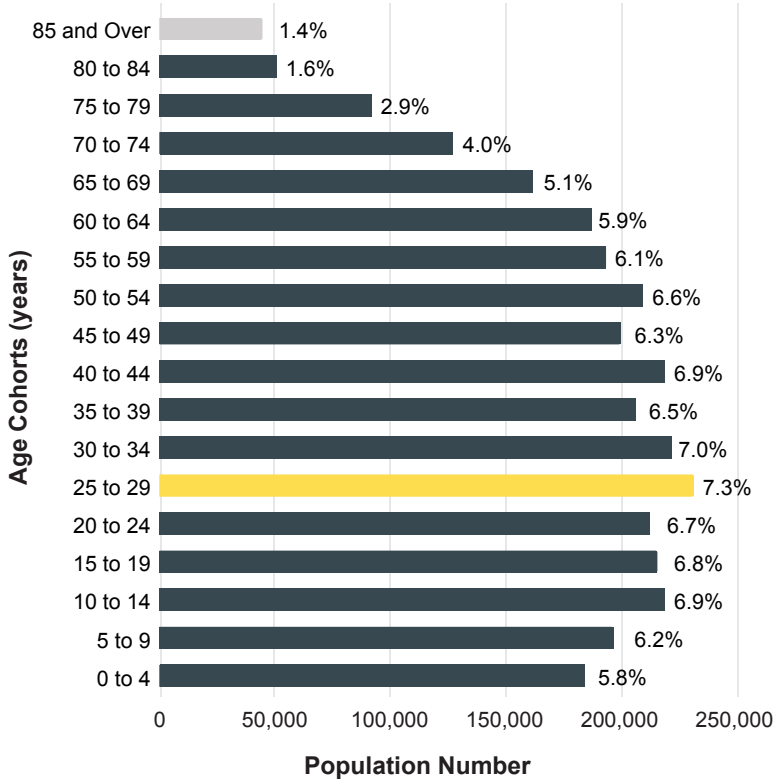



**Figure 3. 2020 Nevada Population by Age and Sex**

(Source: 2020 Nevada Demographer Data)

## 2020 Nevada Population by Demographics

**Figure 4. 2020 Nevada Population by Race, Ethnicity and Sex**

(Source: 2020 Nevada Demographer Data)

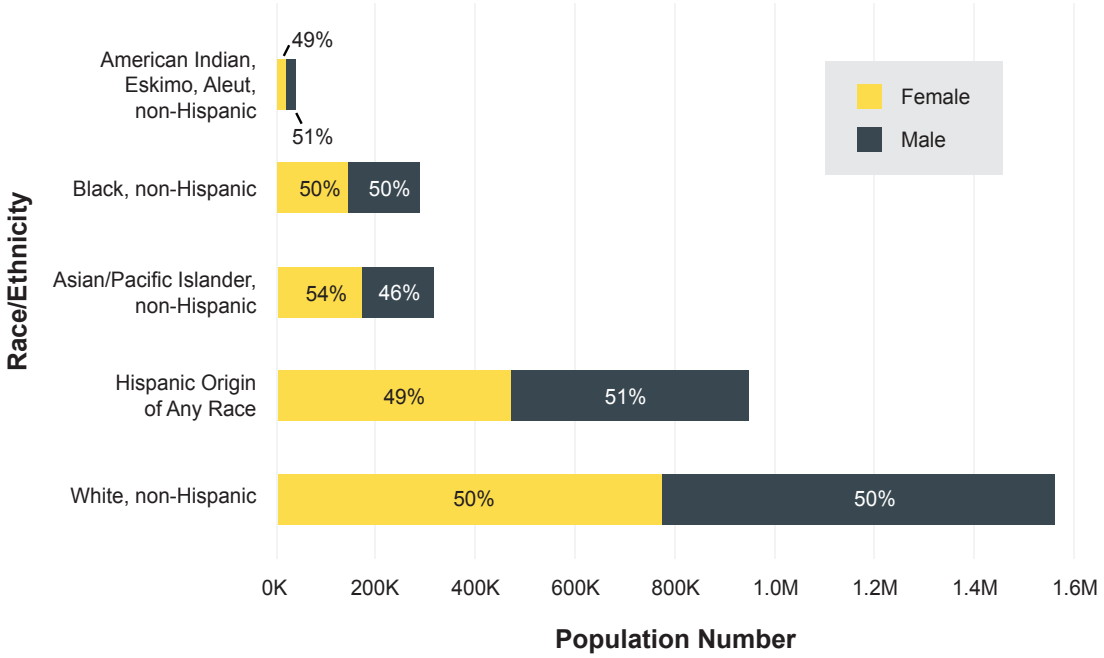



**Figure 4** illustrates racial and ethnic groups by sex in 2020.

**1.1%**

American Indians made up the smallest racial and ethnic category in the state (1.1%).

**49.7%**

The White (non-Hispanic) population made up the largest category (49.7%).

There were relatively even distributions of females and males within each racial and ethnic group, except for Asian/Pacific Islanders (non-Hispanic) where males comprised 46% of the group, and females comprised 54% of the group.

**LATER IN THE REPORT**

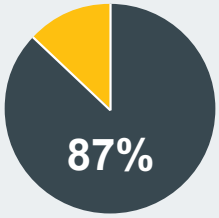
We will discuss how race and ethnicity played a role in identifying populations for outreach during the COVID-19 vaccine response.

# 2020 Nevada Population by Geography

The state is comprised of 16 counties and one consolidated municipality (Carson City) that are categorized as urban, rural, and frontier. Frontier areas differ from rural areas due to their geographical isolation from population centers and services.[4]

These counties were of focus when the COVID-19 vaccine first arrived in Nevada, as initial doses of the vaccine had considerable storage and handling requirements and could not be directly shipped to these areas.

Understanding the layout, population, and specific needs in these areas was crucial for planning re-distribution from urban counties.




**The rural and frontier population spreads over 95,431 square miles, or around 87% of the state's land mass.**[5]

**Figure 5** shows the breakdown of the percentage of Nevadans living in urban areas (90.6%) versus rural and frontier areas (9.4%). **Figure 6** and **Table 1** include the 2020 population in Nevada by county, with the respective percentage of the population each county represents. Nearly three-quarters (73.7%) of the state resided in Clark County.

**Figure 5.**
**2020 Nevada Population by Geography**
(Source: 2020 Nevada Demographer Data)

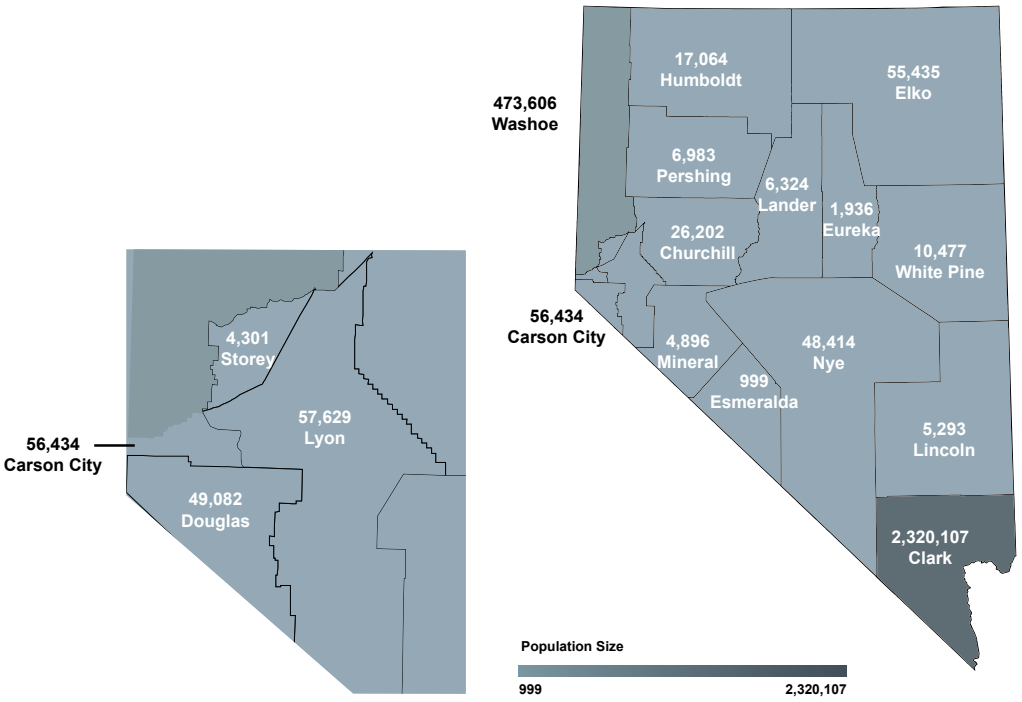

**Table 1. 2020 Nevada Population by County**
(Source: 2020 Nevada Demographer Data)

| County/ Region | Population | Percentage | Designation |
|---|---|---|---|
| Carson City | 56,434 | 1.8% | Urban |
| Churchill | 26,202 | <1.0% | Frontier |
| Clark | 2,320,107 | 73.8% | Urban |
| Douglas | 49,082 | 1.6% | Rural |
| Elko | 55,435 | 1.8% | Frontier |
| Esmeralda | 999 | <1.0% | Frontier |
| Eureka | 1,936 | <1.0% | Frontier |
| Humboldt | 17,064 | <1.0% | Frontier |
| Lander | 6,324 | <1.0% | Frontier |
| Lincoln | 5,293 | <1.0% | Frontier |
| Lyon | 57,629 | 1.8% | Rural |
| Mineral | 4,896 | <1.0% | Frontier |
| Nye | 48,414 | 1.5% | Frontier |
| Pershing | 6,983 | <1.0% | Frontier |
| Storey | 4,304 | <1.0% | Rural |
| Washoe | 473,606 | 15.1% | Urban |
| White Pine | 10,477 | <1.0% | Frontier |

# 2020 Nevada Population by Geography

**Figure 6. 2020 Nevada Population Map**

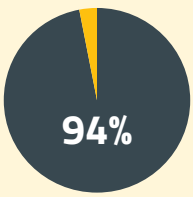
(Source: 2020 Nevada Demographer Data)




**Public health services in Nevada are offered primarily through local health authorities (LHAs).**

## THERE ARE THREE LHAS IN THE STATE:

1. **Carson City Health and Human Services**
   *Serves the Quad-County region comprised of Carson City, Douglas County, Lyon County, and Storey County*
2. **Southern Nevada Health District**
   *Serves Clark County*
3. **Washoe County Health District**
   *Serves Washoe County*




**These LHAs serve approximately 94% of the state's population.**

The remaining counties are rural or frontier counties and are served by the Nevada Department of Health and Human Services. Coordination between DHHS, the LHAs, OPHIE, and the Governor's Office on COVID-19 vaccine response was essential to ensure a unified response statewide.

# Socioeconomic Considerations

## Nevada has unique socioeconomic characteristics compared to the U.S. that are important for understanding and meeting the needs of the population.

**Figures 7-11** show a range of different socioeconomic factors where Nevada and the U.S. differ. **All these factors have the potential to influence immunization rates and vaccine distribution.[6]**

Unvaccinated children are more likely to live below the poverty level[7] and states in the U.S. found large disparities in COVID-19 vaccination when examining poverty levels.[8]

**Figure 7** shows a comparison of the percentage of people living in poverty in Nevada versus the U.S. Nevada had a slightly higher percentage of its residents living in poverty (12.5%), as defined by federal guidelines, than the U.S. (11.4%).

**Figure 7. Persons Living in Poverty in Nevada and U.S., 2019**

(Source: 2021 United States Census Bureau Quick Facts)

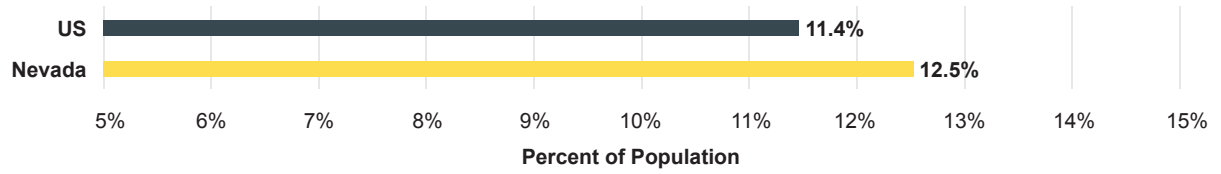



**Figure 8** shows the percentage of foreign-born persons (born outside of the U.S.) in Nevada versus the U.S. There was a higher percentage of people who were born outside of the U.S. living in Nevada (19.4%) than in the U.S. (13.6%). Foreign born persons are considered at higher risk of under-vaccination and exposure to several vaccine-preventable diseases pre-migration or during return trips to their birth country.[9]

**Figure 8. Foreign-born Persons in Nevada and U.S., 2019**

(Source: 2021 United States Census Bureau Quick Facts)

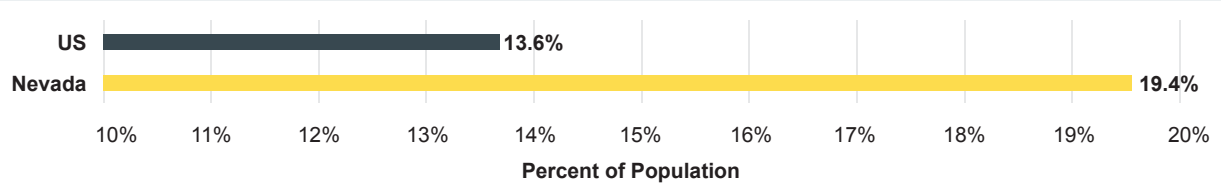
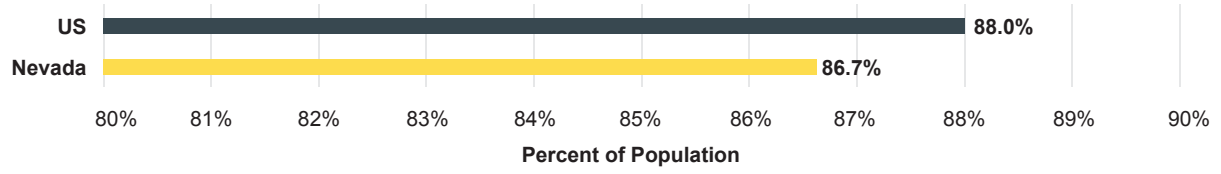



**Figure 9** shows the percentage of people 25 years or older who had graduated high school in Nevada (86.7%) versus the U.S. (88.0%), with Nevada trailing by a little more than a percentage point. U.S. adults with less formal education were more likely to report vaccine hesitancy.[6]

**Figure 9. Percent of High School Graduates or Higher (Age 25+) in Nevada and the U.S., 2015-2019**

(Source: 2021 United States Census Bureau Quick Facts)



## IMPACT OF COVID-19

Each county in Nevada had its own school district which was responsible for educating all school-age children. Enrollment numbers in the state were largely driven by the urban counties of Clark and Washoe, as well as the state's charter schools, which were grouped under the State Public Charter School Authority (SPCSA). Enrollment decline could potentially have led to a decrease in vaccination rates, as schools in Nevada required students to be up to date on vaccines that protect against vaccine-preventable diseases (VPDs).

**492,638**

For the 2018-19 school year (SY1819), 492,638 K-12 students were enrolled in the 752 schools across the state.[10]

**496,938**

The 2019-20 school year (SY1920) saw a slight increase in enrollment and facilities with 496,938 total students across the 764 schools.[10]

**481,435**

Student enrollment numbers declined for the 2020-21 school year (SY2021) with 481,435 students enrolled in 752 schools.[10]

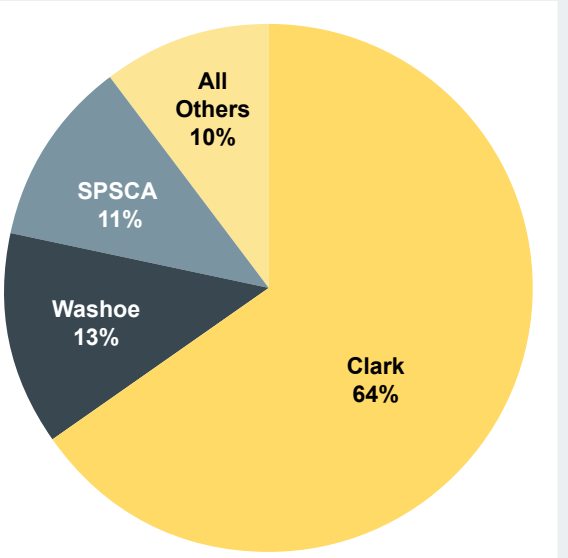
**Table 2. Graduation Rates for SY1718-SY2021, by County/School District**

(Source: Nevada Department of Education Report Card)

| County | SY17-18 (%) | SY18-19 (%) | SY19-20 (%) | SY20-21 (%) | Rate Change SY19-20 |
|---|---|---|---|---|---|
| State | 83.2 | 84.1 | 82.6 | 81.3 | ▼ -1.60% |
| Carson City | 86 | 86.8 | 84 | 85.7 | ▲ 2.00% |
| Churchill | 76 | 72.9 | 76.9 | 79.9 | ▲ 3.90% |
| Clark | 85.2 | 85.8 | 83.2 | 80.9 | ▼ -2.80% |
| Douglas | 88.8 | 91.3 | 88.9 | 84.5 | ▼ -4.90% |
| Elko | 91.8 | 83.8 | 82.5 | 79.7 | ▼ -3.40% |
| Esmeralda | N/A | N/A | N/A | N/A | N/A |
| Eureka | >95 | 93.3 | 90.9 | 73.3 | ▼ -19.40% |
| Humboldt | 90.6 | 86.1 | 91.3 | 94.2 | ▲ 3.20% |
| Lander | 86.8 | 78.4 | 82 | 66.7 | ▼ -18.70% |
| Lincoln | 89.4 | 87.8 | 94 | >95 | >1% |
| Lyon | 84.8 | 86.5 | 86.6 | 88 | ▲ 1.60% |
| Mineral | 89.3 | 85 | 91.7 | 88.9 | ▼ -3.10% |
| Nye | 80 | 80 | 77.3 | 83.1 | ▲ 7.50% |
| Pershing | >95 | 94.5 | 94.9 | 94.1 | ▼ -0.80% |
| SPCSA | 70 | 77.8 | 84.1 | 86.9 | ▲ 3.30% |
| Storey | 94.1 | 83.9 | 85 | >95 | >10% |
| Washoe | 84.4 | 86 | 85.1 | 82.5 | ▼ -3.10% |
| White Pine | 66.9 | 66.9 | 82.9 | 83.8 | ▲ 1.10% |

**Figure 10. Enrollment Rates for SY2021 by District**

(Source: Data Interaction for Nevada Accountability Portal)

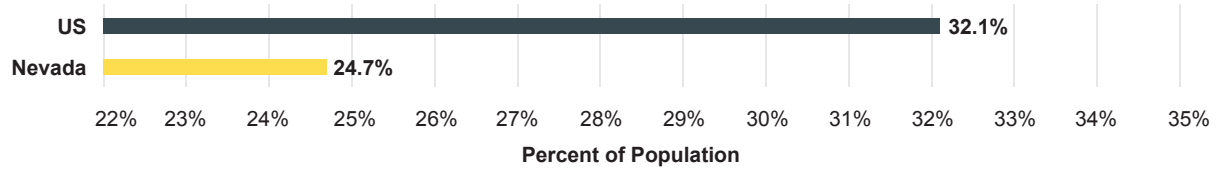


## Socioeconomic Considerations

**Figure 11** shows the percentage of people 25 years or older who had a bachelor's degree or higher in Nevada (24.7%) versus the U.S. (32.1%). Nevada had a lower percentage of the population that had completed college than the U.S. on average.

**Figure 11. Persons with a Bachelor's Degree or Higher (Age 25+) in Nevada and U.S., 2015-2019**

(Source: 2021 United States Census Bureau Quick Facts)




### IMPACT OF COVID-19

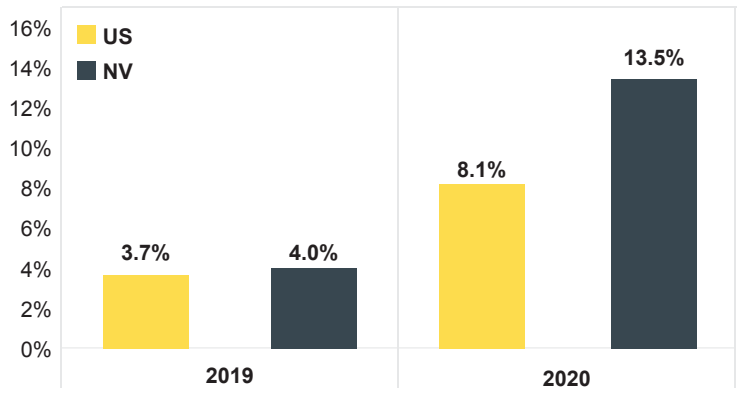
As businesses closed in Nevada and throughout the country, certain industries were able to move their workforces to a remote model. This gave adults holding a bachelor's degree an economic and health advantage over those who did not attend college.

In fact, 60% of adults holding a bachelor's degree worked in jobs that could be done remotely.[11,12]

**Figure 12** shows the variation in the employment rate between the U.S. and Nevada from 2019-2020, with a significant difference between Nevada and the U.S. in 2020.

**Figure 12. Nevada and U.S. Unemployment Rates, 2019-2020**

(Source: Bureau of Labor Statistics (BLS), Local Area Unemployment Statistics (LAUS))



## IMPACT OF COVID-19

The COVID-19 pandemic impacted the labor workforce in Nevada greater than any other state during the height of the pandemic[13], due to the economy being heavily dependent on tourism.

In March 2020, non-essential businesses were ordered to close, and people were directed to stay inside their residences as much as possible. The closure of casinos and hotels in Nevada, which were deemed nonessential businesses, resulted in large-scale layoffs and furloughs of employees causing unemployment rates to increase statewide, with a particular impact in Clark County.

As a primary industry in Nevada, hospitality, and tourism account for nearly 26% of Nevada's employment workforce and generates more than $18 billion in wages.[14] The U.S. Bureau of Labor Statistics (BLS) reported casinos and hotels had the greatest employment loss among private industries between 2019-2020.[13]

**4.0%** | **In 2019, Nevada ranked 37th —among 50 states and the District of Columbia—with an unemployment rate of 4.0%.**[15]

**13.5%** | **In 2020, Nevada plummeted to 51st with an unemployment rate of 13.5% while the national rate jumped from 3.7% the prior year to 8.1%.**[13]

**Table 3** also shows the rate change breakdown by county, highlighting those counties that saw the greatest rate change between 2019 and 2020.

**Table 3. Unemployment Rates by County, 2019-2020**

(Source: BLS, LAUS)

| County | 2019 | 2020 | Rate Change |
|---|---|---|---|
| Carson City | 3.9% | 8.2% | 2.1 |
| Churchill | 3.5% | 5.6% | 1.6 |
| Clark | 4.1% | 14.7% | 3.3 |
| Douglas | 3.9% | 8.6% | 2.2 |
| Elko | 3.0% | 5.7% | 1.9 |
| Esmeralda | 3.9% | 5.2% | 1.3 |
| Eureka | 2.3% | 3.5% | 1.5 |
| Humboldt | 2.9% | 4.9% | 1.7 |
| Lander | 3.2% | 4.8% | 1.5 |
| Lincoln | 4.0% | 5.1% | 1.3 |
| Lyon | 4.8% | 8.5% | 1.8 |
| Mineral | 4.0% | 5.6% | 1.4 |
| Nye | 5.1% | 9.7% | 1.9 |
| Pershing | 4.0% | 4.9% | 1.2 |
| Storey | 3.7% | 8.3% | 2.2 |
| Washoe | 3.2% | 7.8% | 2.4 |
| White Pine | 3.0% | 4.2% | 1.4 |

## IMPACT OF COVID-19

Nevada's overall labor force was impacted by the onset of the pandemic and subsequent shutdowns of nonessential businesses; however, areas in the state that rely heavily on tourism felt the effects more significantly.

More than 90% of Nevadans reside in Clark County, Washoe County, and Carson City. In 2019, Clark and Washoe counties had unemployment rates of 4.1% and 3.2%, respectively.[16,17] In 2020, the unemployment rate in Clark County was 3.6 times higher than the year prior at 14.7%, while the unemployment rate in Washoe County was 2.4 times greater at 7.8%.[16,17]

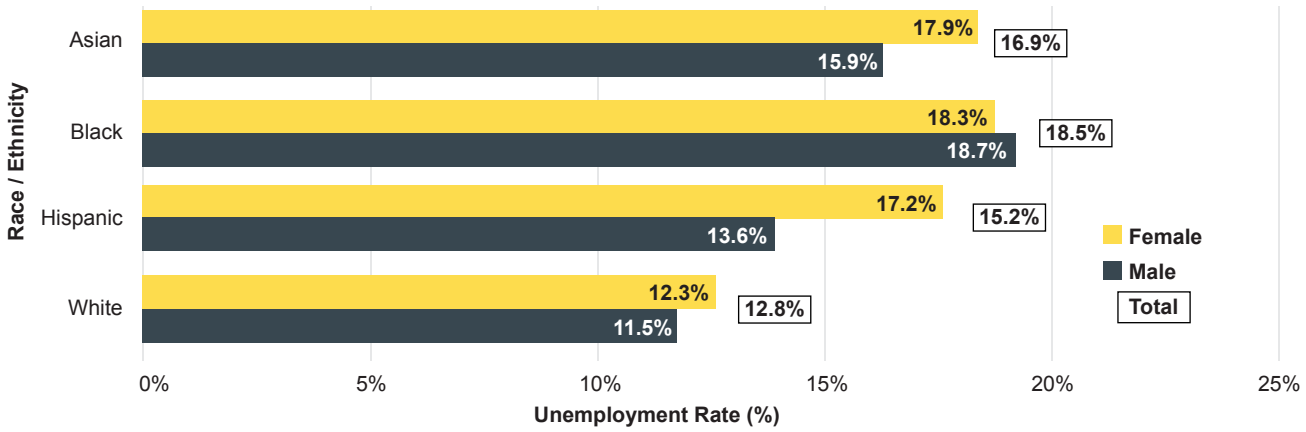
Table 1 and Figures 3 and 4 show the annual shift in the unemployment rate by county from 2019 to 2020.

## Socioeconomic Considerations

**Figure 13** shows the unemployment rate breakdown by race and ethnicity in 2020.

**Figure 13. Average Unemployment Rates in Nevada by Race, Ethnicity and Sex, 2020**

(Source: BLS, LAUS)




## IMPACT OF COVID-19

In September 2020, the Guinn Center released a report that highlighted various ways the COVID-19 pandemic was disproportionately impacting nonwhite communities in Nevada, as inequities that existed prior to the pandemic were further exacerbated by it.[11,12] With awareness of this, these communities became focus populations later in the Nevada COVID-19 vaccine response.

Across the country, Black and Hispanic/Latino communities experienced higher rates of unemployment.

The disparity persists when examining unemployment rates by sex: females in nearly every race category had higher unemployment rates overall than males across most race and ethnicity categories with the exception being among Black males.

**18.7%**

Black males had the highest unemployment rate (18.7%).[16]

**18.3%**

Black females had the highest rate of unemployment (18.3%) over their female peers in other race and ethnicity categories.[16]

**12.3%**

White females had the lowest unemployment rates amongst all females (12.3%)

**13.6%**

Hispanic males had the second lowest unemployment rate (13.6%).[16]

**11.5%**

White males had the lowest unemployment rate overall (11.5%).[16]

# NEVADA STATE OVERVIEW

## Health Profile

*This section aims to provide a high-level overview of health factors in Nevada and its counties to identify needs and priorities for COVID-19 vaccination in Nevada.*

### Nevada Health Overview

The geography and demographics of Nevada create a specific health landscape in which social services rely heavily on data to assess overall health within its populations to ultimately drive policy and decision making. The purpose of this section is to provide a snapshot of health in Nevada and its counties during COVID-19 to supplement identified needs and priorities for immunization in Nevada, while recognizing that a multitude of socio-political, cultural, and systemic factors influenced health behaviors and health outcomes. These key factors were essential for prioritizing populations to receive the COVID-19 vaccine and conducting outreach efforts after vaccines became widely available.

### Healthcare And Insurance Coverage

Healthcare infrastructure and insurance coverage have had a significant impact on vaccination coverage in a population.[18]

According to the Kaiser Family Foundation (KFF), Nevada had a total of 46 hospitals and was ranked No. 38 in the U.S. for the total number of hospitals in 2020.[19] There were three counties in Nevada without hospitals: Esmeralda County, Eureka County, and Storey County,[20] which were served by neighboring counties as needed.

Administering routine vaccinations is an essential aspect of primary and pediatric care.[21]

**46**

The total number of hospitals Nevada had in 2020. [19]

**38th**

Nevada's ranking in the U.S. for the total number of hospitals.[19]

**3**

The number of counties in Nevada without hospitals.[20]

**Table 4** displays the number of Primary Care Providers (PCPs) in Nevada and the rate of PCPs in Nevada per 100,000 people in 2018. PCPs include family practitioners, internists, nurse practitioners, physician assistants, and obstetricians/gynecologists.

According to the 2021 United Health Foundation (UHF) America Health Ratings, Nevada ranks No. 50 out of 50 states in having access to healthcare providers per 100,000.[22] Provider shortages were monitored and determined as Health Professional Shortage Areas (HPSAs) which indicated a lack of healthcare whether geographic, population-based, or facility-based.

**All 17 counties in Nevada were designated HPSAs due to high ratios of population to provider, a statewide lack of providers who accept Medicaid, and the travel time required to access healthcare.[23]**

You can find where each Nevada county ranked in terms of HPSA scores here. With all of Nevada being a HPSA, the NSIP had to work closely with community-based organizations to ensure COVID-19 vaccine reached the most underserved populations.

**Table 4. Licensed Primary Care Physicians Number and Rate per 100,000 Population, by County, Nevada, 2018**

(Source: 2019 Nevada State Health Needs Assessment)

| County/Region | Number of Primary Care Providers | Rate (per 100,000) |
|---|---|---|
| Carson City | 61 | 109.2 |
| Churchill | 18 | 69.6 |
| Clark | 1,967 | 89.0 |
| Douglas | 29 | 59.2 |
| Elko | 21 | 38.3 |
| Esmeralda | 0 | 0.0 |
| Eureka | 0 | 0.0 |
| Humboldt | 8 | 47.3 |
| Lander | 1 | 16.1 |
| Lincoln | 2 | 40.5 |
| Lyon | 12 | 21.8 |
| Mineral | 1 | 22.4 |
| Nye | 14 | 30.2 |
| Pershing | 3 | 45.2 |
| Storey | 0 | 0.0 |
| Washoe | 529 | 115.3 |
| White Pine | 7 | 68.6 |
| Nevada | 2,673 | 88.7 |

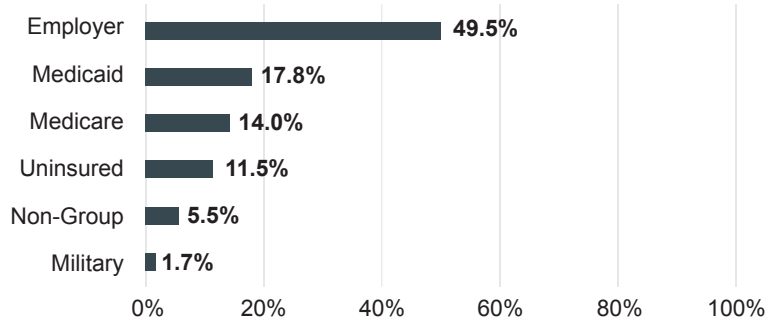
## Healthcare costs have skyrocketed in the past 50 years and health insurance has been estimated to cover approximately 79.2% of the per capita annual expenditures.[19]

**Figure 14** shows the percent of Nevada population by insurance type, with those who had employer-based insurance being the highest population at 49.5%.

Please note this graph does not include the population that were underinsured. Non-group refers to health insurance that is bought individually, such as plans purchased through the Health Insurance Marketplace.

**Figure 14. Percent of Nevada Population by Insurance Type, 2019**

(Source: Kaiser Family Foundation State Health Facts, 2008-2019 American Community Survey (ACS), 1-Year Estimates)



## Healthcare And Insurance Coverage

**Nevada Check Up (NCU) is the State of Nevada's Children's Health Insurance Program (CHIP). NCU provides health benefits through the state Medicaid health plans for eligible children 18 and under, including routine immunizations.[24]**

**Table 5** shows the number of children enrolled in NCU by county in 2021.

Esmeralda and Lincoln counties and Carson City had the highest percent of children 18 and younger enrolled in NCU.

This data highlights an area of opportunity for counties with the greatest need for immunization monitoring among the adolescent and childhood populations.

**Table 6** displays the percent of population enrolled in Medicaid by county.

Nye, Mineral, and Clark counties all have a higher rate of Medicaid enrollment when compared to other Nevada counties.

Medicaid enrollment presented an opportunity to collaborate with the Nevada carriers to incentivize adult immunizations such as influenza and COVID-19.

**Table 5. Children Enrolled in Nevada Check Up by County, 2021**

(Source: Nevada Medicaid FFS/MCO Data Warehouse DDM BV)

| County/Region | % of Population |
|---|---|
| Carson City | 7% |
| Churchill | 4% |
| Clark | 4% |
| Douglas | 4% |
| Elko | 3% |
| Esmeralda | 11% |
| Eureka | 2% |
| Humboldt | 4% |
| Lander | 3% |
| Lincoln | 7% |
| Lyon | 5% |
| Mineral | 5% |
| Nye | 4% |
| Pershing | 4% |
| Storey | 1% |
| Washoe | 5% |
| White Pine | 3% |

**Table 6. Percent of Population Enrolled in Medicaid by County, 2021**

(Source: Nevada Medicaid FFS/MCO Data Warehouse DDM BV)

| County/Region | % of Population |
|---|---|
| Carson City | 27% |
| Churchill | 25% |
| Clark | 31% |
| Douglas | 13% |
| Elko | 21% |
| Esmeralda | 18% |
| Eureka | 19% |
| Humboldt | 25% |
| Lander | 20% |
| Lincoln | 21% |
| Lyon | 25% |
| Mineral | 32% |
| Nye | 36% |
| Pershing | 24% |
| Storey | 5% |
| Washoe | 21% |
| White Pine | 23% |

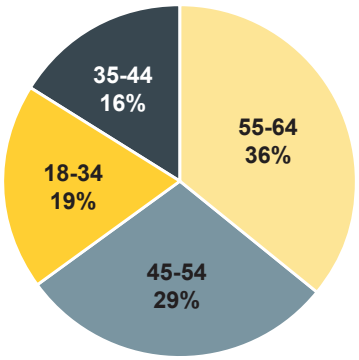
## Health Behaviors And Health Outcomes

Chronic diseases, such as heart disease, diabetes, hypertension, hypercholesterolemia, and obesity, are the leading causes of death in the U.S. Six in 10 adults in the U.S. have a chronic disease, and four in 10 adults have two or more.[25] The key risk factors for most chronic diseases are tobacco use, poor nutrition, lack of physical activity, and excessive alcohol use.[25] It is especially important for patients with chronic health conditions to be up to date on recommended vaccinations, as they are at increased risk for complications from certain vaccine-preventable diseases.[26]

**Figure 15** displays the percent of adults in Nevada who had a pre-existing condition in 2018 by age group.

**Figure 15. Percent of Adults (18-64) with a Pre-Existing Condition in Nevada by Age, 2018**

(Source: Kaiser Family Foundation State Health Facts, 2018 Behavioral Risk Factor Surveillance System)




*May not equal 100% due to rounding

## IMPACT OF COVID-19

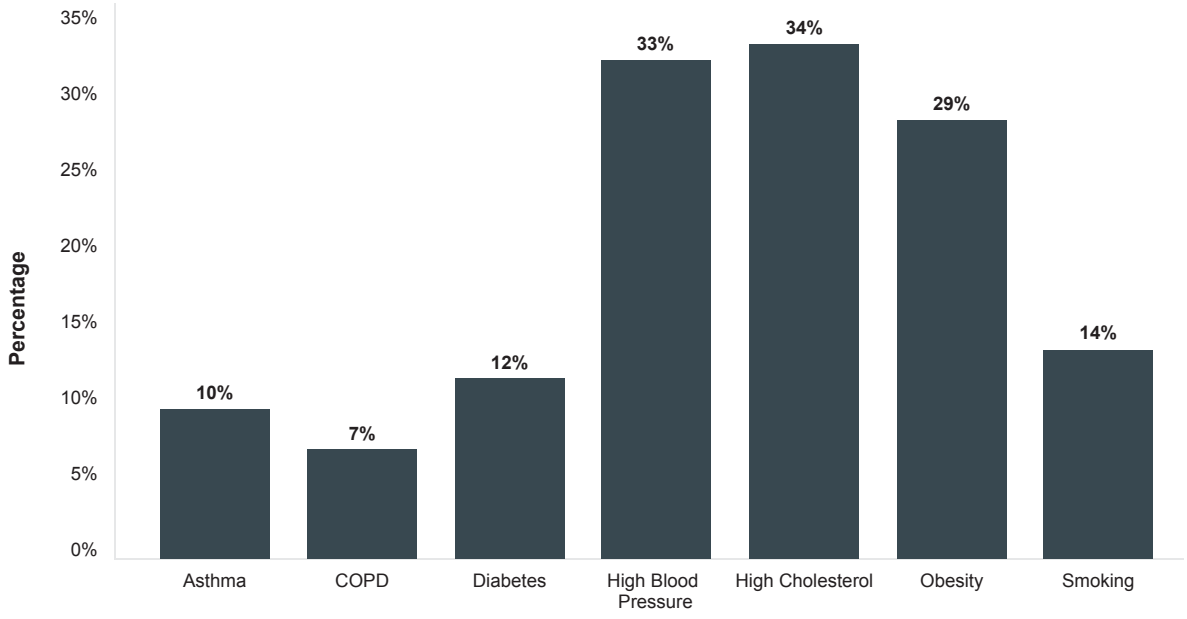
A person with certain chronic diseases is more likely to experience severe illness or die from COVID-19. Staying up to date with COVID-19 vaccines is especially important for these individuals.[27]

In 2020, the average percent of children with pre-existing conditions in Nevada was 19%, while in the U.S the average percent of children with pre-existing conditions was 25%[19].

**Figure 16** shows the percent of adults in Nevada who reported specific chronic conditions, other diseases, or related risk factors in 2019 or 2020.

**Figure 16. Nevada Adults Who Reported Specific Chronic Conditions and Risk Factors, 2019-2020**

(Source: 2019 and 2020 Behavioral Risk Factor Surveillance System)

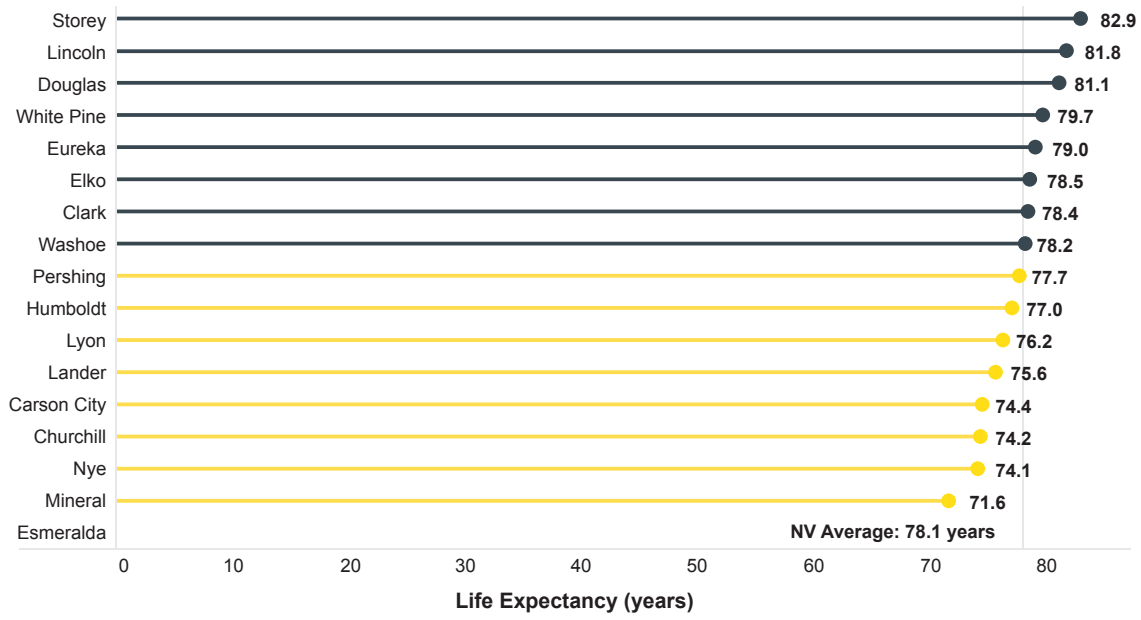


## Health Behaviors And Health Outcomes

**Figure 17** shows the average life expectancy in years for Nevada from 2018-2020, broken down by county.

**Figure 17. Average Life Expectancy in Nevada by County, 2018-2020**

(Source: 2018-2020 County Health Rankings)




This data is from the County Health Rankings. Please note, data from Esmeralda County was not included in the analysis due to suppression criteria guidelines.

### IMPACT OF COVID-19

The COVID-19 pandemic had a huge mortality impact in the U.S. and accounted for most of the overall reduction in 2020 life expectancy at birth.[28]

There were also extensive disparities seen by race and ethnicity and comorbid condition status.[28]

As more Nevada-specific life expectancy data comes out, it will be important to understand the impact of COVID-19 on life expectancy rate for Nevadans.

# Death Outcomes

**The 10 leading causes of death in the U.S. in 2019 included heart disease, cancer, unintentional injuries, chronic lower respiratory diseases, stroke, Alzheimer disease, diabetes, kidney disease, influenza and pneumonia, and suicide.[29]**

**Table 7** displays the top 10 causes of death in Nevada between 2015-2018.

**Table 8** shows the impact of COVID-19 on the Top 10 causes of death in Nevada in 2020.

**Table 7. Top 10 Causes of Death, Rate per 100,000, Nevada, 2015-2018**

(Source: 2019 Nevada State Health Needs Assessment)

| Cause of Death | 2015 | 2016 | 2017 | 2018* |
|---|---|---|---|---|
| Diseases of the heart | 207 | 213.4 | 210.3 | 204 |
| Malignant Neoplasms | 169.9 | 171.5 | 172.1 | 165.4 |
| All other diseases (residual) | 68.8 | 74.2 | 83.5 | 80.4 |
| Chronic lower respiratory disease | 55.3 | 59.5 | 54 | 53.1 |
| Cerebrovascular diseases (stroke) | 36.2 | 36 | 37.2 | 37.8 |
| Non-transport accidents | 32 | 32.8 | 35.9 | 36.5 |
| Alzheimer's disease | 29.9 | 23 | 25.5 | 22.7 |
| Influenza and pneumonia | 21.4 | NL | 20.9 | 16.6 |
| Intentional self-harm (suicide) | 18.8 | 21.2 | 20.4 | 20.5 |
| Chronic liver disease and cirrhosis | 16.2 | NL | NL | NL |
| System missing or undefined | NL | 23 | NL | NL |
| Diabetes mellitus | NL | 19 | 20.1 | 21.6 |

NL = not listed as top cause of death for that year

*2018 data are preliminary and are subject to change

**Table 8. Top 10 Causes of Death, Rate per 100,000, Nevada, 2020**

(Source: CDC National Center for Health Statistics)

| Cause of Death |
|---|
| 1. Disease of the heart |
| 2. Cancer |
| 3. COVID-19 |
| 4. Accidents |
| 5. Chronic lower respiratory diseases |
| 6. Stroke |
| 7. Alzheimer's disease |
| 8. Diabetes |
| 9. Intentional self-harm (suicide) |
| 10. Chronic liver disease and cirrhosis |

## IMPACT OF COVID-19

COVID-19 became the third leading cause of death in Nevada in 2020, illustrating the significant impact the pandemic had on mortality and emphasizing the importance of Nevadans getting vaccinated to protect themselves.[30]

# COVID-19 DISEASE BURDEN IN NEVADA

## Introduction

*This section aims to define COVID-19 and the impact of cases, hospitalizations, and deaths in Nevada, in order to contextualize COVID-19 vaccine response and the impact of the pandemic on routine immunizations.*

COVID-19 is a respiratory disease caused by SARS-CoV-2, a coronavirus discovered in 2019.[31] The virus spreads mainly from person to person through respiratory droplets produced when an infected person coughs, sneezes, or talks. Some people who are infected may not have symptoms. For people who have symptoms, illness can range from mild to severe. Adults 65 years and older as well as people of any age with underlying medical conditions are at higher risk for severe illness. A primary series of COVID-19 vaccines for people six months of age and older is recommended to prevent getting and spreading the illness. Everyone ages five and older can get a booster dose.[31] It is important to point out that information regarding the COVID-19 vaccines is continuously evolving, and the most recent information regarding the vaccine can be found on the CDC's website here.

### Variants

Viruses constantly change through mutation, and sometimes these mutations result in a new variant of a virus.[32] Some variants emerge and disappear while others persist.

**SUMMER 2021**

In the summer of 2021, the Delta variant was responsible for more than 99% of COVID-19 cases and led to increases in hospitalizations throughout the U.S. In response, the Centers for Disease Control and Prevention (CDC) listed the Delta variant on its list of variants of concern (VOC).

**NOVEMBER 2021**

In November 2021, the Omicron variant was classified as a VOC and added to the list.

**APRIL 2022**

In April 2022, Delta was downgraded from a VOC to a variant being monitored (VBM).

**OCTOBER 2022**

As of October 2022, the CDC had only one variant of the virus that was causing COVID-19 on its list of variants of concern: the Omicron variant.

Vaccines remain the best protection against COVID-19 and reduce the likelihood of new variants emerging.[32] To learn more about the classification of variants, visit the CDC's website.

# COVID-19 Data Definitions and Considerations

## Cases And Deaths

A COVID-19 case is defined as confirmed, suspected or probable.[33] A confirmed COVID-19 case must meet confirmatory laboratory criteria defined by the CDC.[33]

A suspected COVID-19 case meets supportive laboratory evidence with no prior history of being a confirmed or probable case.[33]

### A probable COVID-19 case is defined as one of the following:[33]

- Meeting clinical criteria AND epidemiologic linkage with no confirmatory or presumptive laboratory evidence for SARS-CoV-2
- Meeting presumptive laboratory evidence
- Meeting vital records criteria (a death certificate that lists COVID-19 disease or SARS-CoV-2 or an equivalent term as an underlying cause of death or a significant condition contributing to death) with no confirmatory laboratory evidence for SARS-CoV-2

The full definitions of COVID-19 cases can be found on CDC's website.

### Nevada DPBH has established the following definition for a COVID-19 death:[34]

- Decedents with a positive PCR COVID-19 lab report (≤ 30 days from death or post-mortem)
- Decedents with a death certificate that lists a COVID-19-related term as a cause of death in Part I, and has a history of a positive PCR COVID-19 lab report or COVID-19-related terms including names for COVID-19, such as SARS-CoV-2, coronavirus, coronavirus-19, etc.
- Decedents with a pending cause of death that had a positive PCR lab test within 30 days of death AND symptoms indicative of COVID-19 (per investigation or medical report)
- Decedents with a death certificate that does not specifically list a COVID-19-related term that had a positive PCR lab result ≤ 30 days before death and/or died within 30 days of COVID-19 symptom onset AND died in a manner of death deemed to be natural on the death certificate
- Exception: Deaths due to non-natural causes (e.g., accidental, intentional self-harm, homicide) should not be counted as a COVID-19 death even if the deceased had a confirmatory positive lab test within 30 days of death

Throughout the duration of the pandemic, Nevada DHHS has monitored cases, hospitalizations, and deaths related to COVID-19. This information is updated weekly and publicly available on the Nevada Health Response website. For the purposes of this analysis, confirmed and suspected COVID-19 cases and deaths were used.

## Hospitalizations

COVID-19 hospitalization data used the number of patient visits (not number of patients).[35]

If a patient was admitted and discharged for COVID-19 more than once, they were counted in the data more than once.

COVID-19 hospitalizations reflected patient cases with both confirmed and suspected COVID-19 diagnoses.

A confirmed case is one in which the patient record has an ICD-10 diagnosis code B97.29 AND the patient was diagnosed with certain symptoms.

A suspected case is one in which the patient was exposed to the coronavirus (diagnosis code Z20828) AND the patient had symptoms.

**To explore this publicly available data, access the Nevada Compare Care dashboard.**

*Note: County level data presented in this section reflect hospitalizations at a facility within that Nevada county, not the county of residence for the patient. This is due to the absence of hospitals in some counties and the movement of people within and outside the state throughout the pandemic.*

### ABOUT THE DATA

COVID-19 data was analyzed in SAS 9.4 (SAS Institute, Cary NC) and Tableau (2021.4).

COVID-19 case and death data was aggregated and provided by the Office of Analytics within Nevada DPBH. Hospitalization data was provided by the Nevada Hospital Association.

Nevada State Demographer data was used to evaluate the population of Nevadans, with 2020 numbers being official estimates, and 2021 numbers being projections. 2021 estimates have an anticipated release date of October 2022. This analysis compares data from March 2020-December 2021. A 2022 analysis will be completed once the data is available.

## Cases in Nevada

**Understanding the case burden throughout the state is important for vaccine focus to emphasize uptake among communities greatly impacted by the disease and to protect those who have not seen the same case severity.**

The first COVID-19 case in Nevada was documented on March 5, 2020. Cases steadily climbed upwards throughout 2020. After the arrival of vaccines to the state in December 2020, the sum of monthly cases declined. The arrival of the Delta variant in June 2021, and later the Omicron variant in December 2021, resulted in monthly case increases following the onset of each variant wave.

**Table 10** displays the total number of reported COVID-19 cases in Nevada for 2020 and 2021.

**Table 10. Total Number of Reported COVID-19 Cases in Nevada**

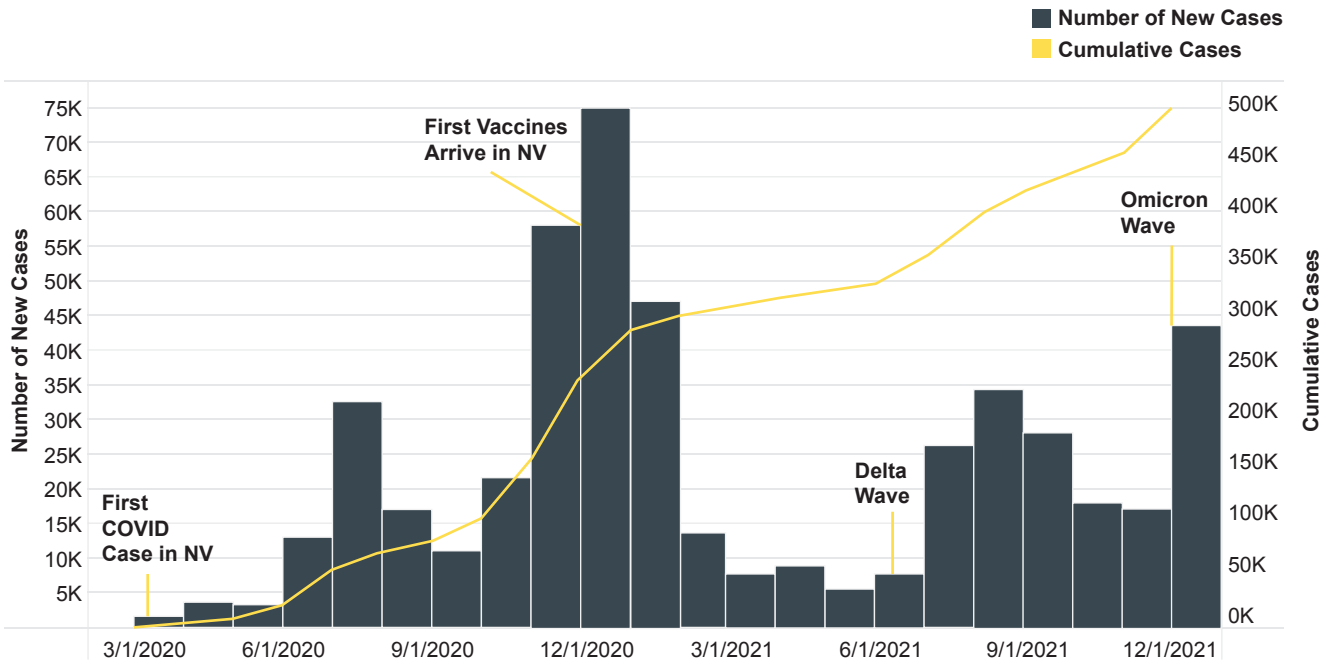
(Source: Nevada Medicaid FFS/MCO Data Warehouse DDM BV)

| Year | Total COVID-19 Cases |
|---|---|
| 2020 | 236,958 |
| 2021 | 258,353 |

**Figure 18** depicts the number of new and cumulative cases in Nevada during 2020 and 2021.

**Figure 18. Monthly New and Cumulative COVID-19 Cases in Nevada, 2020-2021**

(Source: Nevada DPBH, Office of Analytics)



## COVID-19 Cases by Jurisdiction

**Figure 19** illustrates the average number of COVID-19 cases per 100,000 people in Nevada by county in 2020, shown in descending order. Pershing County had the highest average number of cases per 100,000, and along with Carson City, Clark, and Washoe Counties, made up the counties that had a higher case average than the state.

**Figure 19. Average COVID-19 Cases per 100,000 in Nevada by County, 2020**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

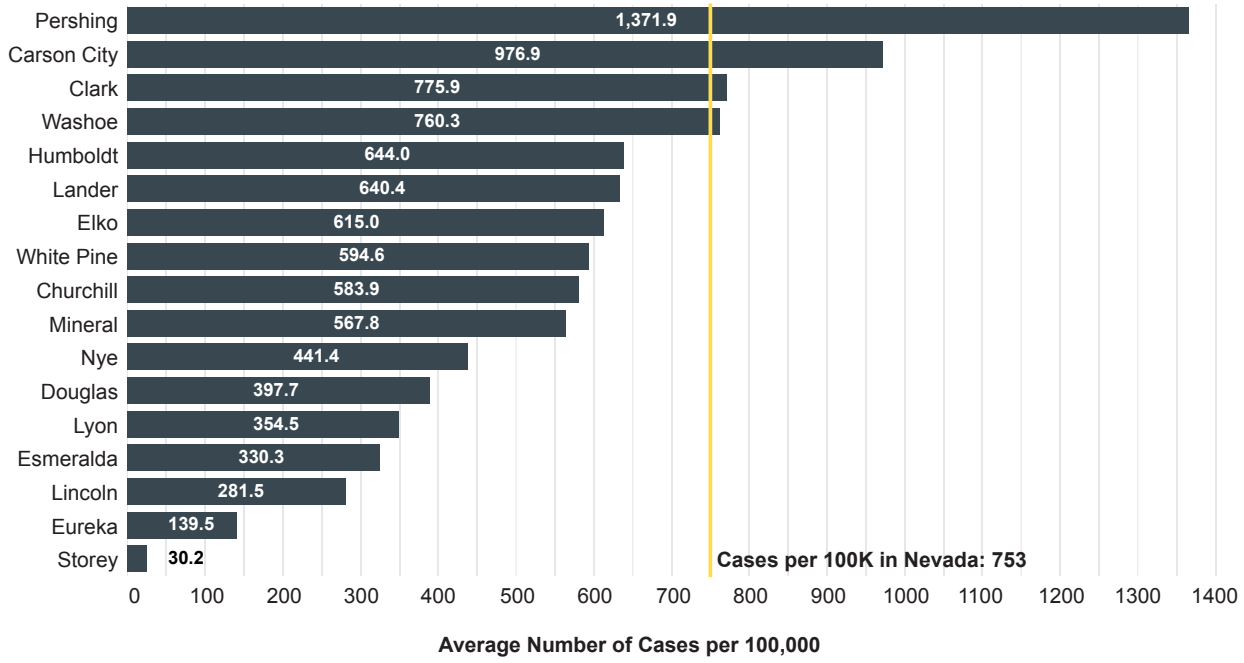



**Figure 20** illustrates the average number of COVID-19 cases per 100,000 people in Nevada by county in 2021, shown in descending order.

In 2021, Mineral, Churchill, and Elko Counties saw cases increase, and joined Carson City and Clark County as the counties with a higher case average than the state.

**Figure 21** illustrates the percent change of average COVID-19 cases per 100,000 people in Nevada by county from 2020-2021.

The counties that experienced decreases in COVID-19 cases per 100,000 were:

Pershing, White Pine, Carson City, Humboldt, Lander, Esmeralda, Washoe, and Clark counties.

The counties that experienced increases in COVID-19 cases per 100,000 were:

Nye, Elko, Douglas, Eureka, Churchill, Mineral, Lincoln, Lyon, and Storey counties.

**Figure 20. Average COVID-19 Cases per 100,000 in Nevada by County, 2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

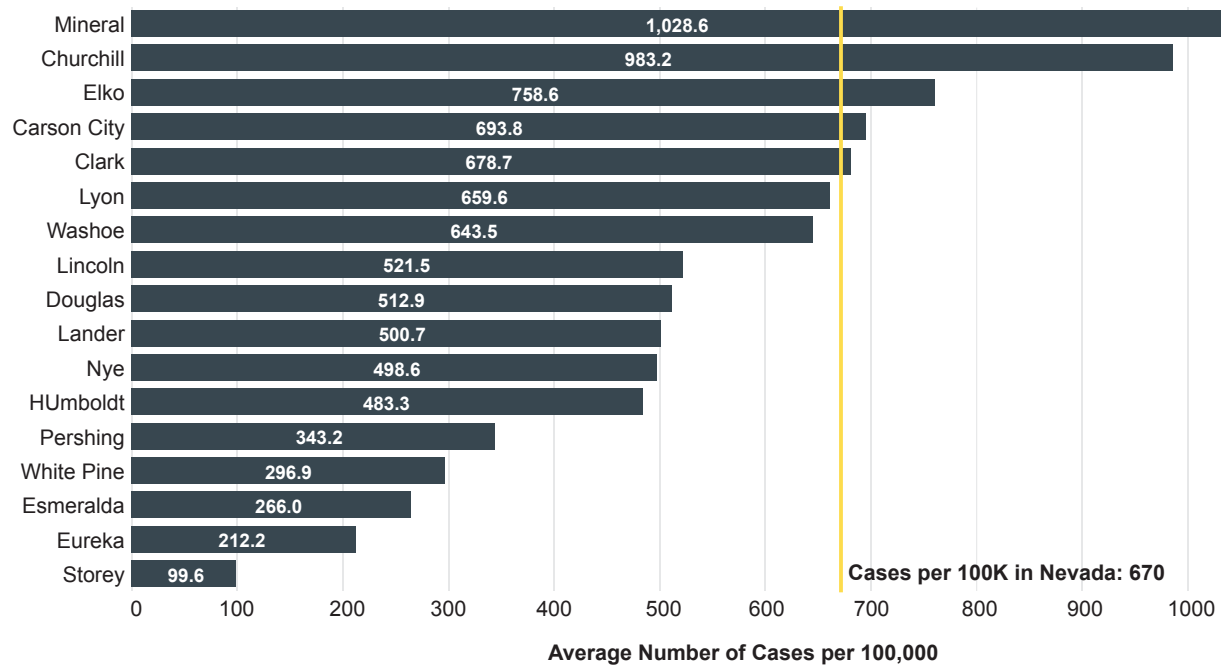
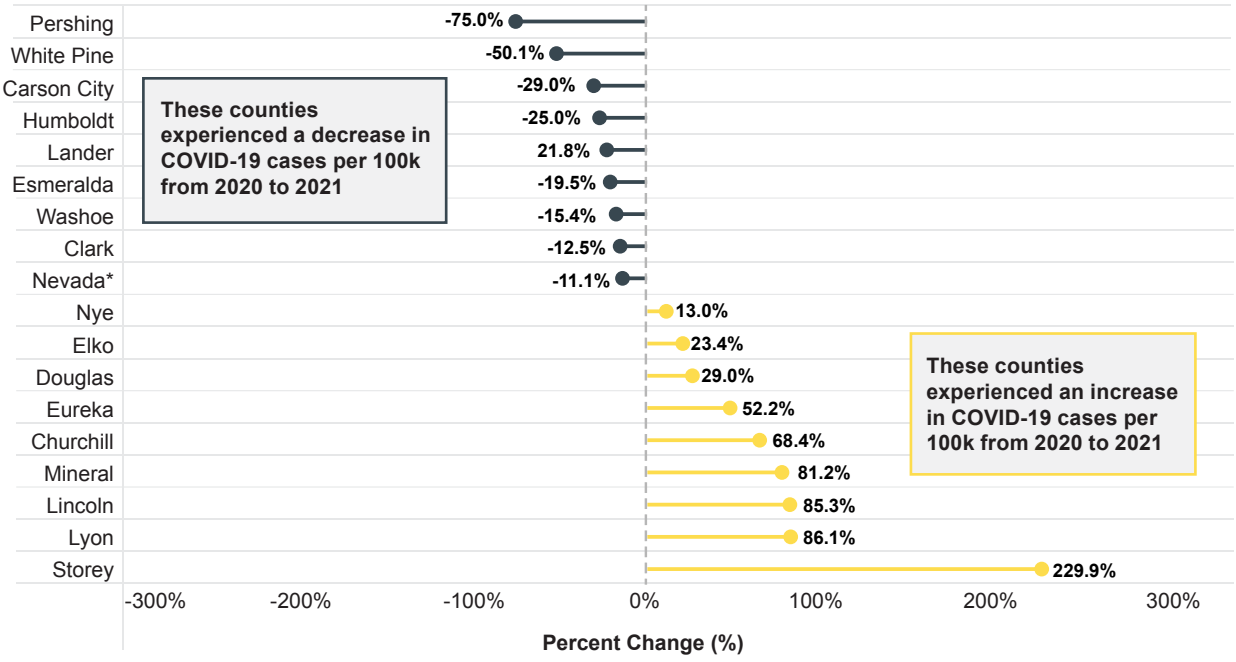



**Figure 21. Percent Change in Average COVID-19 Cases per 100,000 in Nevada by County, 2020-2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

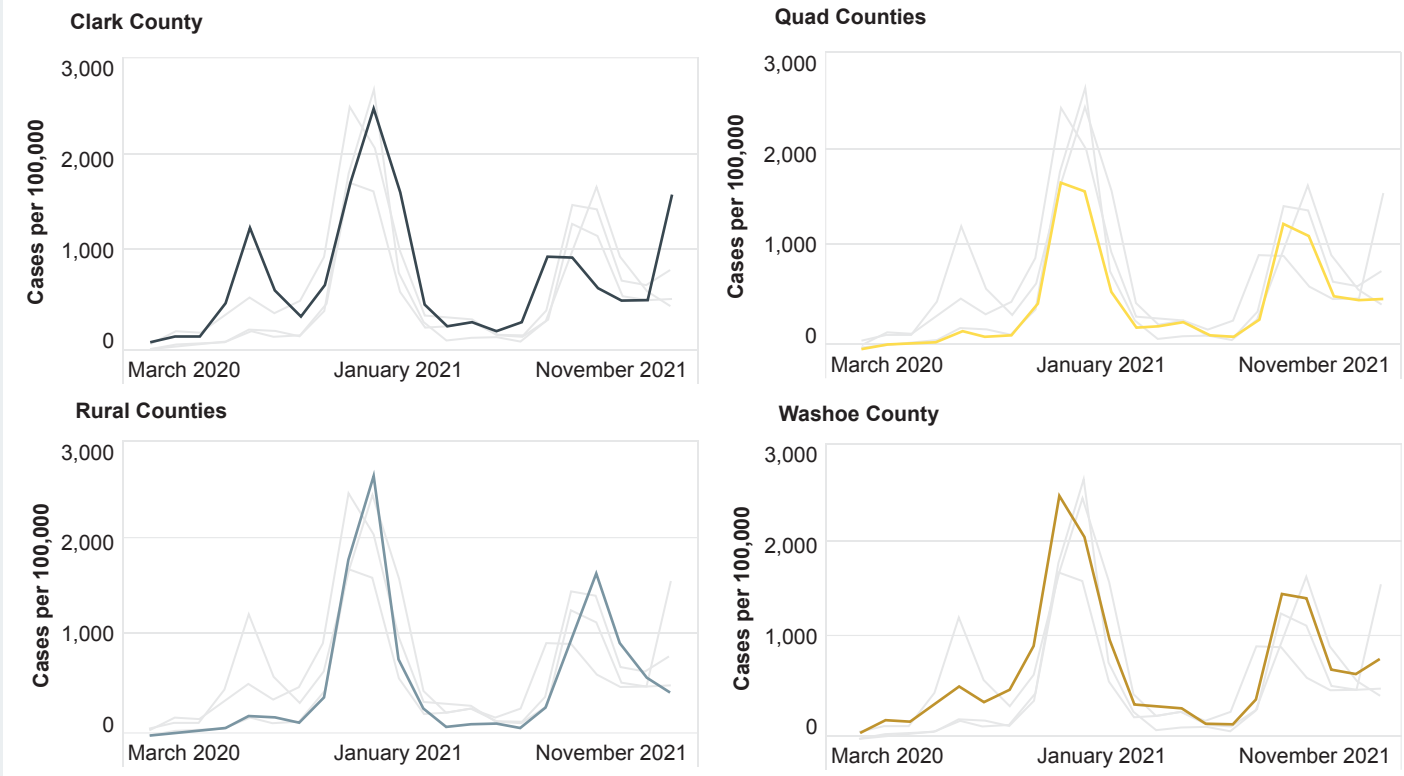


## COVID-19 Cases by Jurisdiction

**The following collection of figures shows the number of cases per 100,000 people by jurisdiction over time and highlights how each region in Nevada was impacted by waves of COVID-19 differently.**

**Figure 22. COVID-19 Cases per 100,000 in Nevada by Jurisdiction, 2020-2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)




This was important for sensitivity and understanding of vaccine uptake, as well as engaging community entities to champion COVID-19 vaccine uptake.

**Clark County experienced spikes in the number of cases per 100,000 people in the summer of 2020 and the winter of 2020-2021.**

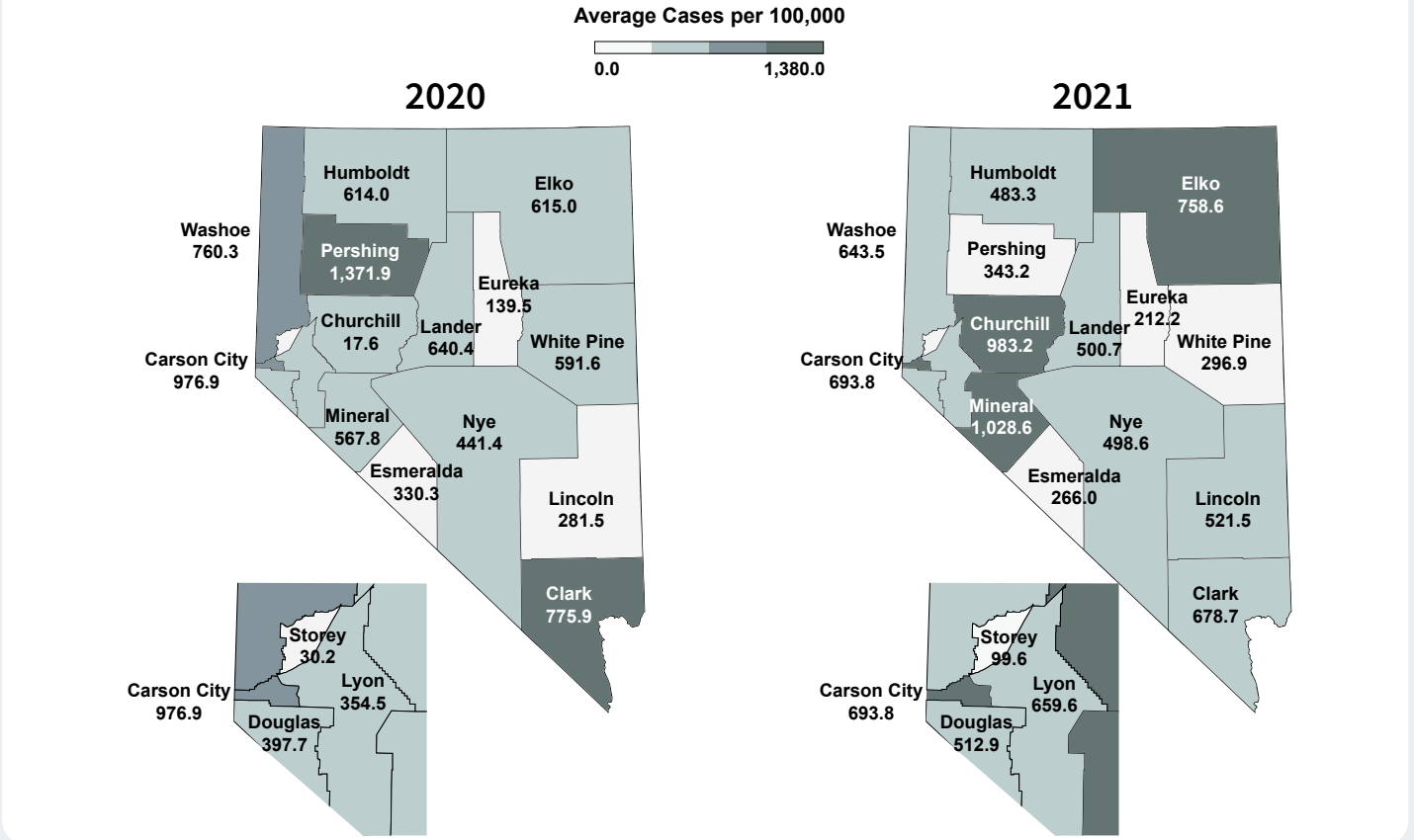
**The Quad-County region of Carson City, Douglas, Lyon, and Storey counties saw smaller waves, both during the winter seasons.**

**The rural counties and Washoe County experienced a large wave during the winter of 2020-2021, and a smaller wave during the winter of 2021.**

**Figure 23** is a map of Nevada depicting the average COVID-19 cases per 100,000 in 2020-2021 for each county. The darker regions indicate a higher case average, while the lighter regions indicate a lower case average. Pershing County experienced a large shift from one year to the next compared to all other counties.

**Figure 23. Average COVID-19 Cases per 100,000 in Nevada by County and Year**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

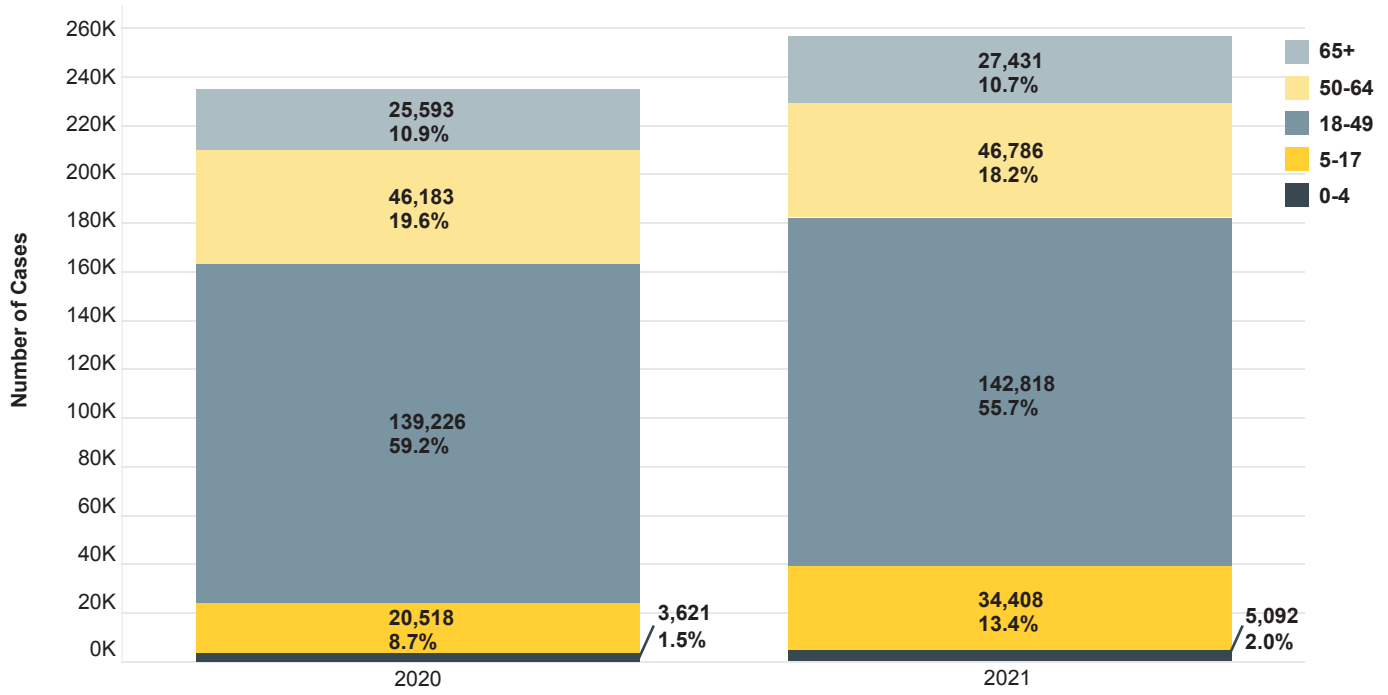


## COVID-19 Cases by Demographics

**Figure 24** depicts the total number of cases among known age groups as well as the percent each age group represented of the annual total for each year.

**Figure 24. Number of COVID-19 Cases in Nevada by Age and Year**

(Source: Nevada DPBH, Office of Analytics)




**18-49 year-olds**

In both 2020 and 2021, 18–49-year-olds had the largest number of cases among all age groups and made up the highest percentage of cases in those respective years: 59.2% in 2020 and 55.7% in 2021. This outcome was expected, as they represented the largest age cohort.

As this population was less likely to experience severe illness from COVID-19, it remains a challenge for Nevada to promote the COVID-19 vaccine among this age cohort.

**5-17 year-olds**

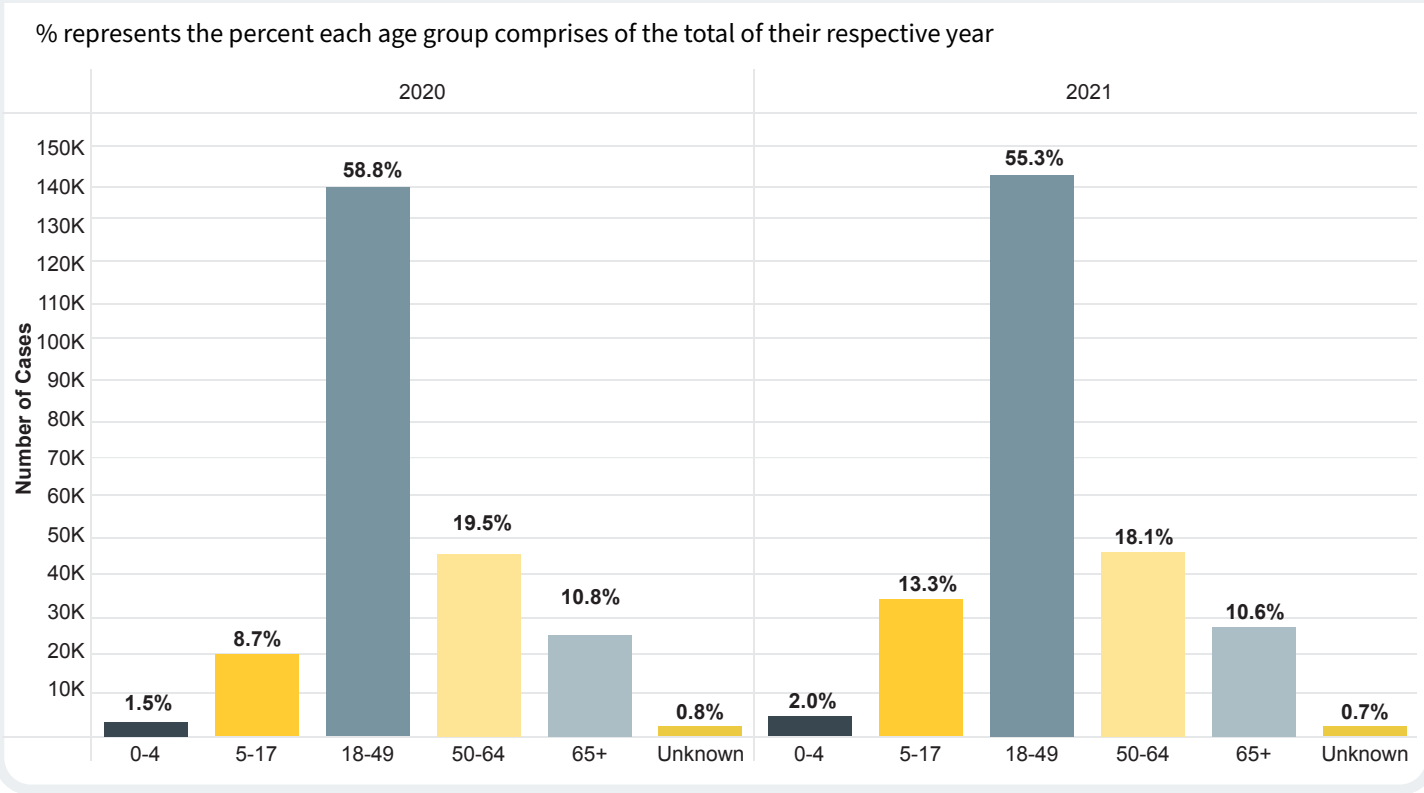
In 2021, cases among 5–17-year-olds increased from the previous year. In 2020, 5–17-year-olds comprised 8.7% of total cases and increased to 13.4% in 2021.

Note that people with unknown age were not included in the analysis for this figure, which is why variation is seen in the age group rates in the subsequent figure (**Figure 30**).

**Figure 25** depicts the total number of cases among known and unknown age groups as well as the percent each group represented of the annual total for each year. People with unknown ages comprised less than 1% of cases in 2020-2021.

**Figure 25. COVID-19 Cases in Nevada by Age and Year**

(Source: Nevada DPBH, Office of Analytics)




## 18-49 year-olds

Again, 18–49-year-olds had the largest number of cases among all age groups in both 2020 and 2021, and they made up the highest percentage of cases in those respective years: 58.2% in 2020 and 55.3% in 2021.

## 5-17 year-olds

In 2021, cases among 5–17-year-olds increased from the previous year. In 2020, 5–17-year-olds comprised 8.7% of total cases and increased to 13.3% in 2021.

The increase in childhood and adolescent COVID-19 cases is of interest, as they were the last population to have access to the COVID-19 vaccine and remain the lowest population to uptake vaccine in Nevada.

# COVID-19 Cases by Demographics

**Figure 26** represents the percent change in cases among known and unknown age groups. There was an increase in cases across all age groups from 2020-2021, with children 0-17 years experiencing the largest percent change increase in cases.

**Figure 26. Percent Change in COVID-19 Cases, 2020 to 2021 in Nevada, by Age**

(Source: Nevada DPBH, Office of Analytics)

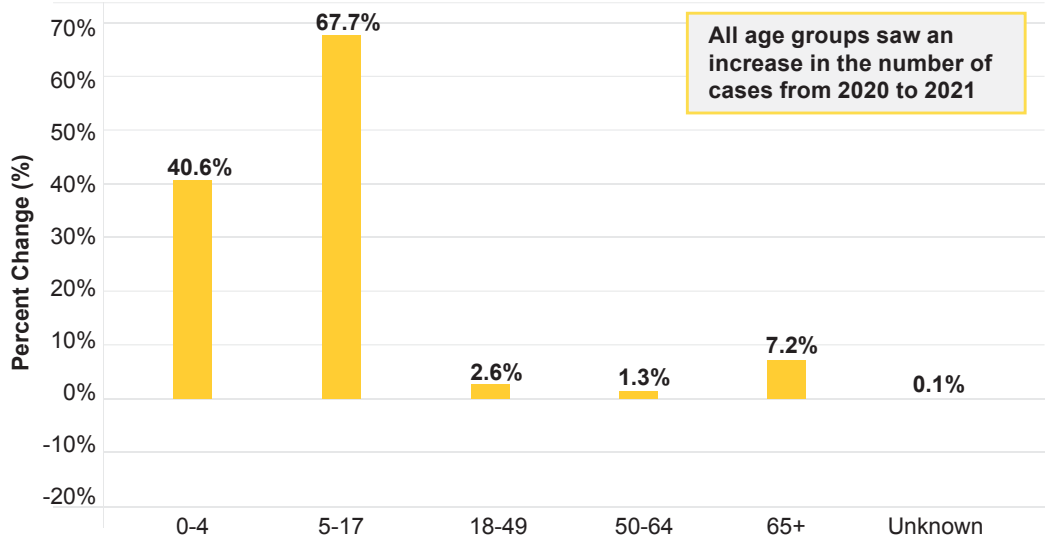



**Figure 27** depicts the percentage of COVID-19 cases each age group represented as compared to the percentage of the population they comprised in 2020. This highlights any age groups that were overrepresented in the share of cases in 2020. Both the 18-49 and 50-64 age categories had a higher burden of cases relative to their portion of the population, making them a population of interest for vaccine outreach.

**Figure 27. COVID-19 Cases by Age Relative to the Nevada Population, 2020**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

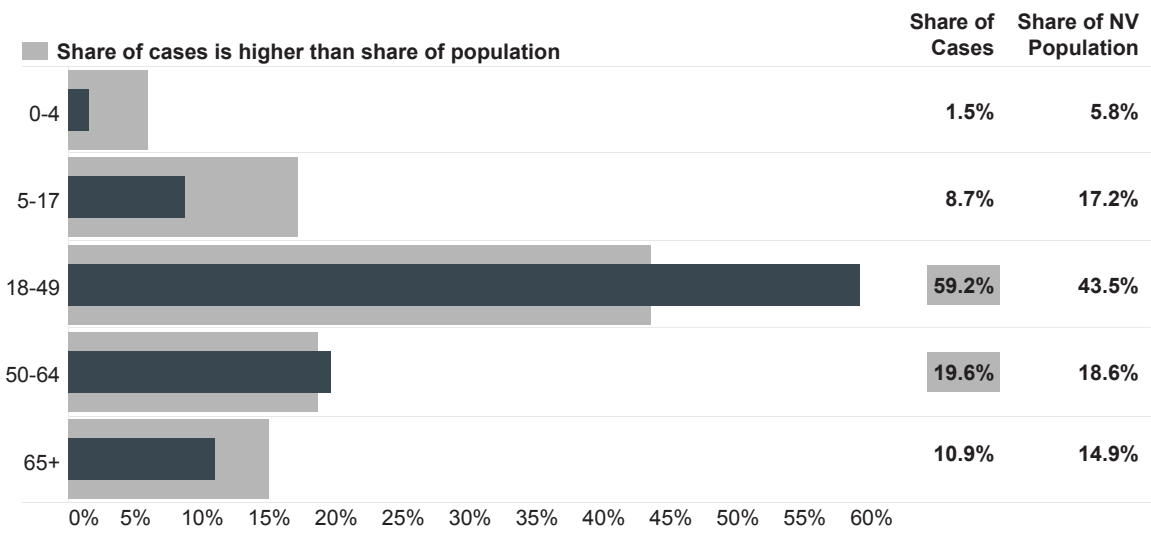
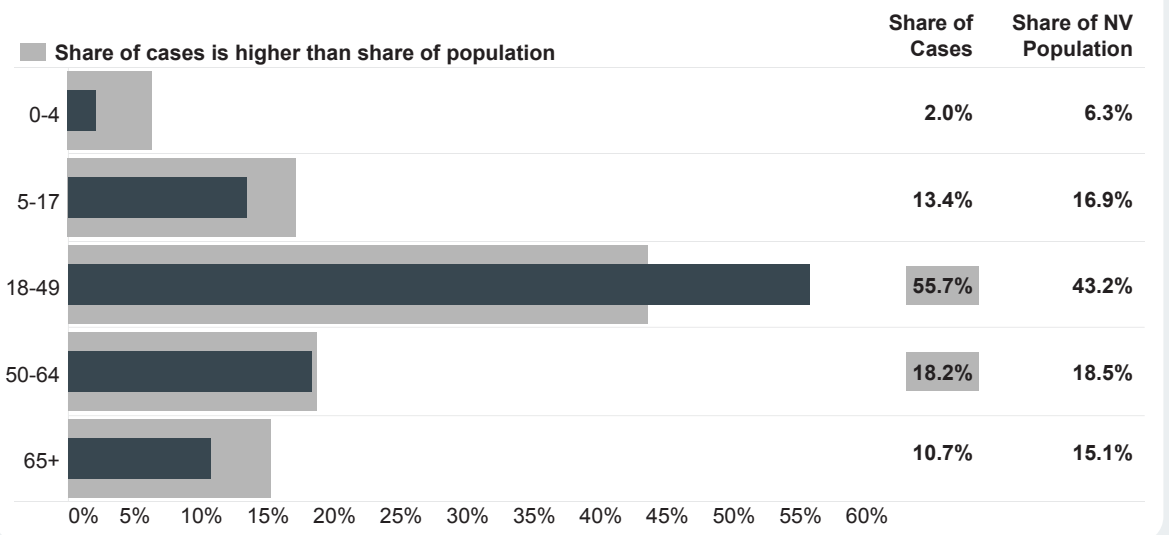


**Figure 28** depicts the share of COVID-19 cases each age group represented out of 100% of the population compared to the share they represented in 2021.

**Figure 28. COVID-19 Cases by Age Relative to the Nevada Population, 2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

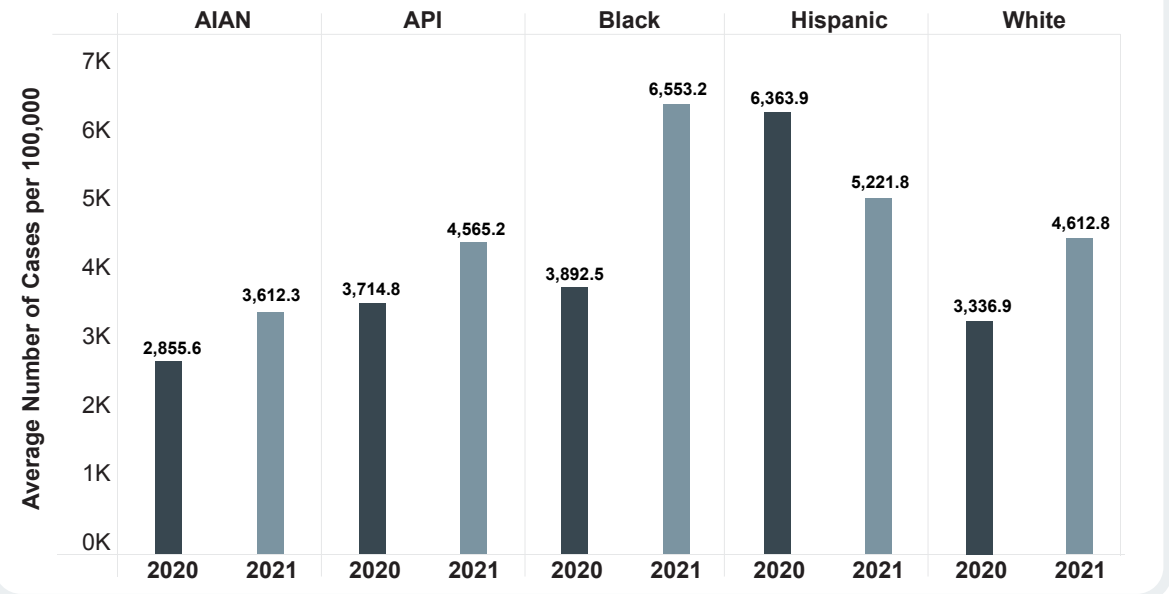



This highlights any age groups that were overrepresented in the share of cases in 2021. 18-49 year olds were the only group that was overrepresented in cases.

**Figure 29** shows the average cases per 100,000 among race and ethnicity for each year. Between 2020-2021, all races and ethnicities saw an increase in the average rate per 100,000 except for Hispanic populations, which saw a decline.

**Figure 29. Average COVID-19 Cases per 100,000 in Nevada by Race and Ethnicity, 2020-2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)



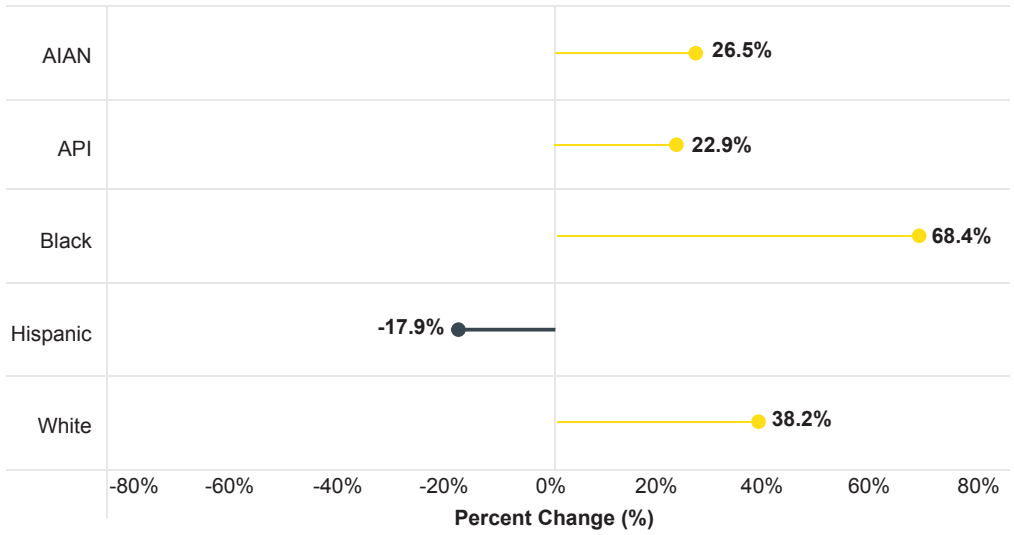

Please note, racial and ethnic groups were categorized using the Nevada State Demographer data: non-Hispanic American Indian/Alaska Native (AIAN); non-Hispanic Asian and Pacific Islander (API); non-Hispanic Black; Hispanic; non-Hispanic White.

# COVID-19 Cases by Demographics

**Figure 30** depicts the percent change in average cases per 100,000 among all races and ethnicities. The only population to see a decrease in cases was the Hispanic population between 2020-2021. Cases among non-Hispanic Black populations increased by 68.4%, the largest increase seen among all races and ethnicities.

**Figure 30. Percent Change in COVID-19 Cases per 100,000 by Race and Ethnicity in Nevada, 2020-2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)




**Figures 31 and 32** depict the percentage of COVID-19 cases of each racial and ethnic group compared to the percentage of the population they comprised in 2020-2021.

**Figure 31. COVID-19 Cases by Race and Ethnicity Relative to the Nevada Population, 2020**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

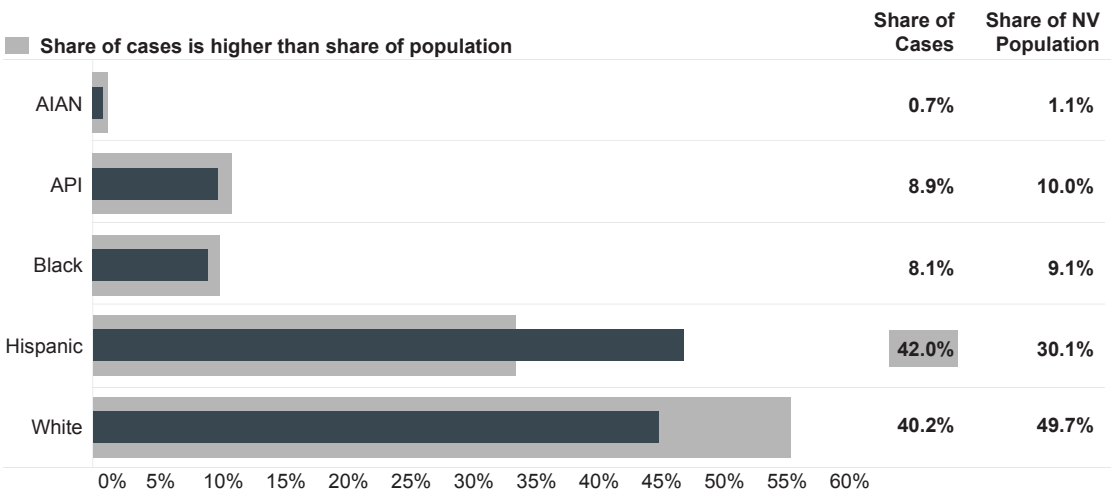
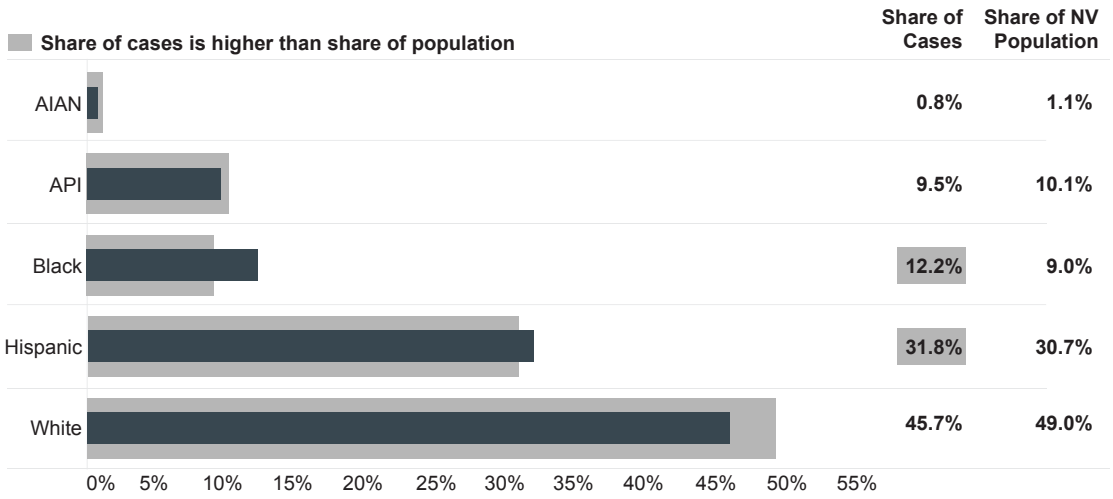


**Figure 32. COVID-19 Cases by Race and Ethnicity Relative to the Nevada Population, 2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

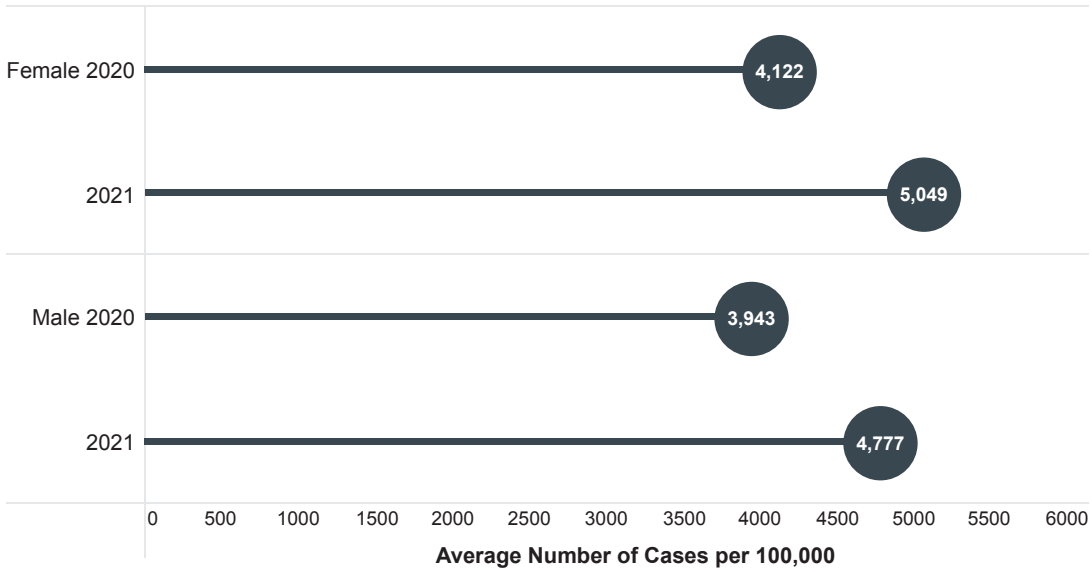



This data highlights any racial or ethnic groups that are overrepresented in the share of cases in 2020-2021. The Hispanic population in Nevada was the only group overrepresented in the share of cases in 2020. The Hispanic and non-Hispanic Black populations in Nevada were overrepresented in cases in 2021. Vaccine planning efforts included work with the Minority Health Coalition and the Nevada Office of Minority Health and Equity, NOMHE, to focus on outreach to these groups.

**Figure 33** shows the average cases per 100,000 by sex. In 2020-2021, females had a higher rate of cases per 100,000 compared to males. However, case rates increased for both sexes between 2020-2021, with females seeing a 22.5% change and males seeing a 21.2% change.

**Figure 33. Average COVID-19 Cases per 100,000 by Sex in Nevada, 2020-2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)



# COVID-19 Deaths

## COVID-19 Deaths Overview

**The COVID-19 vaccine has prevented hundreds of thousands of deaths in the U.S. and around the world.[36,37] The following section outlines the impact of COVID-19 deaths on the state of Nevada.**

A study conducted by Brown University found that nationwide approximately 319,000 COVID-19 deaths could have been prevented if adults had been quicker to vaccinate.[38] This same study ranked Nevada No. 42 for preventable deaths per 1,000,000 adults. It was estimated that approximately 4,200 deaths in Nevada could have been prevented if the state had a greater uptake in COVID-19 vaccine once it became widely available. The first COVID-19 death in Nevada was documented on March 18, 2020.[39] Deaths generally climbed upwards throughout 2020, but after the arrival of vaccines in December 2020, the sum of monthly deaths started declining. The arrival of the Delta variant in June 2021, however, resulted in monthly death increases a few weeks after the onset of the variant.

**Table 11. Total Number of Reported COVID-19 Deaths in Nevada**

(Source: Nevada DPBH, Office of Analytics)

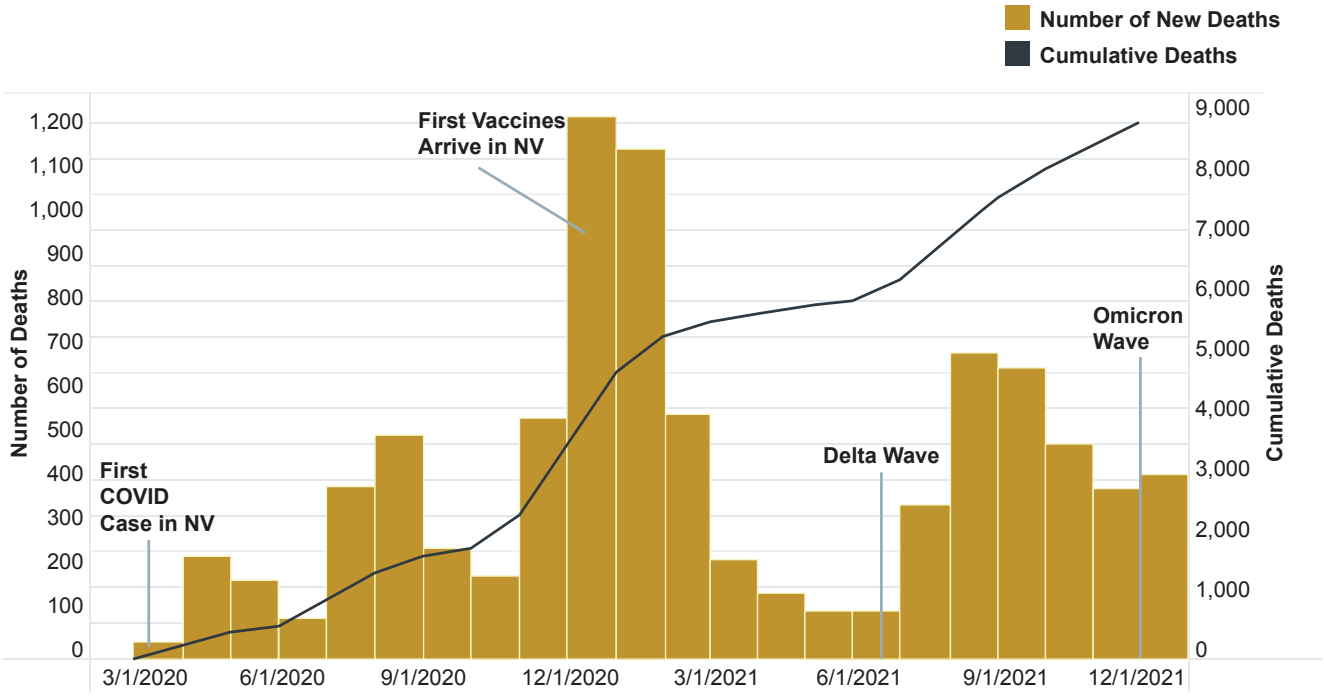
| Year | Total Number of Reported COVID-19 Deaths |
|---|---|
| 2020 | 3,592 |
| 2021 | 5,207 |

**Table 11** displays the total number of reported COVID-19 deaths in Nevada in 2020-2021.

**Figure 34** depicts the number of new and cumulative deaths in Nevada during 2020-2021.

**Figure 34. Monthly New and Cumulative COVID-19 Deaths in Nevada, 2020-2021**

(Source: Nevada DPBH, Office of Analytics)



# COVID-19 Deaths by Geographic Area

**Figure 35** illustrates the average number of COVID-19 deaths per 100,000 people in Nevada by county in 2020, shown in descending order. Churchill, Pershing, Nye, Carson City, Lander, and Clark Counties had a higher-than-average COVID-19 death rate per 100,000.

**Figure 35. Average COVID-19 Deaths per 100,000 in Nevada by County, 2020**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

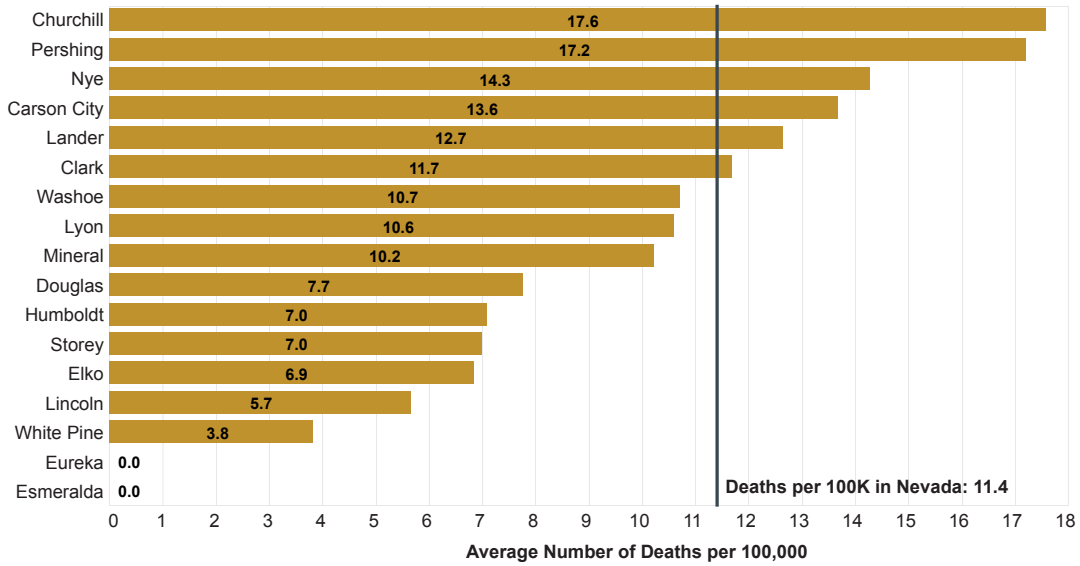
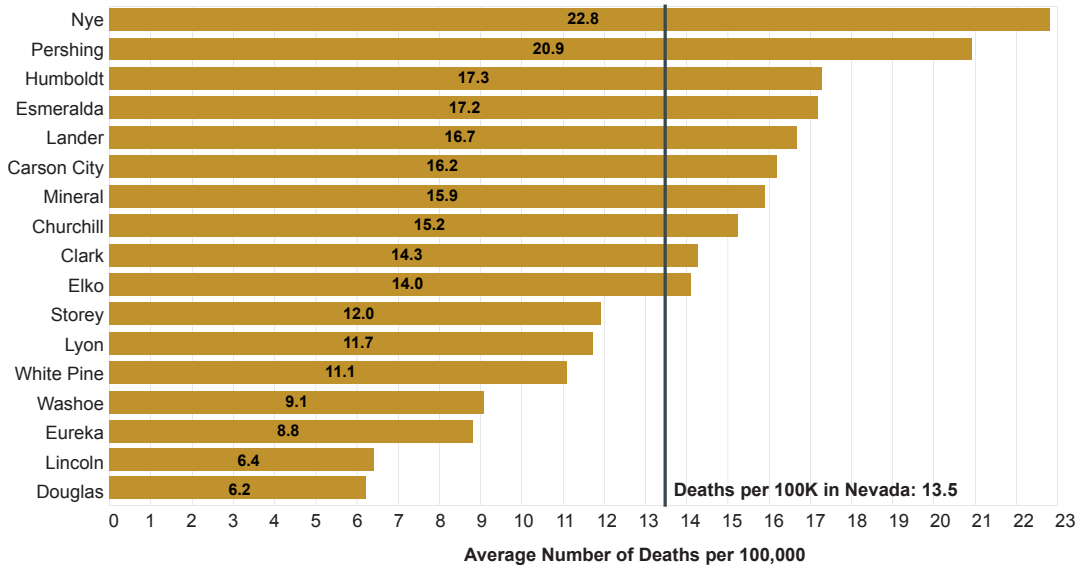



**Figure 36** illustrates the average number of COVID-19 deaths per 100,000 people in Nevada by county in 2021, shown in descending order. Nye, Pershing, Humboldt, Esmeralda, Lander, Carson City, Mineral, Churchill, Clark, and Elko Counties had a higher-than-average death rate per 100,000.

**Figure 36. Average COVID-19 Deaths per 100,000 in Nevada by County, 2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)



# COVID-19 Deaths by Geographic Area

**Figure 37. Percent Change in Average COVID-19 Deaths per 100,000 in Nevada by County, 2020-2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

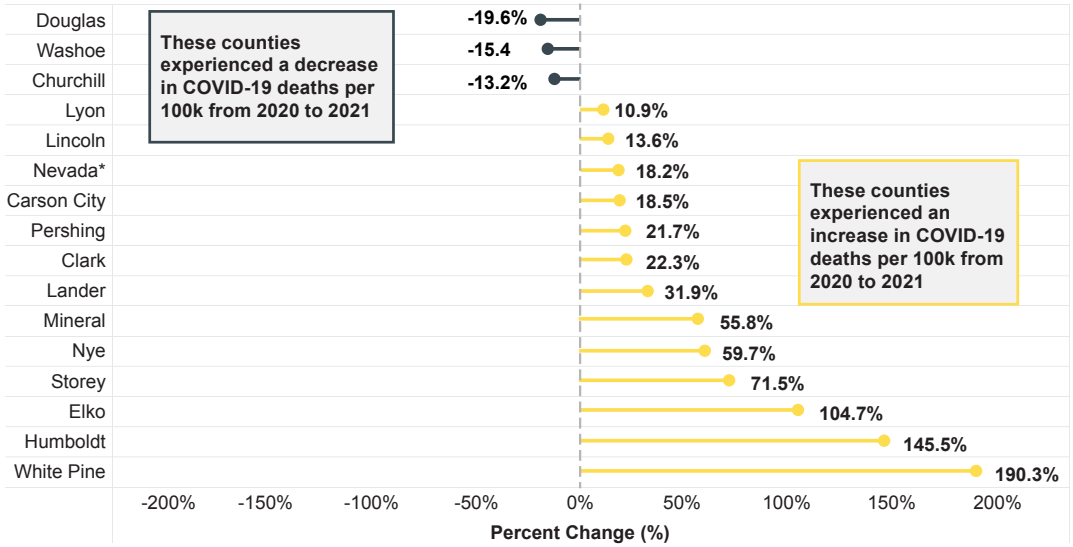



**Figure 37** illustrates the percent change of average COVID-19 deaths per 100,000 people in Nevada by county from 2020-2021.

The counties that experienced decreases in COVID-19 deaths per 100,000 were Douglas, Washoe, and Churchill.

All other counties and the state experienced increases in COVID-19 deaths per 100,000 with Elko, Humboldt, and White Pine Counties seeing their rates double or higher in 2021.

Esmeralda and Eureka Counties each recorded zero deaths in 2020, which is why they are not displayed in **Figure 37** despite their rates increasing in 2021.

**Figure 38** shows the number of deaths per 100,000 people by jurisdiction over time and highlights how each region in Nevada was impacted by waves of COVID-19 differently.

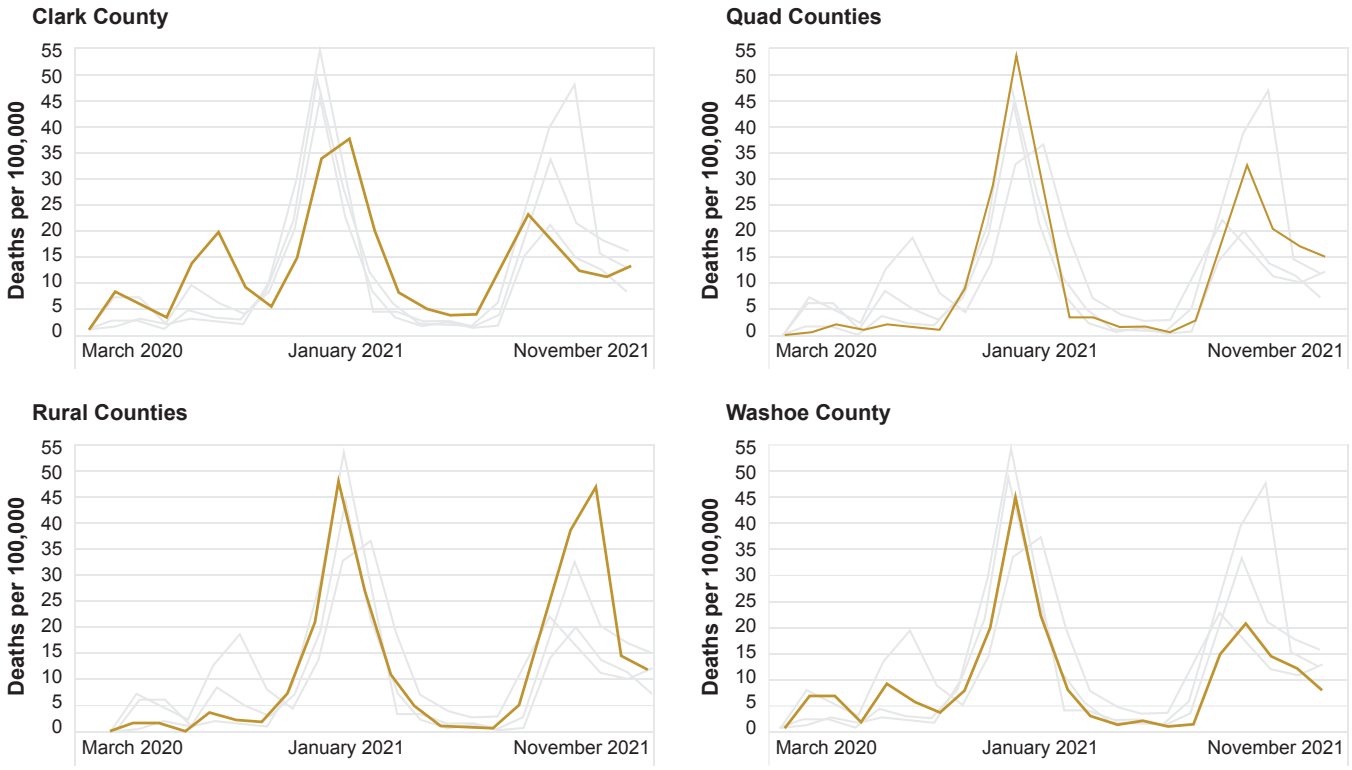
Clark County experienced several smaller spikes in the number of deaths per 100,000 people throughout 2020 and 2021. Quad Counties and Washoe County saw one large wave during the winter of 2020-2021, and a smaller wave during the winter of 2021. The rural counties experienced two large waves during the winter months of both years.

**Figure 39** is a map of Nevada depicting the average COVID-19 deaths per 100,000 in 2020-2021 for each county.

The darker regions indicate a higher death average, while the lighter regions indicate a lower death average. Most counties experienced an increase in COVID-19 deaths during 2021, with only Churchill, Douglas, and Washoe Counties experiencing decreases.

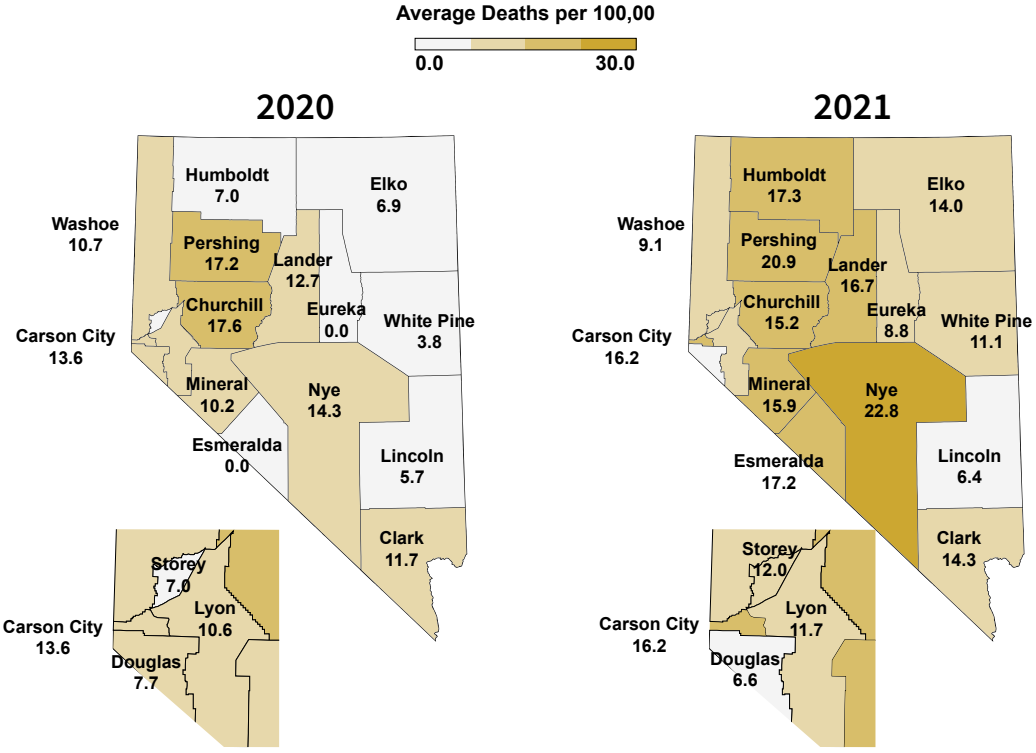
## Figure 38. COVID-19 Deaths per 100,000 in Nevada by Jurisdiction, 2020-2021

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)




## Figure 39. Average COVID-19 Deaths per 100,000 in Nevada by County and Year

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)



## COVID-19 Deaths by Demographics

**Some populations were disproportionately represented in COVID-19 deaths across the U.S., including Black, Hispanic, and AIAN populations.[39] This section helps highlight which populations were disproportionately impacted by COVID-19 deaths in Nevada.**

**Figure 40. Number of COVID-19 Deaths in Nevada by Age and Year**

(Source: Nevada DPBH, Office of Analytics)

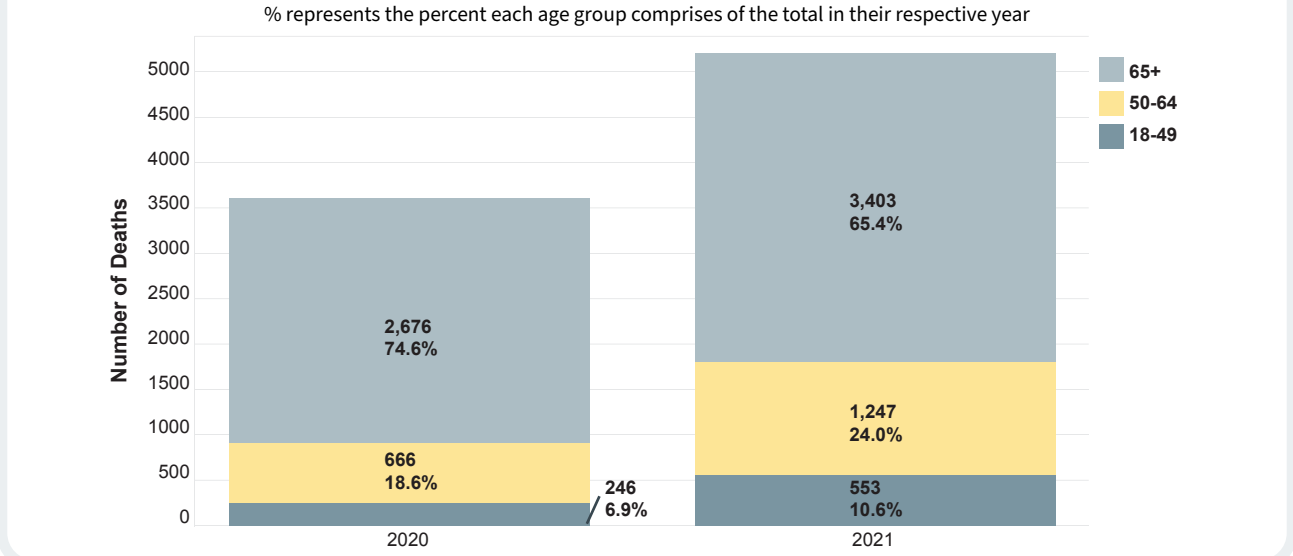



**Figure 40** depicts the total number of deaths among adult age groups as well as the percent each age group represented of the annual total for each year.

**In 2020-2021, adults aged 65 and older had the largest number of deaths among all age groups and made up the highest percentage of deaths in those respective years.**

**10.6%** | **Deaths among 18-49-year-olds increased from 6.9% in 2020 to 10.6% in 2021.**

**24.0%** | **Deaths among 50–64-year-olds increased from 18.6% in 2020 to 24.0% in 2021.**

Note that children aged 0-17 comprised less than 1% of total deaths and were not included in the analysis for this figure, which accounts for the variation seen in age group rates in **Figure 41**.

**Figure 42** represents the percent change in deaths among age groups. Except for those 5-17 years old, all age groups saw an increase in deaths from 2020-2021, with the 18-49 age group experiencing the largest increase in deaths, followed by those 50-64.

**Figure 41. COVID-19 Deaths in Nevada by Age and Year**

(Source: Nevada DPBH, Office of Analytics)

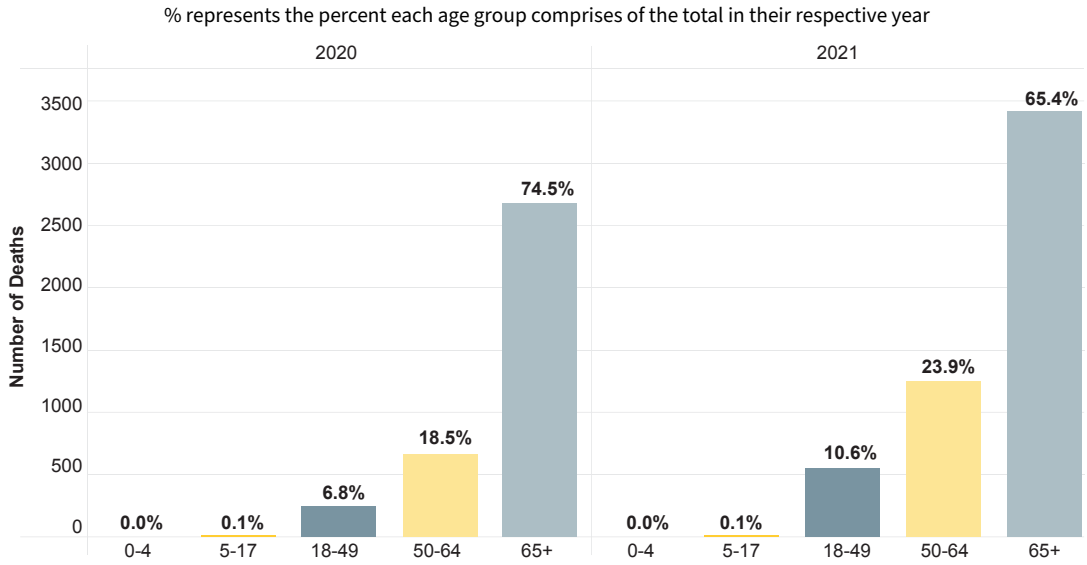
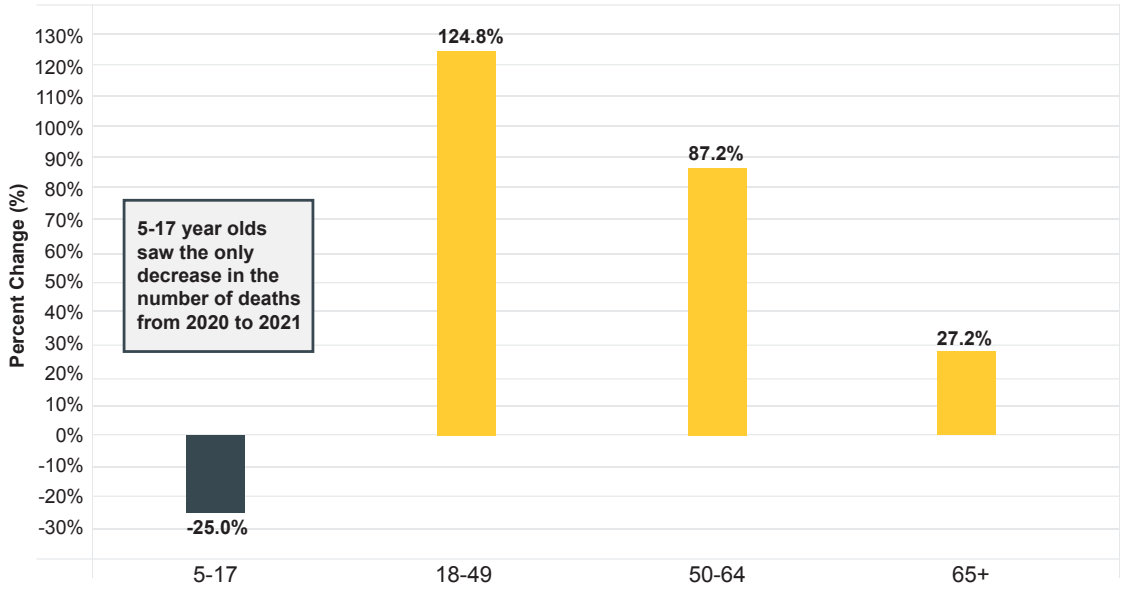



**Figure 42. Percent Change in COVID-19 Deaths in Nevada, by Age, 2020-2021**

(Source: Nevada DPBH, Office of Analytics)



## COVID-19 Deaths by Demographics

**Figure 43** depicts the share of COVID-19 deaths each age group represented out of 100%, compared to the share they represented of the total population in 2020. This highlights any age groups that were overrepresented in the share of deaths in 2020. Nevadans 65 years and older were vastly overrepresented in COVID-19 deaths compared to the population in 2020, making up 74.5% of deaths compared to 14.9% of the population.

**Figure 43. COVID-19 Deaths by Age Relative to Nevada Population, 2020**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

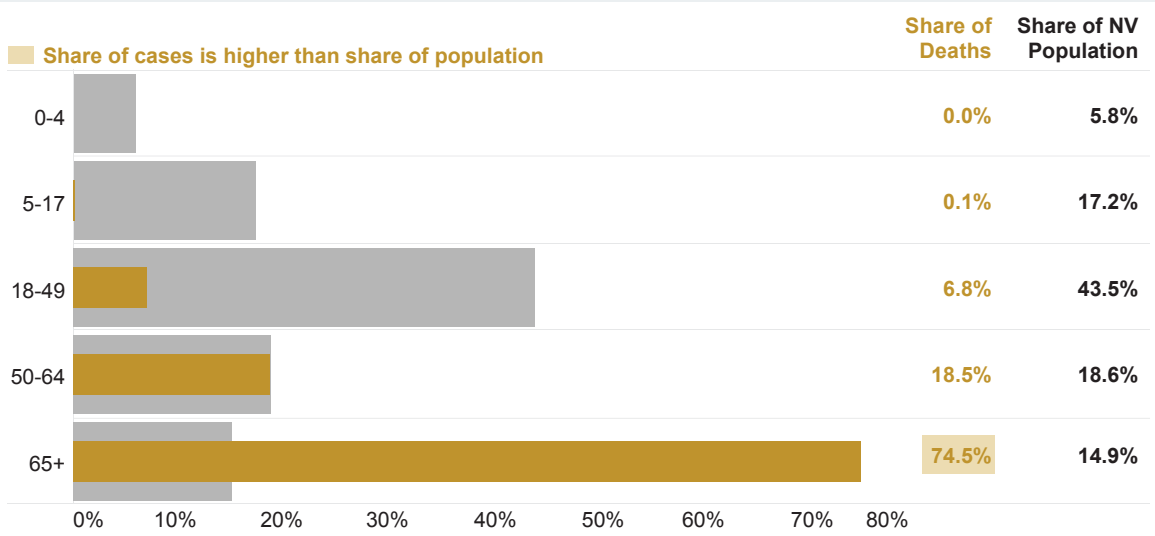



**Figure 44** depicts the share of COVID-19 deaths each age group represented compared to the share of the population they represented in 2021. This highlights any age groups that were overrepresented in the share of deaths in 2021. The 50-64 age group and those 65 years and older were also overrepresented in deaths.

**Figure 44. COVID-19 Deaths by Age Relative to the Nevada Population, 2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

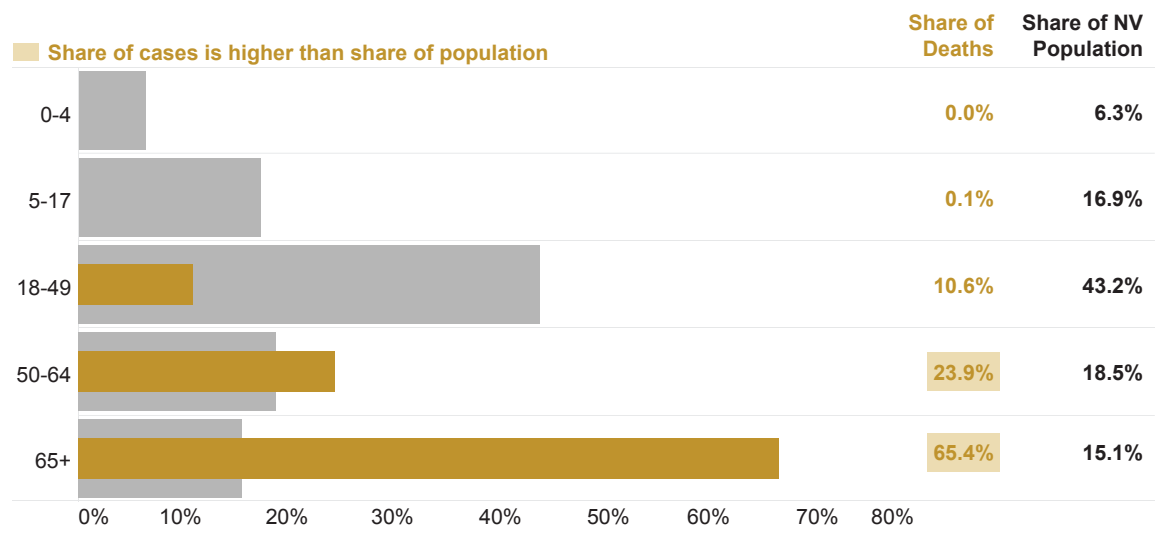


**Figure 46** shows the average deaths per 100,000 among race and ethnicities for each year. Between 2020-2021, API, Black, and White populations saw increases in the average death rate per 100,000, while Hispanic and AIAN populations saw a decrease.

**Figure 45. Average COVID-19 Deaths per 100,000 in Nevada by Race and Ethnicity, 2020-2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

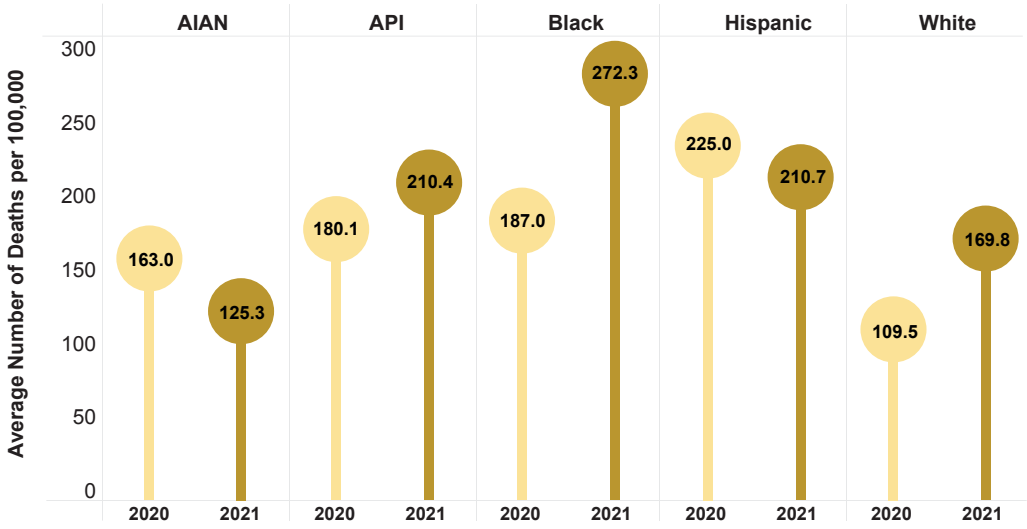
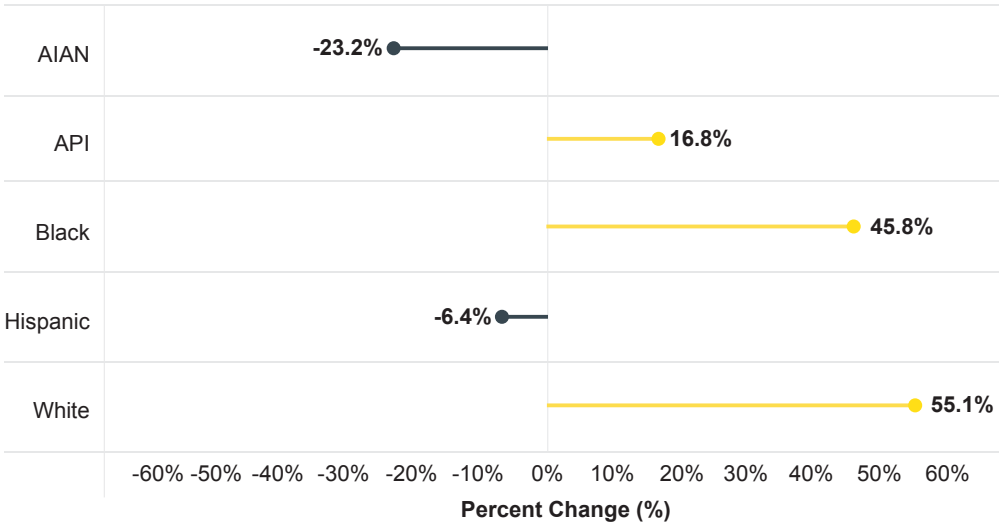



**Figure 46** depicts the percent change in average deaths per 100,000 among all races and ethnicities. The average death rate among Hispanic and AIAN populations decreased, while the remaining groups saw increases.

**Figure 46. Percent Change in COVID-19 Deaths per 100,000 from 2020 to 2021 in Nevada, by Race and Ethnicity**

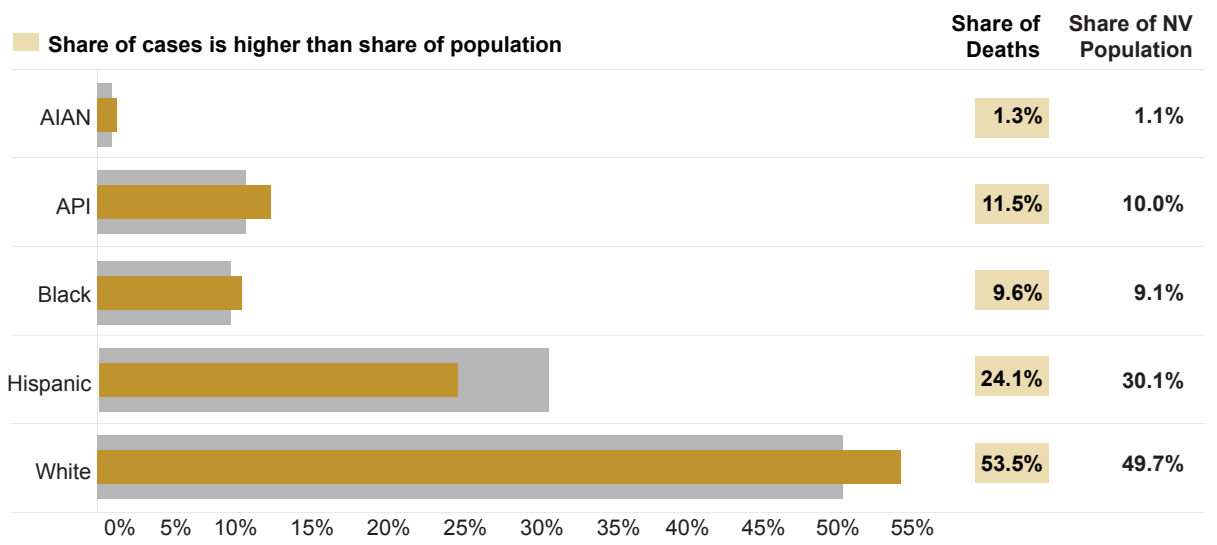
(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)



## COVID-19 Deaths by Demographics

**Figure 47. COVID-19 Deaths by Race and Ethnicity Relative to the Nevada Population, 2020**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)




**Figures 47 and 48** depict the share of COVID-19 deaths each racial and ethnic group represented, compared to the share of the population they represented in 2020-2021, respectively.

**This helps highlight any age groups that were overrepresented in the share of deaths in 2020-2021. AIAN, API, Black, and White Nevadans were all overrepresented in deaths in 2020.**

**Very similar trends were seen in 2020-2021 COVID-19 deaths.**
**The Hispanic population in Nevada was the only group underrepresented in share of deaths.**

*Please note, this data has not been age-adjusted and wider disparity gaps might be found when this data is age-adjusted.*

**Figure 49** shows the average deaths per 100,000 by sex. While females had a higher rate of cases than males, males had a higher rate of deaths per 100,000. However, the rate of death increased for both sexes between 2020-2021, with females seeing a 20.9% change and males seeing a 10.6% change.

**20.9%** | **The rate of death increased for for females between 2020-2021, seeing a 20.9% change.**

**10.6%** | **The rate of death increased for for males between 2020-2021, seeing a 10.6% change.**

**Figure 48. COVID-19 Deaths by Race and Ethnicity Relative to the Nevada Population, 2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

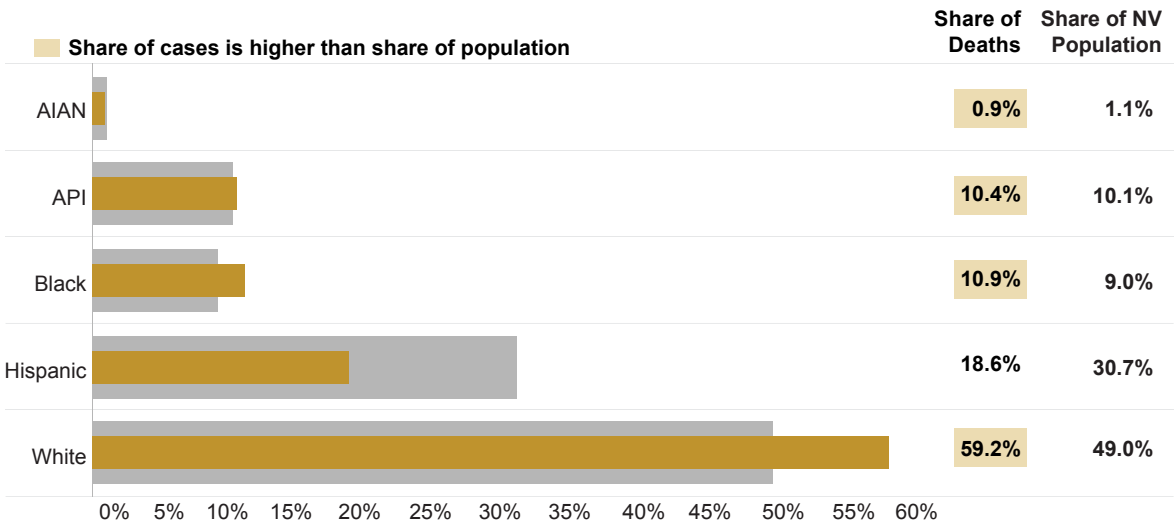
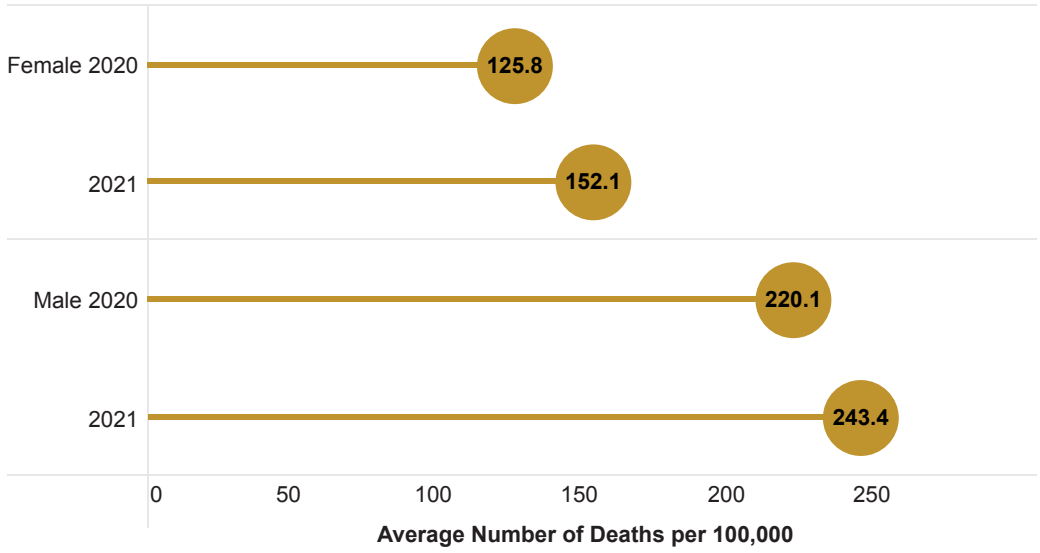



**Figure 49. Average COVID-19 Deaths per 100,000 by Sex in Nevada, 2020-2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)



# COVID-19 Hospitalizations

## COVID-19 Hospitalization Overview

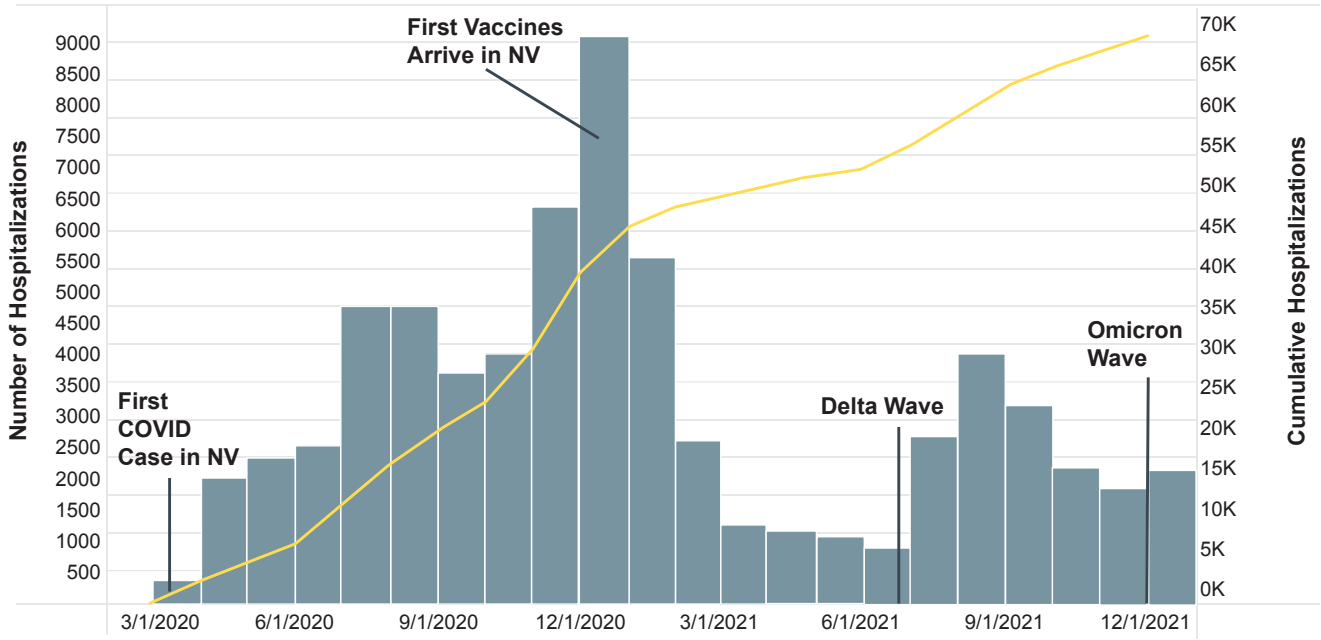
**The COVID-19 vaccine has prevented hundreds of thousands of hospitalizations in the U.S. and around the world.[40] It is estimated that an additional 1.6 million hospitalizations could have been avoided in the United States if there was a greater demand for the vaccine. This section outlines the impact of COVID-19 hospitalizations on the state of Nevada.[41]**

COVID-19 hospitalizations in Nevada rose monthly from March-August 2020. After a short decline in September and October that year, monthly hospitalizations reached a peak in December 2020, the same month that vaccinations arrived in Nevada. The COVID-19 vaccine has been effective at preventing serious illness and hospitalizations. The arrival of vaccines coincided with hospitalizations declining steadily from January-June 2021. The arrival of the Delta variant in late June 2021 resulted in monthly hospitalizations increasing.

**Figure 50** depicts the number of new and cumulative hospitalizations in Nevada during 2020-2021.

**Figure 50. Monthly New and Cumulative COVID-19 Hospitalizations in Nevada, 2020-2021**

(Source: UNLV School of Public Health, Center for Health Information Analysis)



# COVID-19 Hospitalizations by Jurisdiction

*Throughout this section, data presented at the county level reflects hospitalizations at a facility within that county, not the county of residence for the patient. This is due to the absence of hospitals in some counties and the movement of people within and outside the state throughout the pandemic.*

**Figure 51. Average Age of COVID-19 Hospitalizations per 100,000 by County in Nevada, 2020-2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

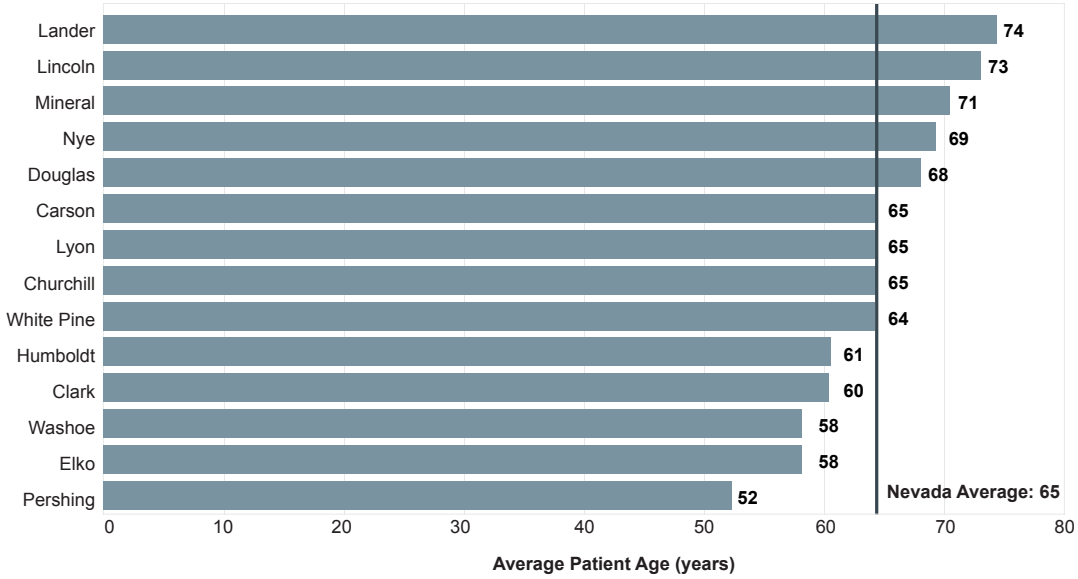



**Figure 51** shows the average age among patients hospitalized in Nevada.

Hospitals in Lander, Lincoln, Mineral, Nye, and Douglas Counties had an average patient age higher than the state average of 65 years. Patients hospitalized in Pershing County were younger than patients hospitalized in other counties with an average age of 52 years.

**52 years old**

**Average age of patients hospitalized in Pershing County**

**Counties with an average patient age HIGHER than the state average of 65 years**

- Lander
- Lincoln
- Mineral
- Nye
- Douglas

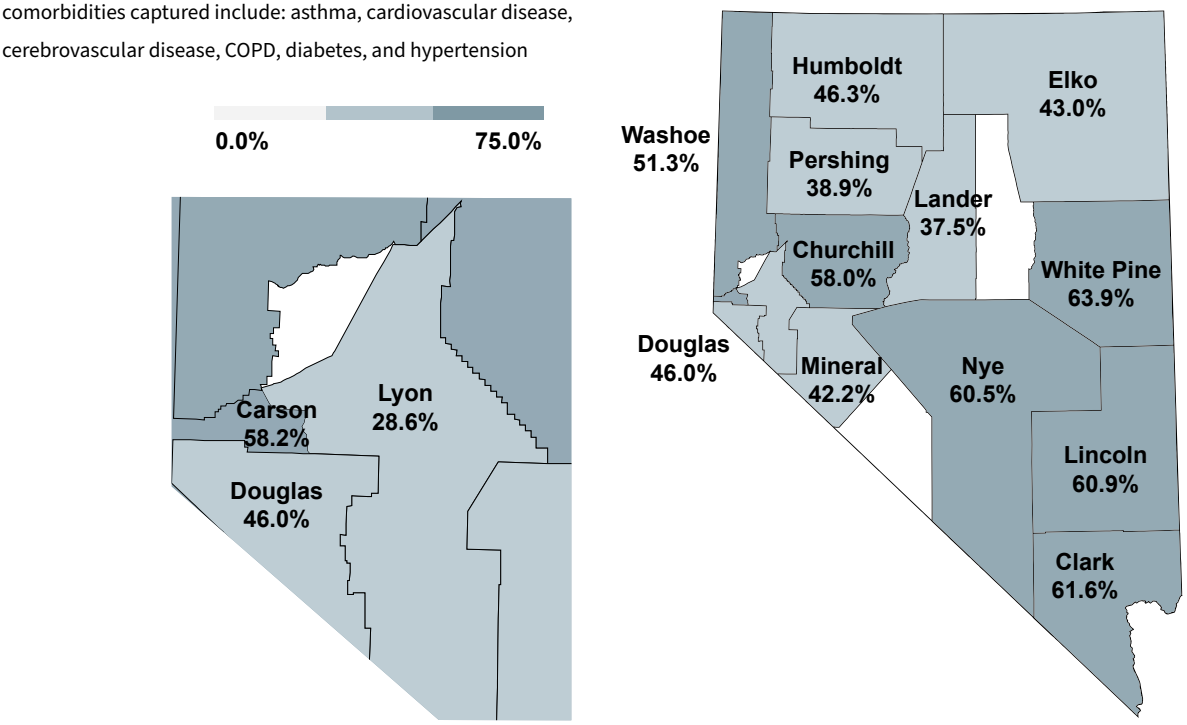
# COVID-19 Hospitalizations by Jurisdiction

**Figure 52** displays the rates of COVID-19 hospitalizations among patients with one or more comorbidities.

**Figure 52. Percentage of COVID-19 Hospitalizations in Nevada where Persons had ≥1 Comorbidity, 2020-2021**

(Source: UNLV School of Public Health, Center for Health Information Analysis)

comorbidities captured include: asthma, cardiovascular disease, cerebrovascular disease, COPD, diabetes, and hypertension




## As previously noted, comorbidities include:

- Asthma
- Cardiovascular disease
- Cerebrovascular disease
- Chronic obstructive pulmonary disorder (COPD)
- Diabetes
- Hypertension

**Comorbidities have a direct correlation to serious illness and hospitalizations related to COVID-19, and people who have them were and continue to be strongly encouraged to receive the vaccine.**

Efforts for education on the vaccine were focused on doctors who treat patients with chronic illnesses. These specialty providers were encouraged to carry the vaccine.

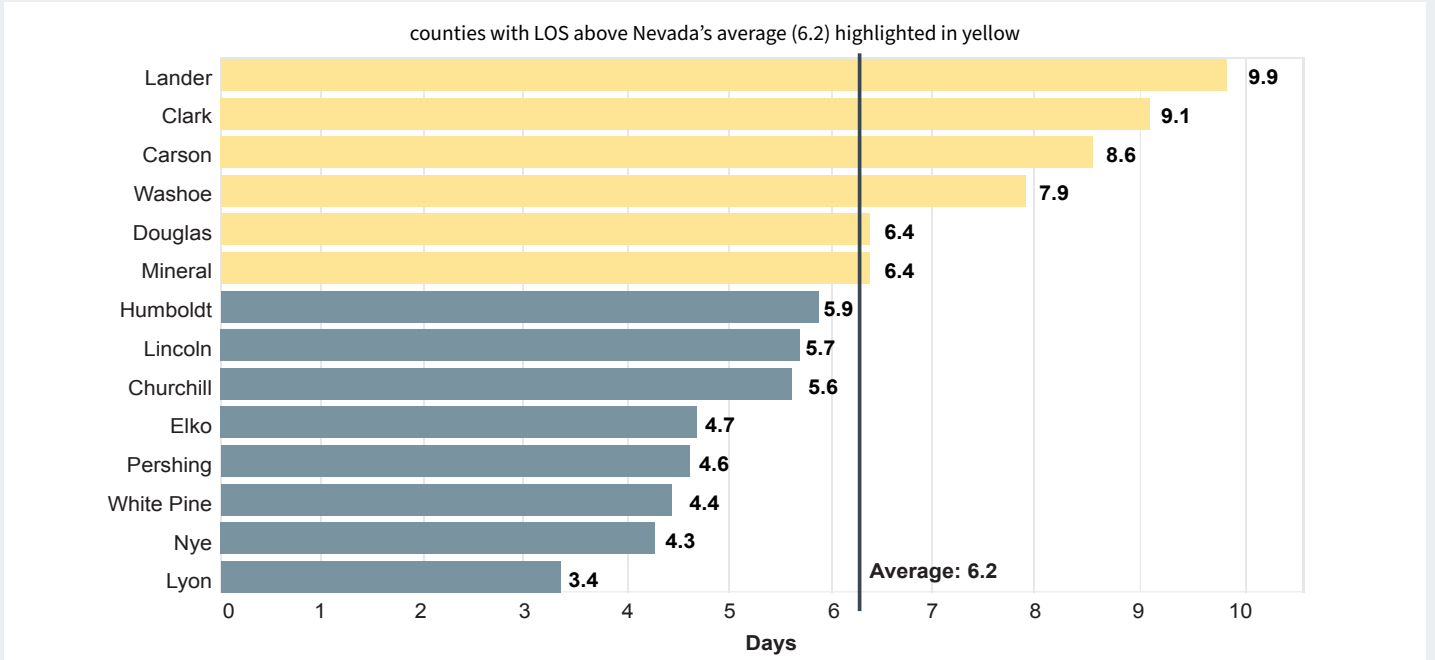
**Hospitals located in White Pine, Clark, Lincoln, and Nye counties had the highest rates of hospitalizations among patients with one or more comorbidities.**

*Esmeralda, Eureka, and Storey counties do not have hospitals.*

**Figure 53** depicts the average length of stay (LOS) for hospitalizations in Nevada.

**Figure 53. Average Length of Stay (LOS) for COVID-19 Hospitalizations by County in Nevada, 2020-2021**

(Source: UNLV School of Public Health, Center for Health Information Analysis)




Lander, Clark, Carson City, Washoe, Douglas, and Mineral Counties all have an LOS above the state average of 6.2 days. Patients in Lander spent an average of 9.9 days hospitalized and patients in Clark spent an average of 9.1 days hospitalized. Patients hospitalized in Lyon County had the lowest average LOS among all counties, with patients spending an average of 3.4 days hospitalized.

**6.2 days**

**Average for length of stay (LOS) for hospitalizations in Nevada**

**Counties with a length of stay (LOS) ABOVE the state average of 6.2 days**

- Lander
- Clark
- Carson City
- Washoe
- Douglas
- Mineral

**9.9 days**

**Average LOS for patients in Lander County, the highest in the state**

**9.1 days**

**Average LOS for patients in Clark County**

**3.4 days**

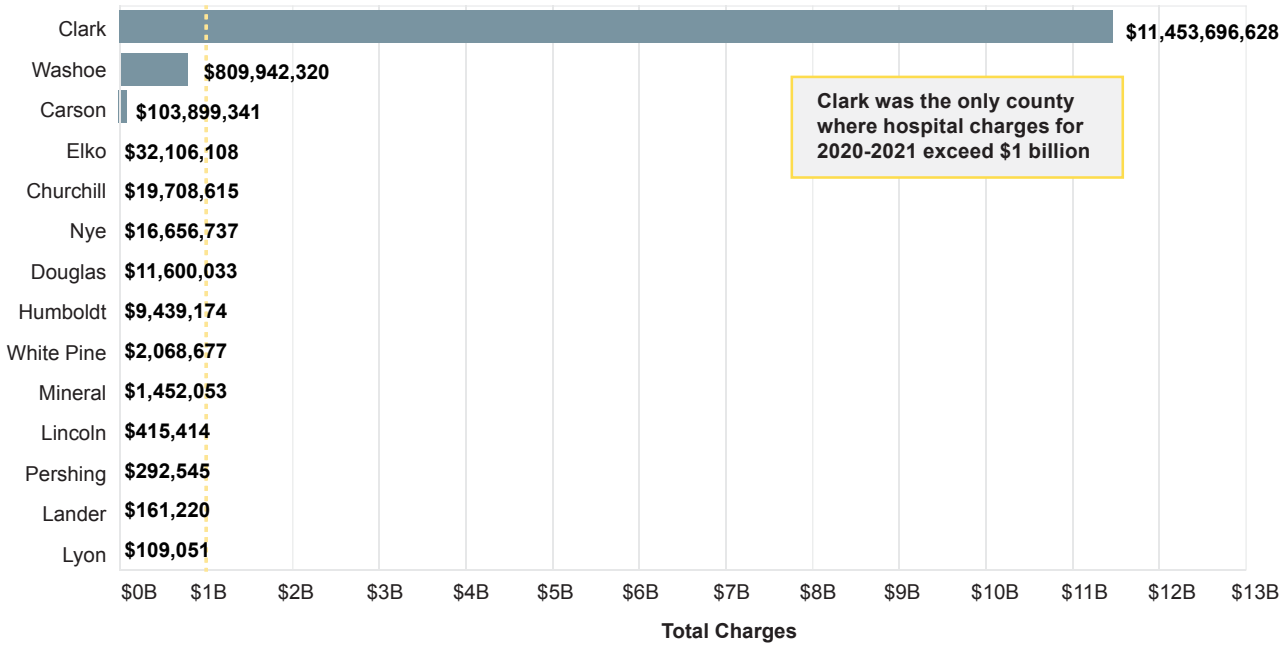
**Average LOS for patients in Lyon County, the lowest in the state**

## COVID-19 Hospitalizations by Jurisdiction

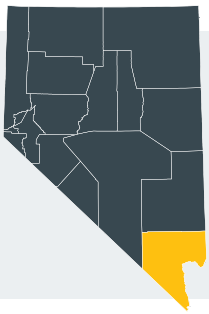
**Studies have been done to show the healthcare cost savings associated with the COVID-19 vaccine, as well as the cost burden of unvaccinated COVID-19 patients in the U.S.[42,43]**

**Figure 54. Total Charges of COVID-19 Hospitalizations in Nevada by County, 2020-2021**

(Source: UNLV School of Public Health, Center for Health Information Analysis)




**Figures 54 and 55** show the total charges incurred by hospitals in each county and jurisdiction throughout 2020-2021.



**With the largest share of the state's population and as a well-known hub of tourism, Clark County had the highest amount of total hospital charges among all counties and jurisdictions in the state.**

Clark was the only county in Nevada where hospital charges exceeded $1 billion.

When grouped into their respective jurisdictions (**Figure 59**), the Quad counties had total charges of $115 million, while rural counties had total charges of $82 million.

**Figure 56** shows the average total charges per patient hospitalized within each county. Patients in Clark County had the highest average total charges at $206,000, while patients hospitalized in Lyon County had the lowest average total charges at $8,000 per patient. There is no clear reason for why Clark County has such a higher average total charge, but one reason might be that many of the most critical patients were transferred there.

**Figure 55. Total Charges of COVID-19 Hospitalizations in Nevada by Jurisdiction, 2020-2021**

(Source: UNLV School of Public Health, Center for Health Information Analysis)

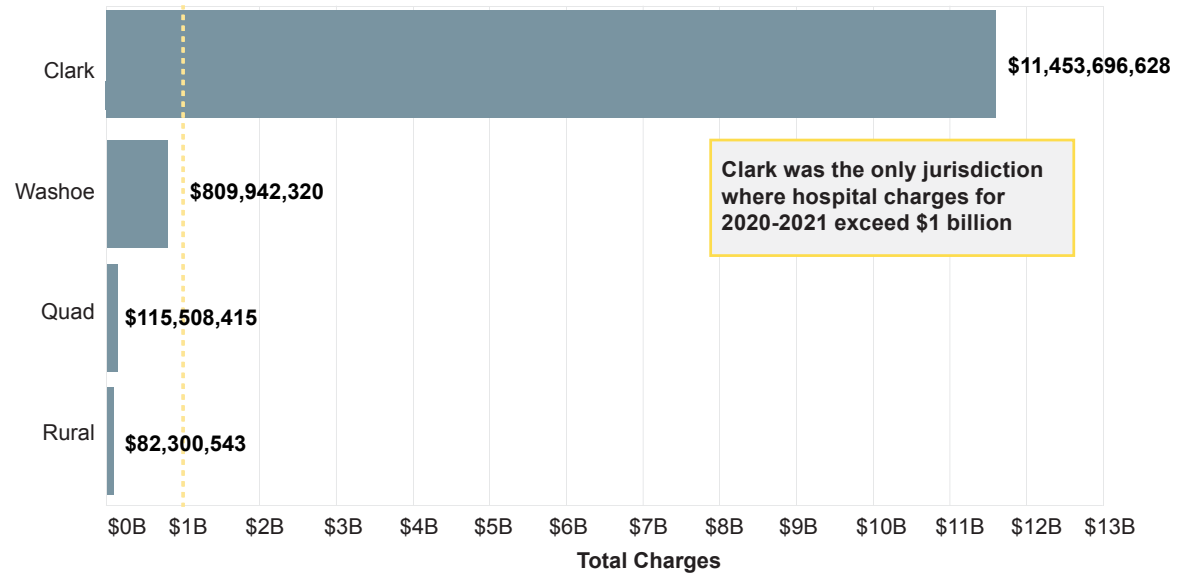
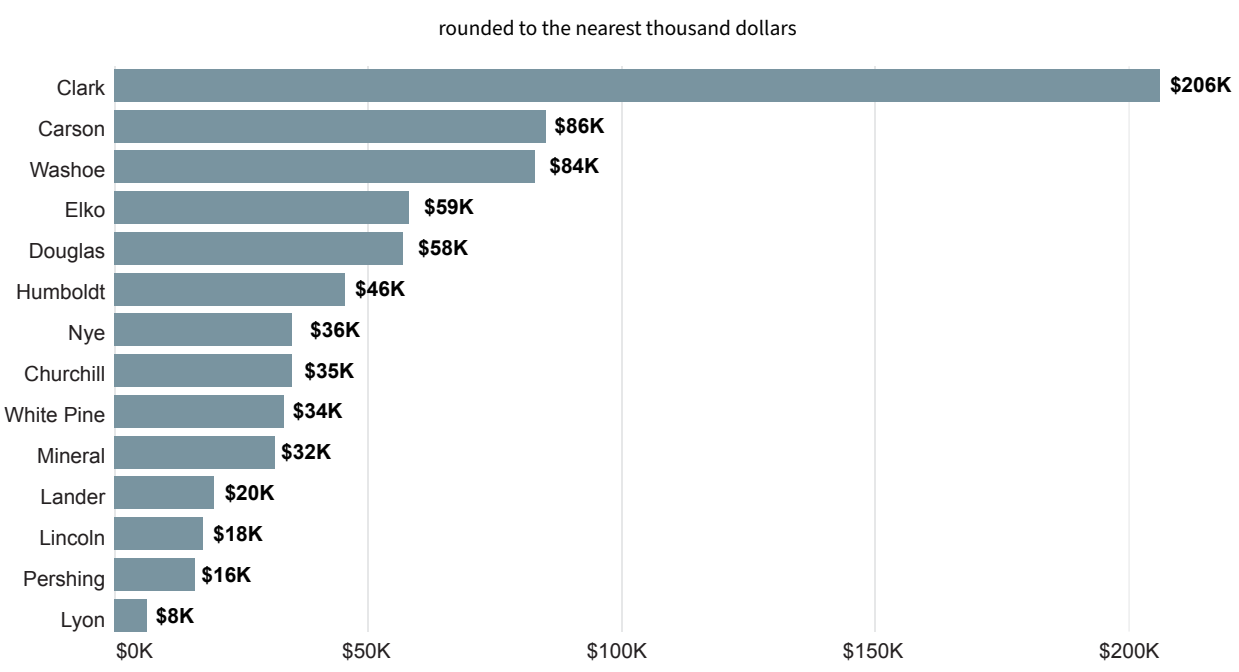



**Figure 56. Average Total Charges of COVID-19 Hospitalizations in Nevada by County, 2020-2021**

(Source: UNLV School of Public Health, Center for Health Information Analysis)

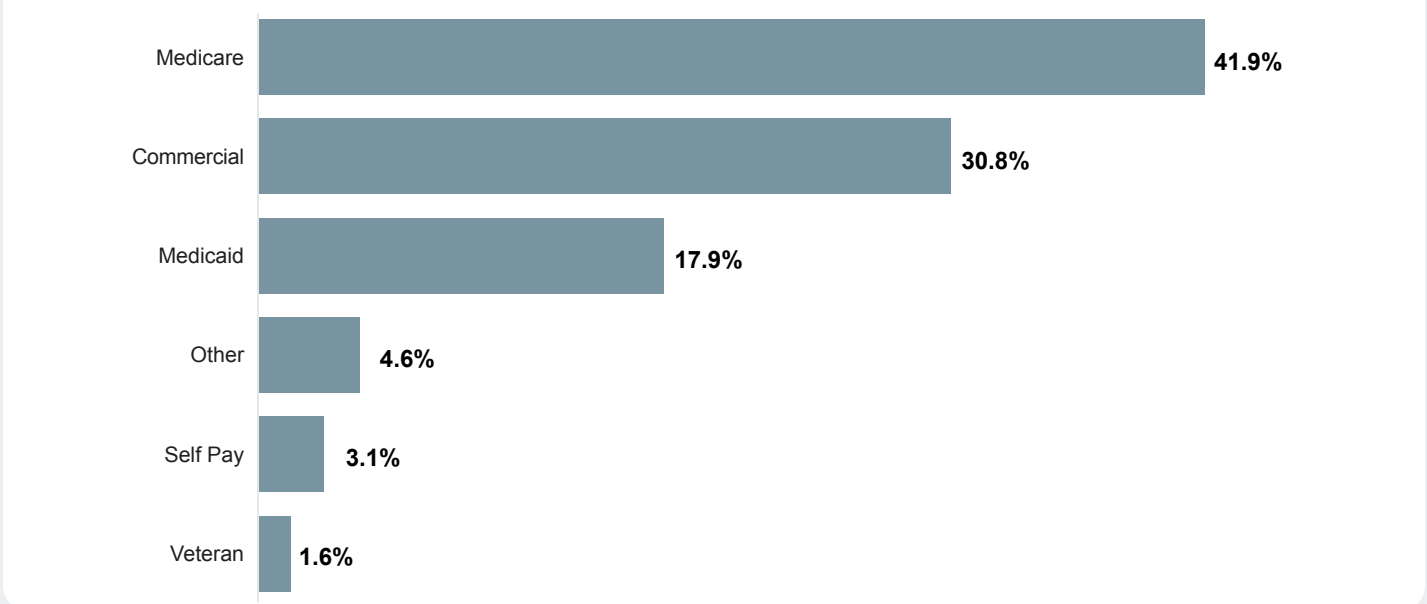


## COVID-19 Hospitalizations by Jurisdiction

**Figure 57** displays the percent of hospitalizations by payer type.

**Figure 57. Percent of COVID-19 Hospitalizations in Nevada by Payer Type, 2020-2021**

(Source: UNLV School of Public Health, Center for Health Information Analysis)




**60%**

**Nearly 60% of hospitalizations were paid for using public funds through Medicare and Medicaid.**

**41.9%**

**Medicare covered the largest share of hospitalizations (41.9%).**

**30.8%**

**COVID-19 hospitalizations covered by commercial insurance products comprised 30.8% of total hospitalizations.**

**17.9%**

**COVID-19 hospitalizations covered by Medicaid comprised 17.9% of total hospitalizations.**

**This information can be useful in working with health insurance entities to create incentives for their memberships to be vaccinated against COVID-19.**

# COVID-19 Hospitalizations by Demographics

**Figure 58. Average Length of Stay (LOS) for COVID-19 Hospitalizations by Race and Ethnicity, Nevada, 2020-2021**

(Source: UNLV School of Public Health, Center for Health Information Analysis)

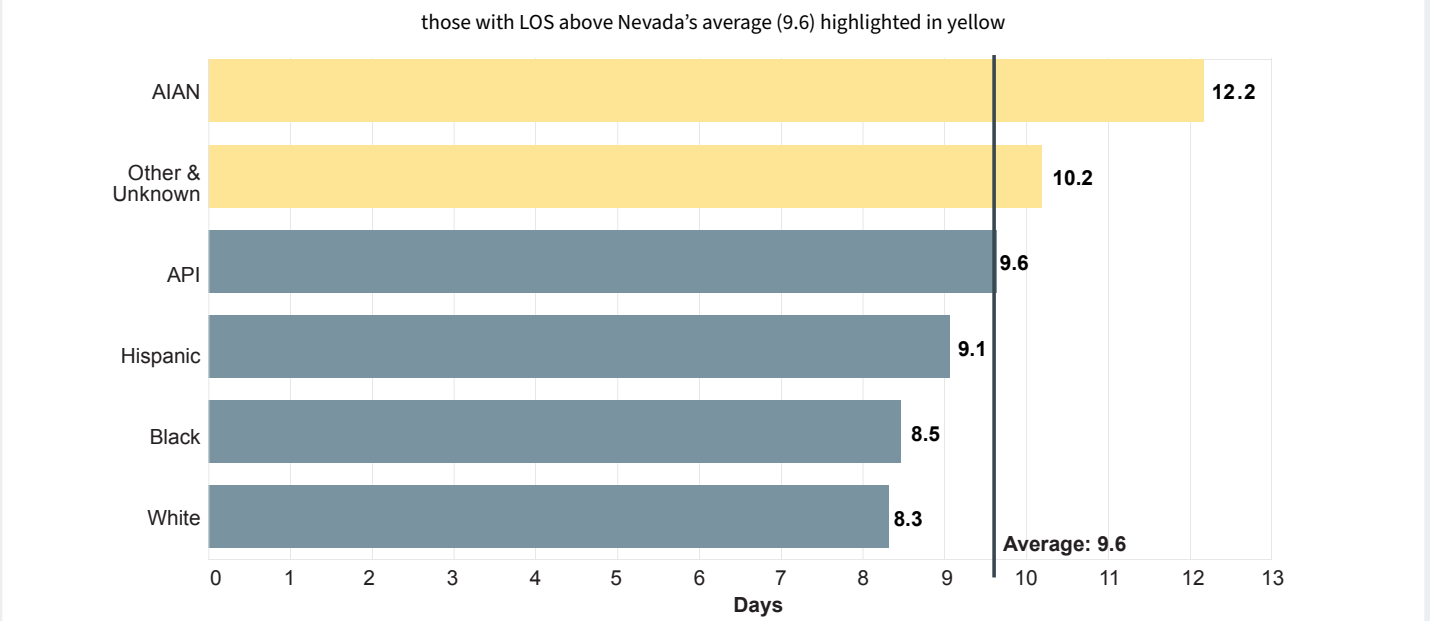



**Figure 58** depicts the average length of stay (LOS) for hospitalizations in Nevada by race and ethnicity.

AIAN individuals and those with other or unknown race or ethnicity had an above average LOS of 9.6 days. Black and White individuals had the lowest average LOS at 8.5 and 8.3 days, respectively.

**9.6+ days** | **Above average length of stay (LOS) for AIAN individuals and those with other or unknown race or ethnicity.**

**8.5 days** | **Average for length of stay (LOS) for Black individuals, the second lowest LOS.**

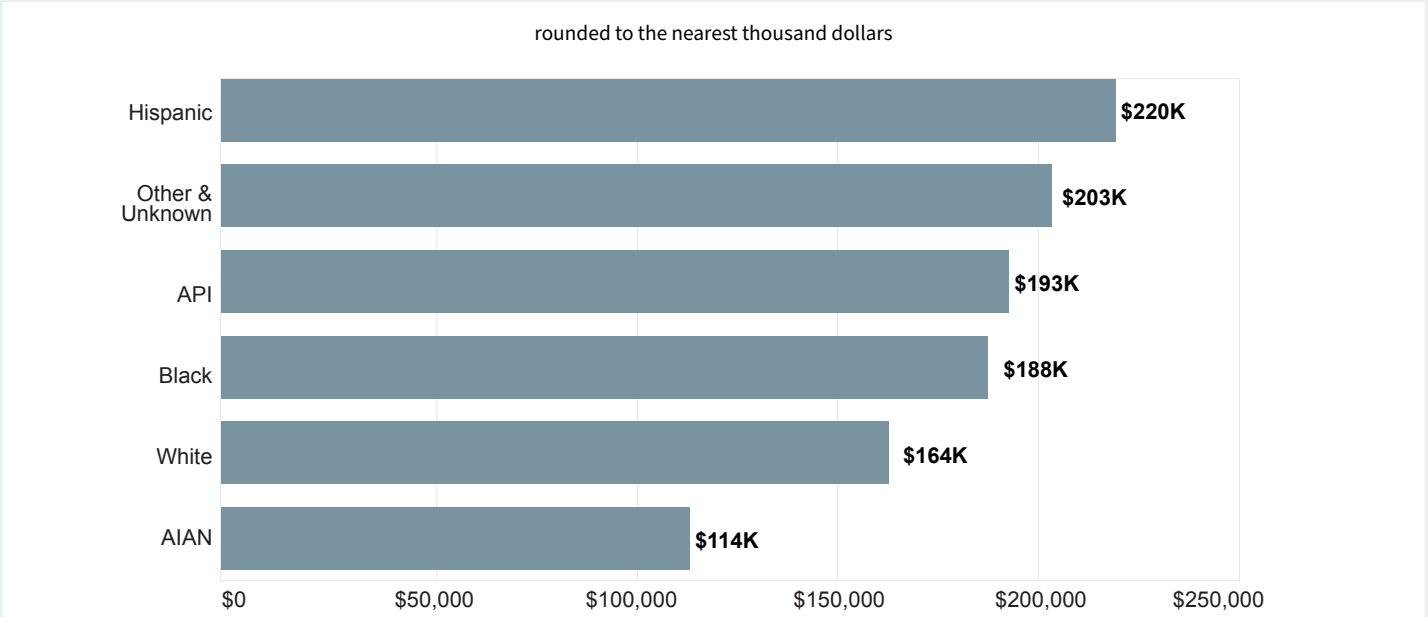
**8.3 days** | **Average for length of stay (LOS) for White individuals, the lowest LOS.**

## COVID-19 Hospitalizations by Demographics

**Figure 59** shows the average total charges per hospitalized patient by race and ethnicity.

**Figure 59. Average Total Charges of COVID-19 Hospitalizations by Race and Ethnicity, Nevada, 2020-2021**

(Source: UNLV School of Public Health, Center for Health Information Analysis)




Hispanic patients had the highest average total charges at $220,000. Despite AIAN patients having an average LOS that is longer than other races or ethnicities, AIAN patients had the lowest average total charges at $114,000. Conversely, those with other and unknown races and ethnicities had the second highest average total charges at $203,000, which aligned with the group also having the second highest LOS.

**$220,000** | **Hispanic patients had the highest average total charges.**

**$114,000** | **AIAN patients had the lowest average total charges, despite having a longer average LOS than other races/ethnicities.**

**$203,000** | **Other and unknown races/ethnicities had the second highest average total charges and the second highest LOS.**

**Figure 60. Percent of COVID-19 Hospitalizations where Persons had ≥1 Comorbidity by Race and Ethnicity, Nevada, 2020-2021**

(Source: UNLV School of Public Health, Center for Health Information Analysis)

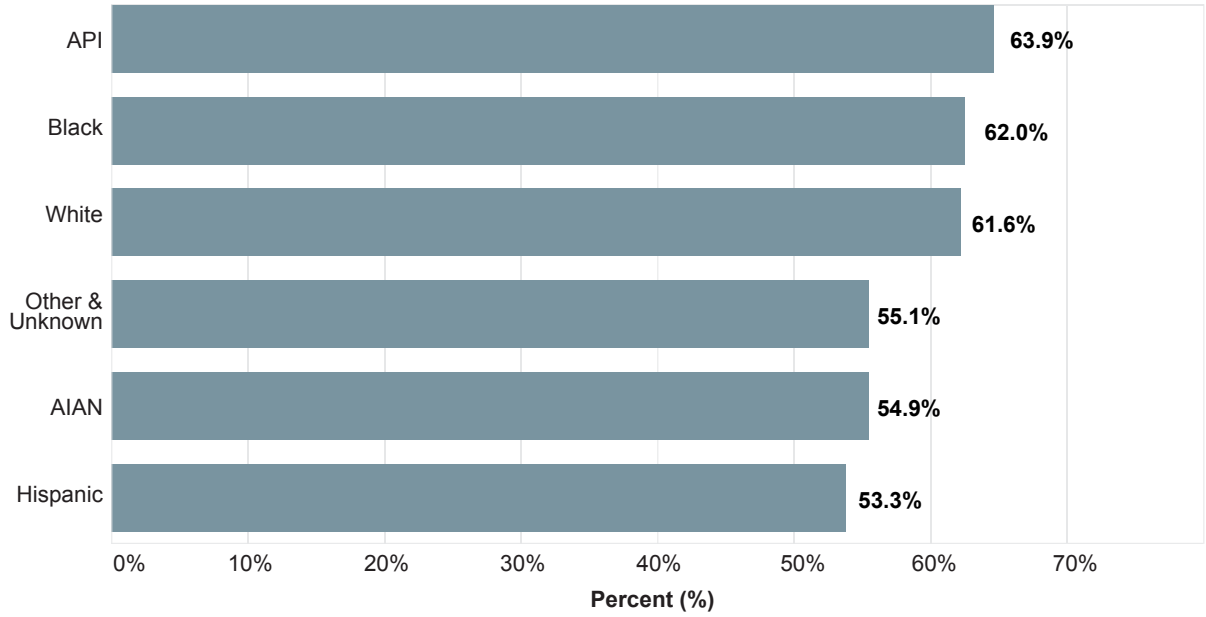



**Figure 60** demonstrates the percent of hospitalizations in Nevada among persons who had one or more comorbidities by race and ethnicity.

API persons had the highest rate of comorbidities compared to other races and ethnicities, with 63.9% of patients presenting with at least one comorbidity. Hispanic patients had the lowest rate of comorbidities, with approximately half (53.3%) of all Hispanic patients presenting with one or more comorbidities.

**The understanding of COVID-19 cases, deaths, and hospitalization was and remains essential for focusing vaccine efforts throughout the state.**

**NSIP continues to collaborate with healthcare providers, LHAs, and community-based organizations to make focused efforts to drive up COVID-19 vaccination rates in Nevada, which have been proven to decrease deaths and hospitalizations.[44]**

The next section of this report is an overview of NSIP, and the work done during the COVID-19 vaccine rollout.

# NEVADA STATE IMMUNIZATION PROGRAM (NSIP)

## Background

This section aims to define the role of the Nevada State Immunization Program in COVID-19 vaccine rollout throughout Nevada.

**Immunization programs play an important role in public health by maintaining high vaccination coverage rates nationally. The Centers for Disease Control and Prevention (CDC) estimated that the vaccination of children born in the United States between 1994 and 2018 has:**

- **Avoided 26.8 million hospitalizations**
- **Prevented 936,000 deaths**
- **Saved societal costs nearly $1.9 trillion in total**[45]

The CDC has partnered with state, local, tribal, and territorial vaccine programs since the 1960s to finance, administer, and track childhood vaccinations. Although states traditionally focus on childhood vaccinations, adult vaccinations are also a priority for specific age groups and populations.[46]

An immunization program is to some extent invisible when it's working well, but outbreaks such as measles or the one created by the COVID-19 virus serve as reminders of the importance of efficient immunization programs.[46]

The CDC's National Centers for Infectious and Respiratory Diseases (NCIRD) houses the Immunization Services Division (ISD) which coordinates the granting of federal funds to 64 immunization awardees to operate and manage an immunization program and an Immunization Information System (IIS). The 64 immunization awardees include each of the 50 states, Washington D.C., six cities/counties and seven island territories.

**In Nevada, the Nevada State Immunization Program is directed by the Nevada Division of Public and Behavioral Health (DPBH) which is housed within the Nevada Department of Health and Human Services (DHHS).**

**The mission of the Nevada DPBH is to protect, promote, and improve the physical and behavioral health of the people of Nevada. The NSIP serves the mission of the Nevada DPBH by working with Nevada's local health departments, hospitals, schools, community partners, and clinics to facilitate vaccine distribution and jurisdictional immunization programs.**

NSIP's goals are to ensure access to vaccinations for all of Nevada's population and to encourage immunizations for Nevadans to protect the public from vaccine-preventable diseases.

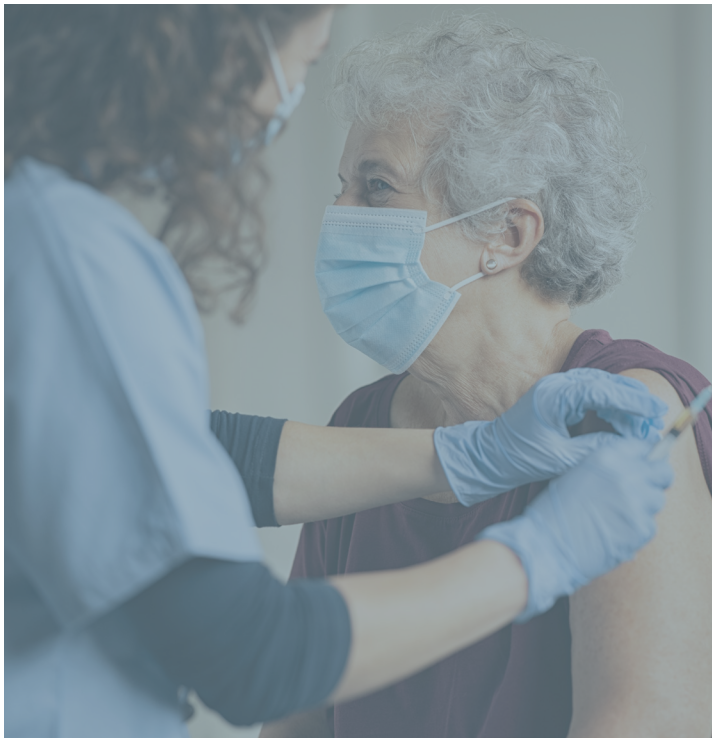
# Federal And State Immunization Policies

**The Advisory Committee on Immunization Practices (ACIP) is a group of medical and public health experts, selected by the Secretary of the U.S. DHHS, that includes members from the American Academy of Pediatrics (AAP) and American Academy of Family Physicians (AAFP).[47]**

This group of immunization experts carefully reviews scientific data to develop professional recommendations on how a vaccine is to be administered to control disease transmission.[48] Recommendations of the ACIP, a federal advisory committee, are subject to the approval of the Director of the CDC and the U.S. Food and Drug Administration (FDA) before any vaccinations are considered qualified and administrated to children, adolescents, or adults in the U.S. Scientific data reviewed by the ACIP before a vaccine is approved includes "disease morbidity and mortality in the general U.S. population, and in specific risk groups, vaccine safety and efficacy, cost-effectiveness, and related factors", as well recommendations for "vaccines and age for vaccine administration, number of doses and dosing interval, and precautions and contraindications."

The ACIP continues to monitor vaccine safety and effectiveness data even after the vaccine's routine use and may change or update recommendations based on updated data.

For more information on the Advisory Committee on Immunization Practices recommendations, please visit their website.



Although the ACIP regularly makes recommendations on numerous vaccinations that children, adolescents, and adults should receive to keep disease incidence low, the authority to require vaccinations rests with state legislators. State legislators have conventionally supported immunization efforts by establishing policies that may remove barriers and streamline access to childhood and adult vaccines. In 2009, Nevada Revised Statutes (NRS) 439.265 was passed into law requiring any healthcare provider who administers vaccines recommended by the ACIP to children and adults to record the administration of the immunization(s) in Nevada's IIS, NV WebIZ. As of 2010, NRS 439.265 and the adoption of corresponding Nevada Administrative Codes (NAC) 439.870-430.897 made it mandatory for all child and adult vaccinations administered in Nevada to be recorded in the IIS, with the choice to opt out. Immunization requirements for school- and daycare-age children and adolescents vary from state to state, but many states have policies in place for exemptions to accommodate those who may object to immunization mandates.

Click here to view more of Nevada's statutes related to public health and safety.

# Federal Funding and Organizational Budget Activities

**Like other jurisdictions, NSIP priorities are grounded in the Immunization Program Operations Manual (IPOM), which defines required activities to be performed by state immunization programs and is updated yearly by the CDC's NCIRD.**

Examples of IPOM-required activities include:

- Program management and sustainability
- Staff training and budget management
- Upkeep of Immunization Information System and technologies
- Provider quality improvement
- Community outreach, communication, and partnerships
- School vaccination coverage

As activities deemed necessary by the IPOM align with the goals of the NSIP, they also produce performance measures to be met in order to be eligible to receive operational funding. Most of the operational funding for core immunization activities is supplemented by grants such as the Section 317 grant program or the Vaccines for Children Program.

Section 317 federal funding for the Immunization Grant Program, or the Section 317 grant program, was launched in 1963 by the Centers for Disease Control and Prevention (CDC) as part of the Public Health Service Act. Section-317-funded vaccines are provided for uninsured and underinsured adults and the objective of the federal immunization program is to reduce and ultimately eliminate vaccine-preventable diseases by increasing and maintaining high immunization coverage. Emphasis is on reaching populations at highest risk for under-immunization and vaccine-preventable disease. Section 317 funds support for awardees in their efforts to plan, implement, and maintain a public health infrastructure that ensures the existence of an effective national immunization system. Section 317 funds are routinely awarded for a 12-month budget period and the amount of funding awarded in any funding year varies depending upon the annual appropriation by Congress.

To ensure oversight of the Vaccines for Children (VFC) vaccine program, the CDC also provides operational funding to eligible immunization award recipients. The Omnibus Budget Reconciliation Act of 1993 created the VFC program, which was implemented in October of 1994 under the President's Childhood Immunization Initiative. VFC is a required part of each state's Medicaid plan that provides vaccines at no cost to children who otherwise might not be vaccinated because of inability to pay. Annual funding for the VFC program is approved by the Office of Management and Budget (OMB) and allocated through the Centers for Medicare & Medicaid Services (CMS) to the CDC.

Funds awarded for VFC program oversight, quality improvement, and vaccine management are necessary to implement quality assurance practices that support VFC program requirements and ensure proper vaccine management.

NSIP subgrants about half of its operating budget to the three LHAs to conduct grant-required activities on behalf of the state program. NSIP also subgrants a portion of its operating budget to the state's immunization coalition, Immunize Nevada (IZNV), which is a non-profit organization that supports and organizes community resources to effectively increase immunization rates in Nevada.

## Organizational Structure

NSIP is organized into four units:

| | | | | |
|---|---|---|---|---|
| **Vaccines for Children Program** | **Immunization Information System (which is officially named NVWebIZ)** | **Perinatal Hepatitis B Prevention** | **Special Projects & Outreach** | **In 2020, a new COVID-19 division was added, creating a fifth unit.** |

## Vaccines For Children Program

The VFC Program is a federally funded program created in 1994 aimed at improving vaccine availability to vulnerable childhood populations. After the impact of the measles epidemic of 1989-1991, the VFC Program was created as an entitlement program (a right granted by law) to increase vaccine access. The goal of this federally funded program is to improve vaccine availability nationwide by providing vaccines at no cost to VFC-eligible children through public and private providers enrolled in the program. The VFC Program is administered in all 50 states, Washington D.C., six U.S. cities/counties and seven islands, and uses federal grant dollars provided by the CDC to purchase and provide vaccines to enrolled healthcare providers at no cost to the provider. The CDC buys vaccines at a discount from the manufacturers and makes the vaccines available to award recipients (i.e., state health departments and certain local and territorial public health agencies). Private physician offices and public health clinics enrolled as VFC providers order and administer VFC vaccines for eligible children seen in their offices.

### Children living in Nevada between the ages of birth through 18 years are eligible for VFC vaccines if they meet at least one of the following criteria:

- Medicaid-enrolled or eligible
- American Indian/Alaska Native
- Uninsured
- Underinsured

Children who are eligible for VFC vaccines are entitled to receive all **16** pediatric vaccines recommended by the ACIP. Without the VFC program, many infants and school-age children would likely go unvaccinated due to cost.

# Vaccines For Children Program

**NSIP regularly recruits new physician offices and public health clinics into the VFC Program. With a variety of new practices steadily opening across the state, and existing providers deciding to add immunization services, it is always an important goal for NSIP to recruit providers and add more VFC access points for Nevadans.**

Providers must be appropriately credentialed or licensed in Nevada and complete an Agreement to Participate form for each vaccination program they wish to enroll in, whether it be VFC, 317 Adult, and/or Nevada Cocooning Programs. The Agreement to Participate form is updated yearly and ensures a provider understands the responsibilities of storing, handling, and administering vaccinations. When preparing providers to store, handle, and administer any vaccine, it is imperative to stay in accordance with ACIP recommendations to guarantee the safety of all vaccines administered. NSIP ensures enrolled providers receive all necessary training and have the necessary technology before vaccines are allowed to be shipped to the provider.

The maintenance of the VFC program is a vital piece of NSIP's daily operations and includes responsibilities such as:

- Conducting provider site visits
- Staying up to date with changing federal and state regulations
- Keeping track of VFC vaccines administered
- Evaluating quality assurance improvement
- Determining eligibility for provider enrollment
- Conducting training and educational activities among administrators of all VFC vaccines

**Figure 61. Vaccines Recommended by the ACIP**

(Source: 2006 VFC Resolution No. 6/06-1)

The ACIP proposes that vaccines to prevent the following diseases be included in the Vaccines for Children (VFC) program:

- Diphtheria
- Haemophilus influenzae type b
- Hepatitis B
- Human Pappillomavirus
- Influenza
- Measles
- Meningococcal
- Mumps
- Pertussis (whooping cough)
- Pneumococcal
- Poliomyelitis
- Rotavirus
- Rubella
- Tetanus
- Varicella

The ACIP includes in the Vaccines for Children program vaccines which are used to prevent the 15 diseases listed above; to be adminstered as provided in other VFC resolutions.

Adopted and Effective: June 29, 2006

**Table 12. Nevada's Enrolled VFC Providers**

(Source: NV WebIZ, Retrieved on November 18, 2022)

| Practice Type | Number of VFC Providers |
|---|---|
| Adult Medicine | 0 |
| College/University | 3 |
| Correctional Facility | 3 |
| General Practice | 131 |
| Hospital | 10 |
| Non-profit/ Free Clinic | 7 |
| Nursing Home/ Hospice | 1 |
| Pediatrics | 93 |
| School/School District | 4 |
| Tribal Health Center | 12 |
| **Total** | **264** |

# Perinatal Hepatitis B Prevention

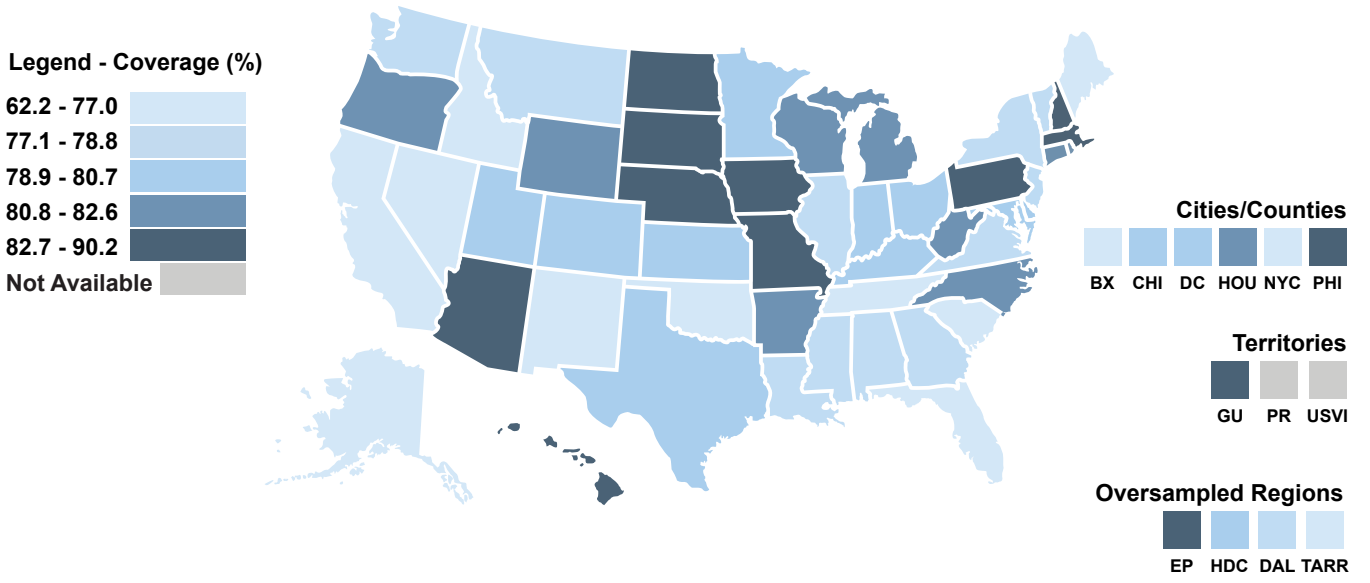
## Hepatitis B is a vaccine-preventable liver infection caused by the Hepatitis B virus (HBV).

The national Perinatal Hepatitis B Prevention Program (PHBPP) began in 1990 as Congress recognized the need for resources to prevent perinatal Hepatitis B transmission and to develop and implement state-administered programs. The CDC annually awards funds to support perinatal Hepatitis B prevention programs in all 50 states, Washington D.C., and eight territories. NSIP employs one statewide coordinator and funds all three county health districts to perform case management in their respective jurisdictions.

Nevada has made great strides in preventing Hepatitis B perinatal transmission. Administering a Hepatitis B dose at birth is considered the medical standard of care and Nevada consistently ranks above the national average for percentage of newborns who receive a Hepatitis B birth dose within 12 hours of birth. According to the 2017-2018 National Immunization Survey (NIS), 76% of Nevada newborns received their Hepatitis B birth dose, ranking Nevada No. 5 in the nation when compared to other states.

**Figure 62. Nevada Perinatal Hepatitis B Vaccination Coverage, 2017-2018**

(Source: CDC's 2018 ChildVaxView)




Though Nevada's percentage rate is above the national average, there is still room for improvement in Nevada's perinatal Hepatitis B prevention efforts. To maintain the perinatal Hepatitis B program, NSIP responsibilities include:

- Monitoring perinatal Hepatitis B cases to use as opportunities to vaccinate
- Coordinating vaccine activities with LHDs and hospitals
- Providing education and outreach activities to healthcare workers
- Ensuring hospitals and providers have access to Hepatitis B vaccine series
- Providing case management services for Hepatitis B exposed infants

# NV WebIZ

**As early as the 1970s, experts in disease prevention recognized the potential of immunization registries as an effective tool to alleviate the impact of disease outbreaks by managing immunization information about children.**

The measles epidemic that began in 1989 highlighted the benefits of tracking infant and adolescent immunizations in an immunization registry or Immunization Information System (IIS). The American Immunization Registry Association (AIRA) defines IIS as "confidential, population-based, computerized databases that record all immunization doses administered by participating providers to persons residing within a given geopolitical area."[49]

The CDC's NCIRD houses the Immunization Services Division which grants federal funding to all 50 states, Washington D.C., and eight territories to manage an Immunization Program and an IIS. In 2003, NV WebIZ was publicly introduced as the official immunization registration system for Nevada. The development of NV WebIZ was supported by Envision Technology Partners, which regularly works closely with NSIP to provide an efficient IIS.

Envision Technology also provides an array of customizable options that can enable NV WebIZ to sustain recommendations made by the ACIP. Once the committees' recommendations are reviewed and approved by the Centers for Disease Control and Prevention (CDC) director and the U.S. Department of Public Health & Human Safety (DPHHS), they are published in the Morbidity and Mortality Weekly Report (MMWR).

As ACIP and CDC recommendations are developed, Envision Technologies can update automated processes into NV WebIZ that help determine a patient's recommended immunizations as they come up, which in turn provides clarity for providers and patients. A function known as reminder recall is also available to providers enrolled in NV WebIZ and helps providers and clinicians identify patients due or overdue for vaccines. NV WebIZ, however, does not capture underlying health conditions and thus cannot forecast recommendations based on pre-existing conditions or criteria.

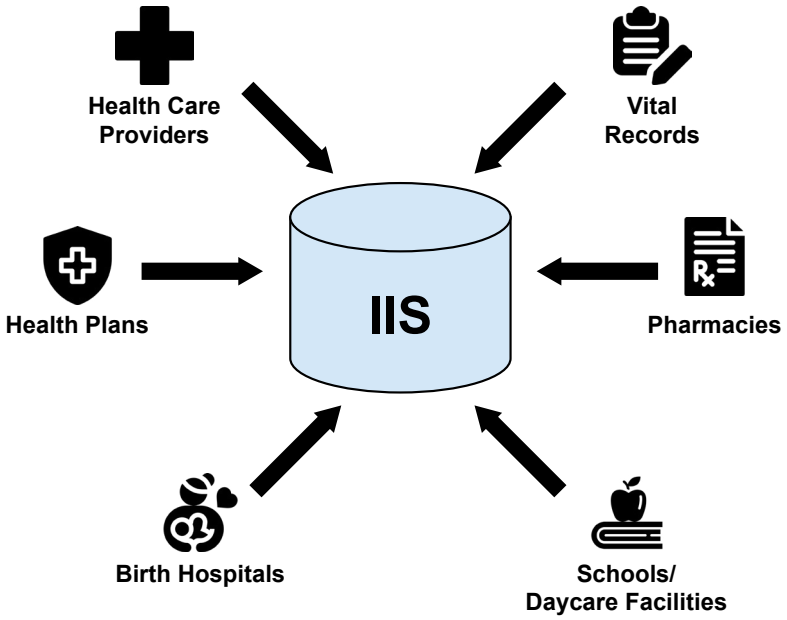
**NV WebIZ also has the capacity to electronically exchange data with healthcare provider electronic medical/health record systems (EMRs/EHRs).**

**Nevada uses the industry standard Health Level 7 (HL7) version 2.5.1 protocol to send or receive this type of patient immunization information electronically and upload it into NV WebIZ immediately. Using this method eliminates the need for double data entry, saving provider offices time and money while increasing accuracy and completion of the immunization data.**

The state's HL7 bi-directional interface allows an EMR/EHR to query NV WebIZ for immunization data for a particular patient, which is then sent over the internet electronically, and uploaded into the EMR/EHR.

**Figure 63. Immunization Information System Data Sources**

(Source: 2007 DHHS Immunization Information Systems Fundamentals: Overview and Development)




## As of June 8, 2022, NV WebIZ had:

| | | |
|---|---|---|
| **Over 52 million vaccinations administered** | **1,900 providers** | **3,000 clinics** |

IISs are an important asset to immunization efforts as they gather immunization records from multiple healthcare providers and consolidate them in one location for use by patients, parents and/or legal guardians, providers, and schools[50]. NV WebIZ allows for printing of official immunization records for people to show proof of vaccination status. Parents and/or legal guardians can print official immunization records for their child and adults can print official immunizations records for themselves. This is an official record and can be used as proof of immunization as needed.

NV WebIZ is crucial to NSIP as it is used to:

- Support vaccine ordering and accountability for all vaccine programs
- Coordinate vaccination quality improvement activities
- Provide information for health insurance companies to report to Healthcare Effectiveness Data and Information Set (HEDIS)
- Identify and address disparities in vaccination coverage with vulnerable or under-vaccinated populations

NV WebIZ has been able to grow exponentially over the years to meet new needs and requirements. NSIP staff members have been very active in AIRA over the years, leveraging and contributing to IIS best practice development.

## Special Projects & Outreach

**NSIP's Special Projects & Outreach unit supports any additional programs that are required to increase vaccination coverage. Special Projects & Outreach activities are dependent upon the availability of federal funding opportunities.**

Cocooning is a state-funded program which supports the vaccination of close contacts of newborns to ensure protection against pertussis until the child is old enough to meet the recommended age for vaccination and is considered a special project within NSIP. As of May 2022, nine of Nevada's 19 birthing hospitals were participating in the cocooning project as well as 34 OB/GYN offices. NSIP Special Projects & Outreach provides support to obstetrical providers across Nevada to offer no-cost influenza and Tdap vaccines to pregnant women, as recommended by ACIP.

During the COVID-19 vaccine response, the Special Projects & Outreach Unit was tasked with managing the Pharmacy Partnership for Long-Term Care Programs. The partnership between the Centers for Disease Control and Prevention (CDC) and CVS, Walgreens, and Managed Health Care Associates offered an onsite COVID-19 vaccination series for residents and staff of skilled nursing homes and select assisted living facilities across the United States. NSIP partnered with the Nevada Board of Pharmacy to directly coordinate the partnering of skilled nursing facilities and select assisted living facilities with a CVS or Walgreens pharmacy partner. Between mid-December 2020 and March 30, 2021, the Pharmacy Partnership for LTC (Long Term Care) program successfully administered more than 7.8 million doses of COVID-19 vaccines to LTC facility staff and residents nationally.

## Newly Formed COVID-19 Division

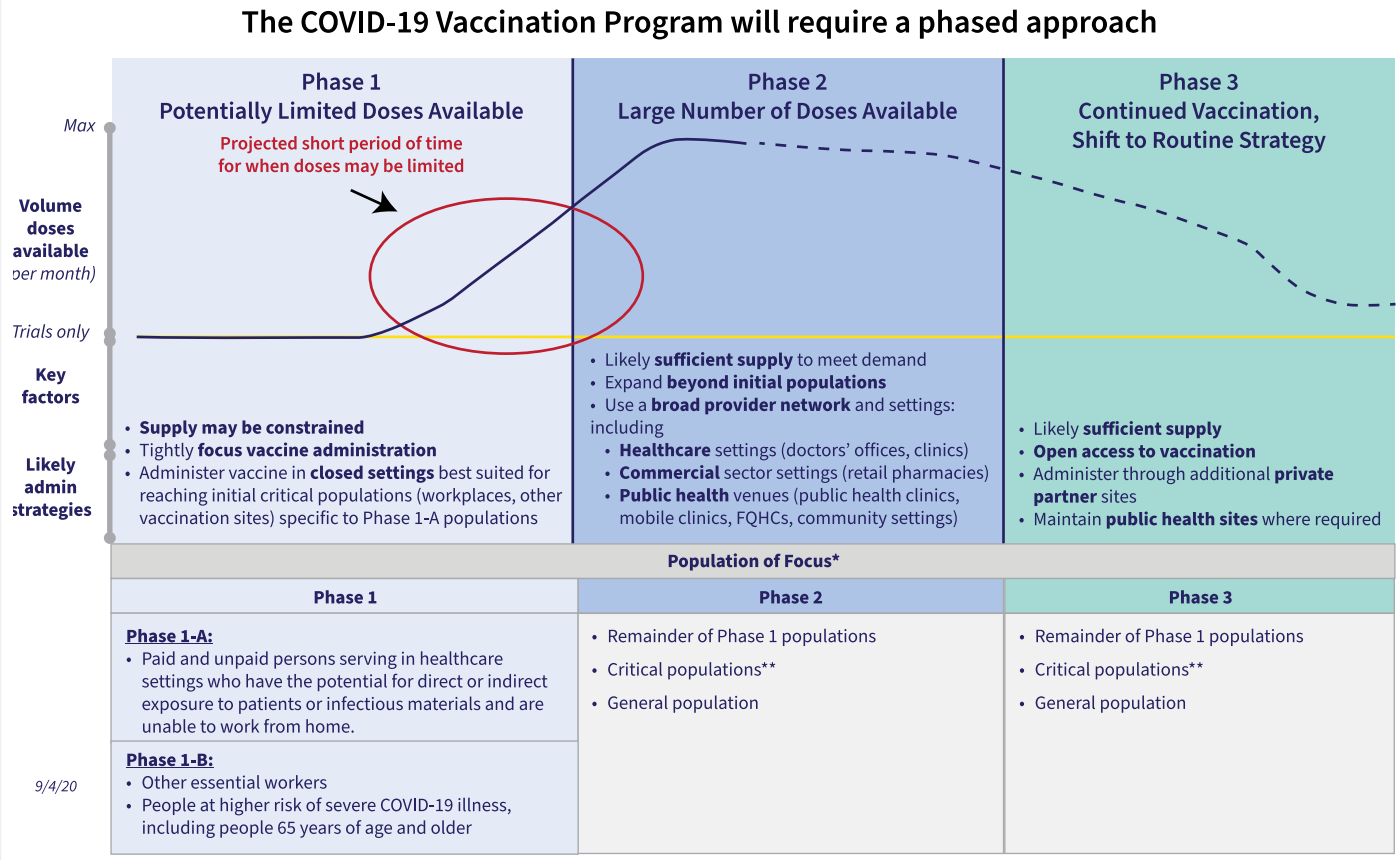
In March of 2020, the U.S. Department of Health and Human Services announced Operation Warp Speed (OWS), which was an initiative created to support the development and delivery of 300 million doses of a safe, effective vaccine for COVID-19 by January 2021. This initiative prompted the NSIP to assemble an additional unit within the program to specifically perform duties related to the COVID-19 vaccine response. With federal support, NSIP aligned traditional vaccine protocols with public health preparedness practices to gear up for an accelerated, efficient response when a COVID-19 vaccine was ready and available. In October 2020, NSIP published the COVID-19 Vaccine Playbook, which outlined how Nevada planned to order, store, distribute, track, promote, and administer COVID-19 vaccines.


While a safe, effective COVID-19 vaccine was critical to reduce COVID-19-related illnesses, hospitalizations, and deaths, coordination between public health preparedness staff and immunization program staff was key to having a successful vaccine response. During the COVID-19 vaccine response, NSIP's COVID-19 vaccine division was formed to ensure NSIP could continue to meet essential response needs. Duties included assessing the program capacity and requirements, recruiting staff, monitoring planning and elements of funding and expenditures, and meeting performance targets. The NSIP COVID-19 Program worked with local health departments, hospitals, and clinics to distribute COVID-19 vaccines as available, and regularly identified new providers and facilities that had the capacity to properly stock, administer, maintain COVID-19 vaccines, and adhere to federal and state requirements.

During planning for the distribution of vaccines throughout the United States and within Nevada, it was made clear by federal guidance that the COVID-19 vaccine supply would be limited, and vaccination efforts should focus on those who are critical to the COVID-19 pandemic response, as well as those at the highest risk for developing severe illness. With help from DHHS and the Governor's Office, NSIP developed a phased distribution approach to allow counties to efficiently provide vaccine coverage to those who are at increased risk of exposure to COVID-19 due to their daily occupational hazards and deemed essential to maintaining infrastructure. This population contained frontline workers (healthcare workers, to include ancillary staff, vaccinators and staff in LTCs), LTC residents, and people with underlying health conditions. Vaccine Points of Distribution (PODs) and other approaches to making vaccines equitable to these critical populations were established within multiple counties throughout August of 2020 to help mitigate death and disease to the general population.

**Figure 64. Nevada's Early Phased Approach Strategy to COVID-19 Vaccine Distribution**

(Source: 2020 COVID-19 Vaccination Program, Nevada's Playbook for Statewide Operations)




*Planning should consider that there may be initial age restrictions for vaccine products.*

Due to the limited number of initial COVID-19 vaccine doses allocated to Nevada, NSIP determined how many vaccine doses should be redistributed to each county through pro-rata statistician methodology. Nevada has 17 total counties: three are classified as urban (Carson City, Clark County, and Washoe County), three are classified as rural (Douglas, Lyon, and Storey counties), and the remaining 11 are classified as frontier counties (Churchill, Elko, Esmeralda, Eureka, Humboldt, Lander, Lincoln, Mineral, Nye, Pershing, and White Pine counties).[51]

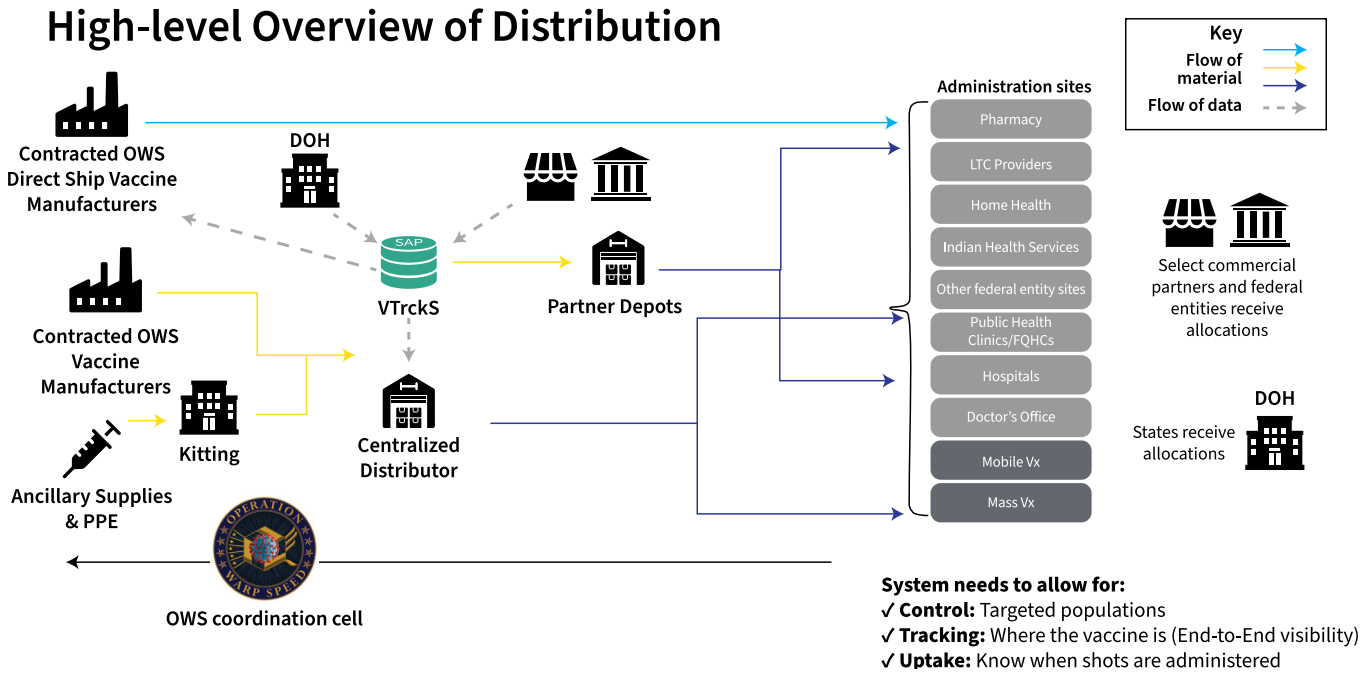
DHHS, Governor's Office, and NSIP staff coordinated the COVID-19 vaccine response for all Nevada counties with weekly county meetings that included LHAs, emergency responders, frontline healthcare facilities, and community partners.

## Newly Formed COVID-19 Division

The COVID-19 Program also regularly monitored program resources to avoid unexpected obstacles and ensure vaccine access during the process of COVID-19 vaccine storage, handling, and administration. COVID-19 vaccine products are temperature-sensitive and must be stored and handled correctly to ensure efficacy and maximize shelf life. Proper storage and handling practices have been critical to minimize vaccine loss and limit the risk of administering vaccines with reduced effectiveness. For reliable distribution of the vaccine, it was necessary to have a well-trained staff, consistent ultra-cold storage and temperature monitoring equipment, and accurate vaccine inventory management.

**Figure 65. Redistribution Flow of COVID-19 Vaccine**

(Source: 2020 COVID-19 Vaccination Program, Nevada's Playbook for Statewide Operations)




Also critical to a successful response was the ability to order vaccines and track vaccine coverage data within a mature IIS. While the Centers for Disease Control and Prevention (CDC) determined the amount of COVID-19 vaccine allocated for each jurisdiction, the NSIP was responsible for managing and approving vaccine orders from enrolled providers. Prior to COVID-19, providers that were enrolled in VFC, 317 Adult, and/or Nevada Cocooning Program requested vaccine doses using NV WebIZ following NSIP's methods and procedures. At the time of the COVID-19 vaccine response, NV WebIZ did not have the capacity to withstand the large amount of COVID-19 vaccine orders, so a REDCap survey platform was generated to collect orders. The REDCap platform was made available to COVID-19 vaccine providers to facilitate weekly reporting of aggregate priority group counts vaccinated as well as aggregate patient race and ethnicity data. The data was used for rapid monitoring and for comparison to data reported to Nevada's Immunization Information System, NV WebIZ. This process allowed NSIP to submit providers' direct vaccine orders via an external information system (ExIS) and manually upload to CDC's Vaccine Tracking System (VTrckS). VTrckS is a secure online system that allowed jurisdictions to enter vaccine orders online and ultimately improve the efficacy of vaccine tracking and distribution.[52] After ordering, NSIP staff ensured accurate and complete shipping information was available for all vaccine shipments to enrolled vaccination providers.

The COVID-19 vaccine response facilitated the addition of providers in a variety of settings including but not limited to:

- Healthcare provider offices and other outpatient clinics
- Worksites and other occupational health clinics
- Chain and independent pharmacies
- Temporary mass vaccination sites such as schools, mobile clinics, and PODs

The mandatory reporting of vaccine administration in Nevada allowed NSIP to capture real-time data from program participants to meet needs for provider quality and assessment. It also allowed NSIP to gather data and identify health disparities within special populations to improve vaccine coverage.

Historically, there has not been sufficient funding available to assess the improvement of IIS data quality. NSIP used the opportunity that the COVID-19 vaccine response provided to improve the quality of data within the state IIS. This included management of duplicate records and common data quality aspects such as accuracy, timeliness and completeness of reported data, and management of patient status both at the provider and jurisdictional level. The creation and surveillance of accurate public records were and continue to be extremely important during times of disease outbreak as the need for access to public records increases.

## Partnerships

The statewide immunization coalition, Immunize Nevada, has been a key partner in improving immunization coverage throughout Nevada. Immunize Nevada achieved 501(c)(3) non-profit status in 2013 and has played an integral role in improving Nevada's immunization services infrastructure. Well received by communities across the state, Immunize Nevada is charged with developing creative education opportunities for healthcare professionals, parents, the public, and Nevada's elected officials. Other key partners include Nevada's local health districts and health officers, county emergency management, community health nurses, tribal liaisons, Nevada Office of Minority Health and Equity (NOMHE), Vaccine Equity Coalition, Congressional Budget Offices, and Nevada Governor's Council on Developmental Disabilities (NGCDD). Collaborating through advocacy, outreach, education, and grass roots efforts, these partners have been the public's go-to sources for immunizations and reliable information. To read more about NSIP's partnerships, please refer to the 'Immunization Partners Overview' section in this report.

In a very successful attempt to garner COVID-19 vaccine confidence within Nevada, the Nevada governor's office, the Department of Health and Human Services, Immunize Nevada, and IGT Global Solutions Corporations hosted Vax Nevada Days, which gave away cash and prizes to vaccinated Nevadans. To participate, Nevada residents had to be registered within NV WebIZ, which not only increased vaccine coverage but also captured a greater number of Nevadans that were vaccinated in the state's IIS. NSIP also rolled out a program which allowed Nevadans to access their COVID-19 immunization records by way of QR code, which was supported by NV WebIZ.

As the COVID-19 pandemic vaccine response continues, NSIP will continue to work with community partners on strategies to improve vaccine delivery and use other established resources to improve vaccine coverage in each Nevada county, with a special focus on ensuring health equity. These partners will be discussed in more detail in the next section.

# Immunization Partners Overview

## Introduction

**Most states were already coordinating their COVID-19 vaccine response before the anticipated COVID-19 vaccine became available in fall 2020. NSIP spearheaded Nevada's COVID-19 vaccination response by recruiting partners and acting as an intermediary between the federal and local responses.**

Local Health Authorities and community-based organizations were a critical component of the COVID-19 immunization response in Nevada. Despite significant challenges presented with the COVID-19 pandemic, these agencies and partners were able to quickly adjust to meet the community needs for vaccinations by addressing the gaps in coverage and supporting the providers delivering vaccines. There were several partners NSIP worked with to improve vaccination rates throughout Nevada. Below is just a small sample of partners that worked across jurisdictions to ensure prompt, effective, and equitable delivery of vaccines. This list is in no way specific or exhaustive of all the partnerships that helped steward Nevada through the pandemic.

**Table 13.**

| Agency Partnerships | | |
|---|---|---|
| Air National Guard | Federal Emergency Management Agency (FEMA) | United States Forest Service (USFS) |
| Army National Guard | Nevada Highway Patrol (NHP) | Nevada Aging and Disability Services (ADSD) |
| Bureau of Land Management (BLM) | Nevada Medicaid | Nevada Department of Employment, Training and Rehabiliation (DETR) |
| Department of Employment, Training, and Rehabilitation (DETR) | Office of Public Heath Investigation and Epidemiology (OPHIE) | Nevada Division of Child and Family Services (DCFS) |
| Department of Motor Vehicles (DMV) | Regional Transportation Commission (RTC) | Nevada Division of Health Care Financing and Policy (DHCFP) |
| Division of Welfare and Supportive Services (DWSS) | United States Department of Agriculture (USDA) | Nevada Office of Minority Health and Equity (NOMHE) |

**Table 14.**

| Community Partnerships | Private Partnerships | Provider Partnerships | Government Partnerships |
|---|---|---|---|
| Correctional Facilities | Community Centers | FQHCs | Nevada Indian Commission |
| Fallon Paiute Shoshone Tribe | Convention Centers | Hospitals | Southern Nevada Health District (SNHD) |
| City & County Fire Departments | Employers across all business industries | Long-term Care Facilities (LTCFs) | Carson City Health and Human Services (CCHHS) |
| Libraries | Retail Industry - grocery stores, pharmacies, and home improvement: Albertsons, CVS, Smith's, Walmart, and Walgreens | Pharmacies | Washoe County Health District |
| School Districts | Nevada Resort Association and all of its members | Nevada Hospital Association | Nevada Department of Health and Human Services |
| Colleges & Universities | | Nevada State Boards of Medical Examiners, Nursing, Osteopathic, Pharmacy, and Veterinary Medicine | Nevada Community Health Services |
| Vaccine Equity Collaborative | | Nevada State Medical Association, Clark County Medical Society, and Washoe County Medical Society | Nevada Department of Corrections |
| Nevada Governor's Council on Developmental Disabilities | | Nevada Chapter of the American Academy of Pediatrics | Nevada Board of Pharmacy |
| Immunize Nevada | | | Nevada Mobile Units |
| Nevada Rural Hospital Partnership | | | |
| Inter-Tribal Council of Nevada | | | |
| Medical Reserve Corps | | | |
| Battle Born Medical Corps | | | |

# Local Health Authorities (LHAs)

LHAs were critical in planning for the arrival of the COVID-19 vaccine and in coordinating the administration of vaccines once available. Their work was invaluable in ensuring Nevadans wanting the COVID-19 vaccine could access it. Below are some highlights of the planning and delivery work of LHAs.

## Vaccine Planning

LHAs performed various outreach, education, and support activities in planning for the arrival of COVID-19 vaccines in Nevada. Each LHA developed vaccination plans that involved community Point of Dispensing sites (PODs), which would allow community residents to travel to local sites to receive COVID-19 vaccines. These pop-up vaccine sites were established with the help of community partners within each jurisdiction, and required coordination of partners, volunteers, and service groups to administer vaccines.

In Clark County, SNHD's Office of Epidemiology developed maps outlining COVID-19 case rates to plan for future vaccination clinics in underserved communities facing a disproportionate burden of disease. They also created a social equity team to examine and identify the needs of culturally diverse communities and hard-to-reach populations.

## Vaccine Delivery

Once vaccines arrived, plans developed by LHAs and their partners were put into action. Across the state, LHAs and various counties began to vaccinate at PODs per the Nevada DHHS COVID-19 Vaccination Program Playbook for Statewide Operations, delivering vaccines via a tiered approach. SNHD mobilized small and large PODs to provide vaccines to 1,500-10,000 people per day. WCHD executed a mass public information campaign to notify residents of vaccine availability and sign-up procedure, as well as administering vaccines to homebound individuals. And CCHHS rotated vaccine events throughout the Quad-County region, and made their vaccine clinics accessible for walk-ins.

The work of LHAs in planning and delivering vaccines as outlined in this section is in no way reflective of all of their immense efforts. The staff and partnering agencies performed tireless work, introduced innovative ideas, and used evidence-based practices in response to the COVID-19 emergency.

### LHAs leveraged outreach and informational campaigns to promote COVID-19 vaccine availability and efficacy.

1. **Carson City Health and Human Services**

*CCHHS used social media to promote vaccination events and provide education to nearly 3,000 individuals per week. They also held focus groups to assess the content, value, and perception of their messaging, making adjustments to improve their outreach and vaccine delivery efforts.*

2. **Southern Nevada Health District**

*SNHD incorporated Get Out The Vax (GOTVax) efforts to distribute roughly 200,000 informational flyers to identified priority zip code areas in collaboration with community partners such as Mi Familia Vota, Promotoras Las Vegas, Dream Big Nevada, and Puentes. Vaccine exit surveys were performed to assess information sources and motivational factors of individuals getting vaccinated to better inform public health efforts.*

3. **Washoe County Health District**

*WCHD implemented a social media plan that included translating materials in Spanish and connecting with hard-to-reach populations. They also implemented a county-specific vaccine call center and coordinated weekly media briefings to inform news outlets of COVID-19 vaccine opportunities and developments. WCHD launched an online survey to better understand vaccine hesitancy and collaborated with a Hispanic Outreach Coordinator to help notify residents of upcoming vaccine events at St. Peter Canisius Church.*

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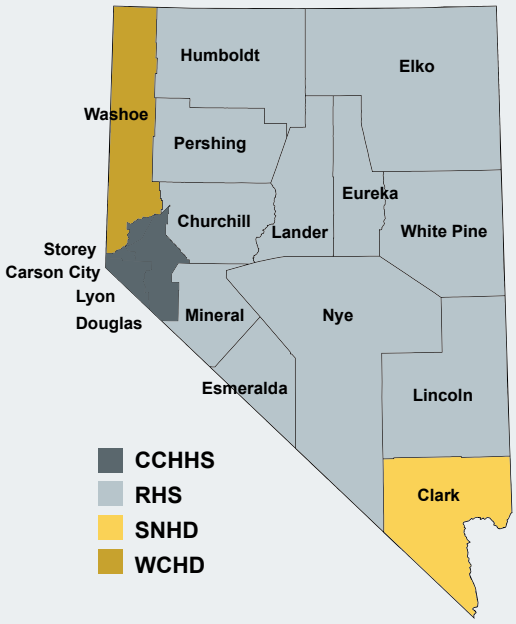
**Figure 66. Coverage Map of Local Health Authorities (LHAs)**




**To learn more about the LHAs, you access their respective websites:**

CCHHS: https://gethealthycarsoncity.org/
SNHD: https://www.southernnevadahealthdistrict.org/
WCHD: https://www.washoecounty.gov/health/

For the counties not falling under an LHA, the Office of Public Health Informatics and Epidemiology (OPHIE) and Office of Analytics (OOA) housed with the Nevada DHHS were instrumental in the COVID-19 response, especially in data collection efforts.

To learn more about these efforts, please visit:

OPHIE: https://dpbh.nv.gov/Programs/Office_of_Public_Healh_Informatics_and_Epidemiology_(OPHIE)/

OOA : https://dhhs.nv.gov/Programs/Office_of_Analytics/DHHS_Office_of_Analytics/

# Community Partnerships

## Nevada Vaccine Equity Collaborative

**Every Nevadan has an equal right to healthcare, including the COVID-19 vaccination. To that end, the Nevada Vaccine Equity Collaborative (NVEC), a partnership between the Nevada Minority Health and Equity Coalition (NMHEC) and IZNV by request of Nevada's governor, was established to ensure that equitable distribution happened. NVEC continues to serve in vaccination efforts throughout the state. NOHME and the NGCDD also assisted in these efforts.**

The NVEC is a partnership comprised of diverse and interdisciplinary members of the public, as well as private, state, and community partners, co-led by IZNV and the Nevada Minority Health and Equity Coalition. Members of the NVEC include state legislators, community members representing different ethnicities and demographics, healthcare providers, faith-based leaders, and public and private representatives. The goal of the collaborative is to promote the equitable communication and distribution of the COVID-19 vaccine throughout Nevada. Socially vulnerable populations such as those without vehicles, people with disabilities, older adults, and those with limited English proficiency, among others, were reached through the following:

- A comprehensive communication plan to meet the cultural and linguistic needs of communities highly impacted by COVID-19
- Assessment of the latest data to inform recommendations on how to equitably distribute the vaccine
- Community partnerships, resources, and opportunities to increase vaccine access in Nevada's hardest-hit communities
- A community-engaged outreach approach to reduce the impact of COVID-19 and increase vaccine uptake

**NVEC, along with IZNV, used data compiled from the Office of Analytics to create a COVID-centric social vulnerability index (SVI) map.**

**The SVI map layered zip code data, COVID-19 case rates, and COVID-19 vaccination rates. This SVI map allowed for IZNV's community health worker (CHW) team to identify zip codes in the state with lower vaccination rates and focus COVID-19 resources and vaccines.**

As the COVID-19 vaccine rollout continues, it is increasingly critical to ensure there is equity in the process.

To learn more about NVEC or to access resources, visit their website.

# IZNV

**With a goal to improve Nevada's low vaccination rates amongst children coupled with the concern of spikes in measles cases and outbreaks across the county in the 1990's, a group of concerned parents, community members, small business leaders, and local healthcare professionals formed a coalition that would be known as the current Immunize Nevada.**

IZNV was formed in 1995 by a group of individuals intent on saving lives through disease prevention and health promotion. As a 501c3 nonprofit coalition, IZNV partners with community members, healthcare providers, small businesses, elected officials, state agencies and many other partner organizations to achieve its mission of increasing vaccination rates across all demographics, for all Nevadans across the lifespan, through education, outreach, and advocacy.

**IZNV works with local healthcare providers enrolled within the VFC program, FQHCs, state health agencies, and LHAs to provide vaccines where needed and address barriers to access.**

**This is done through coordination of community vaccine clinics hosted in partnership with community agencies and healthcare partners. Resources such as immunization clinics are provided to zipcodes across the state with known high social vulnerabilities and greater risk for VPDS.**

**IZNV's partnerships have been an asset in serving the communities that lack the access to vaccines.**

**Between 2018 and 2021, IZNV executed a total of 1,128 events; these include clinics, outreach events, and conference tables, both virtual and non-virtual.**

| 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|
| 160 events | 180 events | 132 events | 656 events |

IZNV hosts monthly meetings that connect community partners and share on relevant health topics. Between 2018 and 2021, IZNV had more than 2,400 attendees across their monthly meetings, which accounts for over 150 different organizations.

Between 2020-2021, IZNV hosted 24 Nevada Immunization Learning Exchange (NILE) webinars that focused on routine immunization uptake and communication. Approximately 424 nurses, CHWs, pharmacists, medical assistants, and public health professionals attended these webinars, which were archived and can be accessed here.

During summer 2021, IZNV worked in conjunction with various state agencies and the Federal Emergency Management Agency (FEMA) to push GOTVax efforts aimed at improving Nevada's COVID-19 vaccination rate. IZNV worked with partners to coordinate COVID-19 vaccination clinics in identified zip codes, an effort that ensured clinics were available in various communities across the state, including underserved communities and low vaccination zip codes.

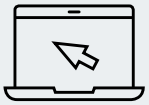
**The pandemic disrupted routine childhood immunizations, so IZNV took deliberate steps to ensure children could resume their recommended vaccination schedules.**

IZNV hosted more than 20 back-to-school-focused clinics where school-required vaccines were administered at various locations across Reno and Las Vegas from May 1-August 30, 2021. In both Reno and Las Vegas, more than 1,400 children were immunized with 3,780 routine childhood vaccines given.

To address vaccine-related questions, IZNV hosted or participated in 121 events and clinics throughout 2021. Here, staff and volunteers interacted with approximately 8,500 community members who had questions about vaccines or needed resources for vaccines. Utilizing NV WebIZ, IZNV staff helped people look up immunization records and determine their need for vaccines. At these various events, more than 2,000 NV WebIZ records were accessed and printed for parents and/or guardians to satisfy the school vaccine requirements.

IZNV sent out 7,250 reminder recall postcards to 145 VFC providers in Nevada to further encourage vaccination uptake for established patients. These reminder recall postcards served to remind parents to bring their children in to see a provider for their routine vaccinations. Flyers were created for the back-to-school season that highlighted the importance of vaccines needed for school entry in an easy-to-read format. These flyers along with instructions on how to access the public access portal for NV WebIZ could be accessed electronically on the IZNV website.

The Healthy Young NV program serves to empower young Nevadans by providing comprehensive health and wellness resources, paving the road toward healthy lifestyles. The website and social media platforms have encouraged tween, teens, and young adults to provide age-specific resources to educate on topics that these groups deal with every day, including their health and immunizations.



The Healthy Young NV content was created by peers, and has encouraged vaccine uptake, especially during the back-to-school season. More information and links to social media platforms can be found on their website.

## NMHEC

**The mission of the Nevada Minority Health and Equity Coalition is to promote the health and well-being of diverse communities by pursuing research, capacity building, and advocacy to recognize the unique cultural and linguistic differences of Nevadans. The NMHEC is a partnership of academic, civic, private, and community organizations that aims to address health disparities and inequities in Nevada.**

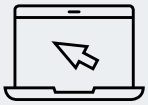
To slow the spread of COVID-19 most effectively and to reduce health inequities, NMHEC brought together community leaders and organizations to drive community change and promote solutions. Community members steered the development of linguistically and culturally inclusive messaging that accounted for their realities and lived experiences. Communication and dissemination plans were developed focusing on communities experiencing health disparities: African American/Black, Hispanic/Latinx, American Indian/Alaska Native, Asian Pacific Islander, LGBTQ+, and those who are living with chronic conditions that place them at higher risk for COVID-19.

Amid COVID-19 disparities, NMHEC developed the #OneCommunity education and outreach campaign, which aimed to:

- Provide a central location in which minority community leaders and members could obtain reliable information about COVID-19
- Engage the community in a larger conversation about COVID-19 to discuss impacts, perceptions, concerns, challenges, and next steps
- Engage community leaders and members as active participants in COVID-19 education and outreach
- Disseminate information through various printed and digital sources that would best reach the seven target communities

The accomplishments of the #OneCommunity campaign included the dissemination of health information to more than 790,000 people and more than 62 million impressions across various mediums. Additionally, NMHEC developed seven COVID-19 community toolkits for each of the priority populations. These comprehensive toolkits addressed disparities in COVID-19 morbidity and mortality, social factors that contributed to the greater spread of COVID-19, epidemiological factors that worsened COVID-19 outcomes, and strategies individuals could use to keep their communities and families safe.

Beginning February 2021, the NMHEC's #OneCommunity initiative expanded its focus to reduce the spread of COVID-19 and to increase COVID-19 vaccine uptake among three priority communities: Black/African American, Hispanic/Latinx, and American Indian/Alaska Native. These communities and 10 priority zip codes were selected based on the impact of COVID-19 and their SVI. The #OneCommunity initiative worked to develop culturally and linguistically responsive vaccine messaging and disseminate accurate information that addressed common community concerns about COVID-19 and the vaccine. More than 480 materials were developed, and 10 culturally responsive, vaccine-centered art pieces were commissioned from local artists. Between February 2021-January 2022, more than 35,000 printed materials were shared across Nevada and more than 721,000 social media impressions were achieved.

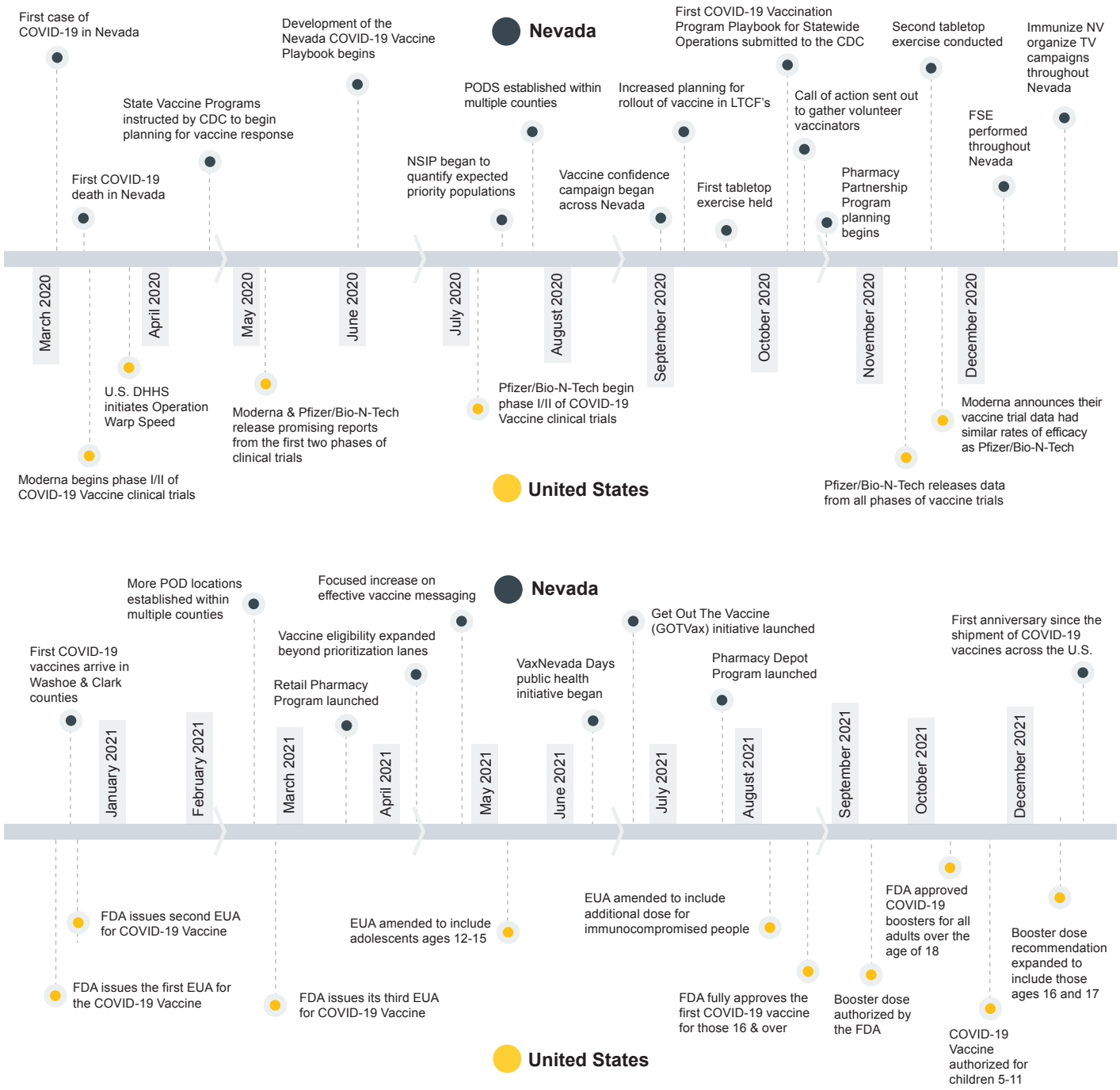


To learn more about the #OneCommunity campaign, visit their website.

# COVID-19 Pandemic and Immunization Timeline

*Please note: The following timeline of events is intended to serve as a reference of actions taken by the NSIP during the COVID-19 pandemic and vaccine response, while also examining U.S. events that impacted the response. Its purpose is to help readers understand the role NSIP played in the vaccine rollout and not indicative of all activities conducted during the COVID-19 pandemic.*

**Figure 67. COVID-19 Immunization Response Timeline (March 2020-December 2021)**



# Expanded Timeline Of Events

## March 2020 – State Of Emergency And Lockdown

**In January 2020, the World Health Organization (WHO) declared a global health emergency in response to the spread of a novel coronavirus, SARS-CoV-2. The proliferation of the highly infectious virus, commonly referred to as COVID-19, resulted in states taking swift action to mitigate the alarming increase in hospitalizations, morbidity, and mortality.**

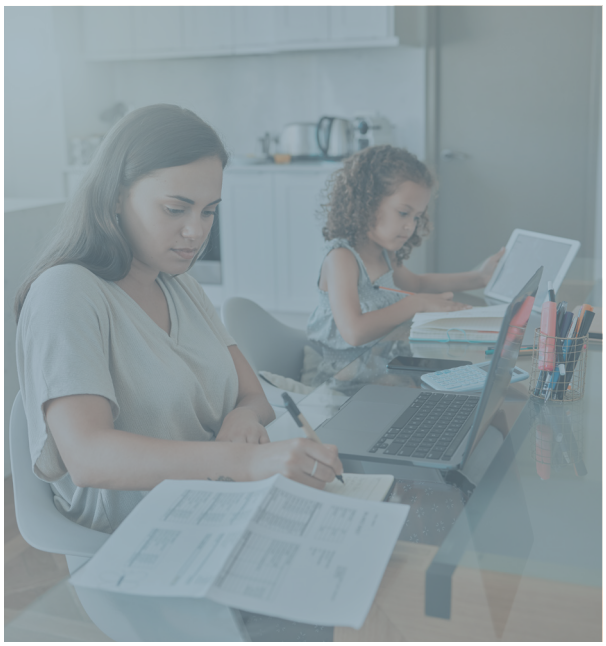
On March 5, 2020, the state of Nevada identified the first case of COVID-19. Soon after, the Nevada DPBH and NSIP began preparing for an expected vaccine response. To effectively begin mobilizing state resources, Nevada Gov. Steve Sisolak issued a *Declaration of Emergency for COVID-19 in Nevada* on March 12, 2020. As cases rose across the country, the governor established the Medical Advisory Team (MAT) on March 14, 2020 to make recommendations and advise the governor's office on policies related to Nevada's response. The following day, on March 15, 2020, Gov. Sisolak ordered that all public, community, and private K-12 schools be closed (Emergency Directive 001). On March 16, 2020, the first COVID-19 death in Nevada was reported. That same day, Moderna began clinical trials for the COVID-19 vaccine in Seattle, Washington.

As concern for public safety and system infrastructure grew, recommendations were made, resulting in the period known as lockdown. On March 17, 2020, the governor ordered casinos and gaming establishments to close (Emergency Directive 002). On March 20, 2020, businesses classified as nonessential and DMV offices were ordered to shut down, and people were directed to stay in their residence as much as possible and practice social distancing when outside their homes (Emergency Directive 003 and Emergency Directive 004). On March 24, 2020, the governor declared that people were not permitted to gather in groups of 10 or more, closing convention centers, sporting facilities, and public parks (Emergency Directive 007).

**While Nevadans were ordered to remain indoors and employers were forced to shut their doors, it became clear that the economic repercussions could likely exacerbate the spread of COVID-19.**

On March 29, 2020, the governor declared lockouts, evictions, or foreclosure actions could not be taken up against tenants or mortgage holders for non-payment or default of contractual obligations (Emergency Directive 008). For nearly six weeks, Nevadans adjusted to new working, learning, living, and social environments. Schools and businesses remained closed and school-age children, along with their parents and caregivers, stayed home. The immediate preparation of a vaccine response in the United States was spearheaded by the U.S. DHHS which was called Operation Warp Speed (OWS).

By March 30, 2020, this partnership worked with state jurisdictions to expedite the allocation and distribution of funds for the development of a COVID-19 vaccine. This prompted the Centers for Disease Control and Prevention (CDC) to begin working with state jurisdictions and national pharmacy chains on COVID-19 vaccine distribution and administration planning.



## April – December 2020: Phased Reopening And Vaccine Planning

**In April 2020, the *Nevada United: Roadmap to Recovery* plan was released, outlining a phased approach to reopening businesses and industries in the state while remaining committed to stopping the spread of COVID-19.**

On April 23, 2020, the CDC instructed vaccine programs to begin planning and included the *CDC Interim Playbook* as a guide to developing immunization guidelines. On May 7, Pfizer/BioNTech began clinical trials, and Nevada's governor declared plans to begin Phase I of Reopening set to begin on May 9, 2020. Phase I encouraged Nevadans to remain at home and continue to practice social distancing, but certain establishments could resume business operations if the required guidelines were met. Nail salons, hair salons, barber shops, and public parks could reopen, so long as social distancing and adequate customer spacing could ensure public safety. Restaurants and retail stores were allowed to open but could not exceed 50% of their maximum occupancy. Meanwhile, public gatherings of 10 or more remained prohibited. (For specific criteria related to Phase I, see: Emergency Directive 018.)

In the days following Phase I, Nevada saw consistent downward trajectories of positive COVID-19 cases and hospitalizations. On May 28, 2020, the governor declared that the state would enter Phase II of Reopening which allowed more businesses to reopen their doors and resume operations. On May 29, 2020, larger retail venues such as indoor malls, movie theaters, event venues, and fitness centers could reopen, with limitations to either 50% of their maximum fire code occupancy or 50 people. Places of worship were similarly allowed to reopen for 50 people or less with an emphasis that social distancing requirements were met. Additionally, public gatherings could increase from 10 to 50 people. Finally, on June 4, 2020, casinos—stewards to the largest industry in the state—were allowed to commence operations. (For specific criteria related to Phase II, see: Emergency Directive 021.)

**As Nevada and other states across the country slowly began to reopen, monitoring of COVID-19 cases and hospitalizations began to show steady increases.**

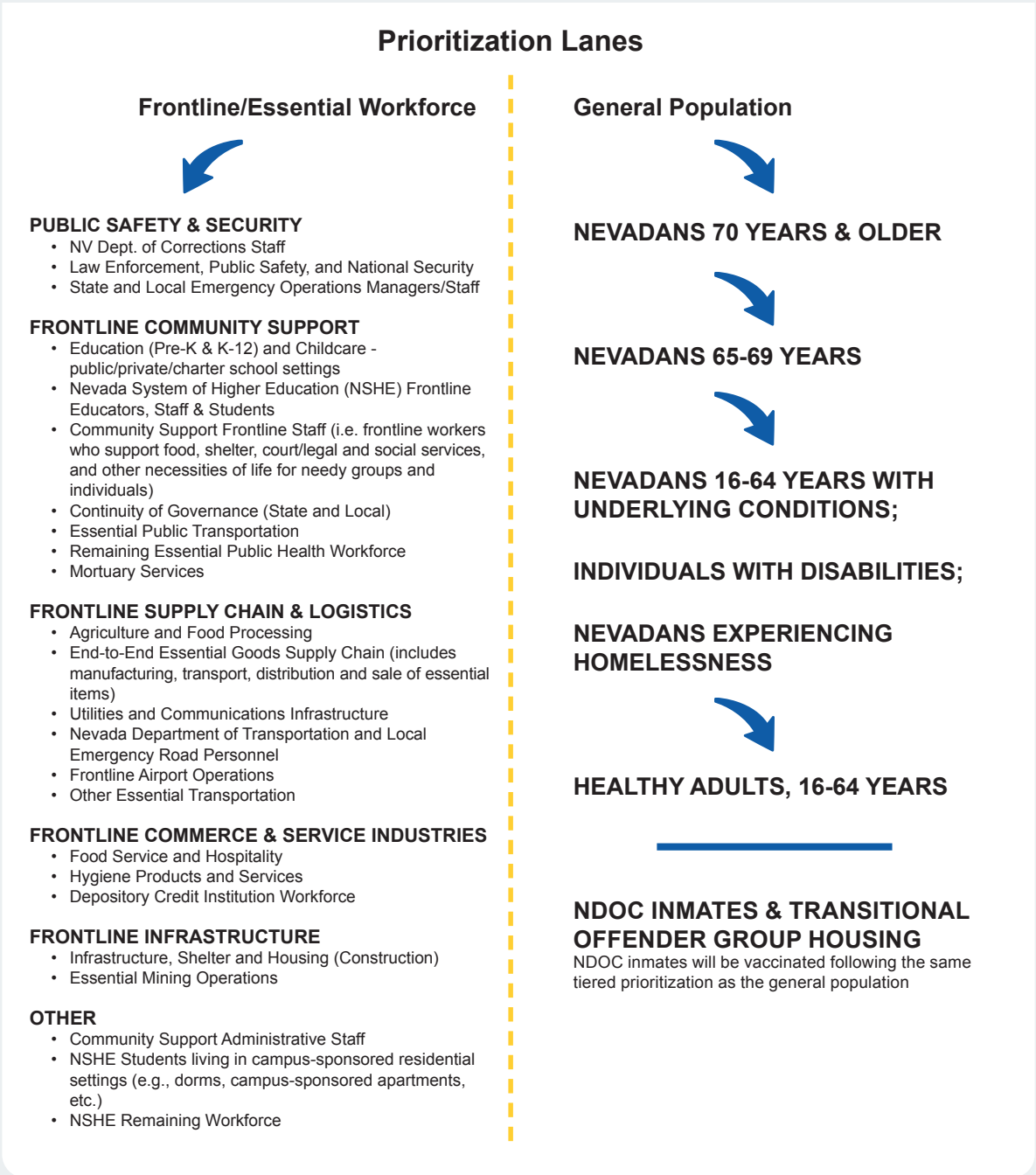
By June 2020, the seven-day average of daily new COVID-19 cases in the U.S. had increased by more than 30% compared to the weeks prior. To mitigate the trend in increased cases and hospitalizations, while keeping Nevada businesses open to the public, masks were mandated for all public places on June 25, 2020 (Emergency Directive 024.) In June of 2020, NSIP met with DPBH Public Health Preparedness (PHP) on multiple occasions to begin the development of a state *COVID-19 Vaccine Playbook*.

In July of 2020, Moderna and Pfizer/BioNTech both released promising reports from the first two phases of COVID-19 vaccine clinical trials. During this time, NSIP began to quantify populations that the CDC recommended to be prioritized during the initial COVID-19 vaccine release. Throughout the fall of 2020, NSIP recruited and enrolled new providers into the established vaccine program. Additionally, NSIP engaged partners in both the public and private sectors, including immunization and public health emergency preparedness programs, emergency management agencies, healthcare organizations, industry groups to include critical infrastructure sectors, policy makers, IZNV, and community vaccination providers (e.g., pharmacies, occupational health settings, doctors' offices).

During planning for the distribution of vaccines throughout the United States and within Nevada, it was made clear by federal guidance that the COVID-19 vaccine supply would be limited, and vaccination efforts should focus on those who were critical to the COVID-19 pandemic response, as well as those at the highest risk for developing severe illness or death. NSIP worked on developing a phased distribution approach to allow counties to efficiently provide vaccine coverage to this priority group. Included were frontline workers (healthcare workers, to include ancillary staff, vaccinators, and staff and residents in LTCFs), and people with underlying health conditions (see **Figure 73**). By October 2020, vaccine PODs and other options for making vaccines equitable to these critical populations were established within multiple counties to mitigate as much death and disease to the general population as possible.

**Figure 68. Nevada's Prioritization Lanes**

(Source: Nevada DPBH COVID-19 Vaccine Playbook)



Throughout August 2020, detailed planning meetings continued weekly with public emergency managers, preparedness staff, and immunization staff. Rural emergency managers were contacted to confirm POD plans in rural and frontier areas and ultra-cold chain vaccine options and barriers were discussed at length.

In September 2020, NSIP met with the Governor's Office to discuss COVID-19 vaccine rollout plans. On September 14, 2020, Gov. Sisolak signed an emergency regulation to authorize pharmacy technicians to administer immunizations under direct supervision of a pharmacist. On September 29, 2020, NSIP and PHP held an exercise to test the drafted vaccine response plans' effectiveness. Pharmacists have been vaccinators in Nevada for many years and remain a strong access point for all Nevadans. During this month, more intense partner planning ensued between NSIP and Long-term Care Facilities (LTCFs). At this time, the broad expectations of the drafted vaccine response plan were based on what was known of storage and handling during Phase I and II of the COVID-19 vaccine clinical trials. NSIP began to develop vaccine confidence messaging with a vaccine confidence campaign in September 2020 in collaboration with Nevada Joint Information Center (JIC). NSIP recognized that being able to offer clear, effective communication before COVID-19 vaccines were available would be essential to any successful vaccine uptake and vaccine response. NSIP staff received daily emails directly from the CDC which were monitored for important information that could be shared rapidly among counties via email or through an internal direct messaging platform.

NSIP also collaborated with multiple groups on messaging and/or survey campaigns. The Bureau of Child, Family and Community Wellness (BCFCW) and NSIP leadership continued to cultivate additional relationships to build vaccine confidence and secure a broad messaging base, including with NOMHE the Nevada Sheriffs' and Chiefs' Association, Nevada Division of Emergency Management (DEM) and local emergency managers, business associations representing the various critical workforces, and local chambers of commerce.

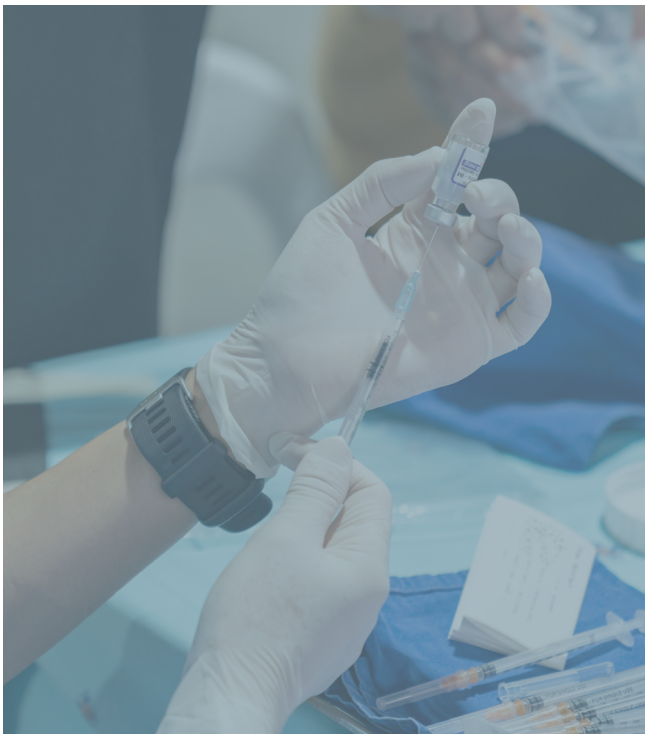
On October 1, 2020, the governor ordered adjustments be made to previously ordered capacity limits for places of worship, public gatherings, and larger indoor venues (e.g., concert halls, sporting arenas, etc.). Social distancing and face coverings requirements remained, but the occupancy limit increased to 250 people or 50% maximum fire code occupancy. Additionally, convention centers, trade shows, and conferences could accommodate up to 1,000 attendees. (See: Emergency Directive 033.)

**On October 16, 2020, DPBH submitted the first *COVID-19 Vaccination Program Playbook for Statewide Operations to the CDC*.**

**The playbook outlined how Nevada planned to order, store, distribute, track, promote, and administer the COVID-19 vaccinations. It was expected in the initial phase of the COVID-19 vaccine response that vaccine supply would be limited so vaccine efforts were concentrated on critical populations to achieve vaccination coverage in those groups.**

NSIP worked with the Nevada Department of Employment, Training and Rehabilitation (DETR) to ensure equitable access to COVID-19 vaccination services by mapping the locations of critical population groups and used this data when conducting provider outreach and enrollment. NSIP focused on a person's place of employment, rather than their place of residence, to account for workers by place of employment to minimize underestimation of critical workforce populations. NSIP also worked with PHP and the Chronic Disease Prevention and Health Promotion (CDPHP) Section to identify people with underlying health conditions and enroll providers available to reach that population when the vaccine was available.

NSIP began engaging the hospitals and the Nevada Board of Pharmacy (BOP) in September 2020 and other healthcare provider types, using the Board of Medical Examiners' listserv. To ensure those who were most at risk of COVID-19 were protected, Nevada opted into an initiative created by the U.S. DHHS in partnering with pharmacies such as CVS and Walgreens. The Pharmacy Partnership for the LTCF Program provided end-to-end management of the COVID-19 vaccination process, including cold chain management, onsite vaccinations, and fulfillment of reporting requirements to facilitate the safe vaccination of this patient population, while reducing the burden on LTC facilities and jurisdictional health departments. The ACIP recommended that LTCF staff and residents be vaccinated at the same time, so the Pharmacy Partnership Program worked with the Nevada Board of Pharmacy to vaccinate both staff and residents concurrently within each facility. In October of 2020, NSIP also reached out to the Nevada State Board of Nursing via listserv to request interested nurses to volunteer to immunize during the COVID-19 vaccine response.



During October 2020, the federal government announced that as a condition of receiving free COVID-19 vaccines from the government, vaccination providers would be prohibited from charging consumers for administration of the vaccine. Also in October, the Health Resources and Services Administration (HRSA) announced it was taking steps to ensure all Americans, including the nation's seniors and the uninsured, had access to the COVID-19 vaccine at no cost when it became available.

### The CDC determined the amount of COVID-19 vaccines designated for each Nevada jurisdiction, keeping in mind:

- Allocations were to be calculated pro-rata based on the size of the jurisdiction's population and the quantity of ready-to-ship doses from manufacturers
- If a jurisdiction did not order the full allocation, the remainder would roll over for future ordering, and unused allocations would not be reallocated to other jurisdictions
- Allocation amounts to be communicated to jurisdictions weekly each Tuesday starting in December 2020. These allocations would be immediately available for ordering

Data was imperative in driving the vaccine allocation decision making process, as there was limited vaccine supply. After Nevada received the allotted number of vaccines from the CDC, NSIP was then responsible for managing and approving vaccine orders from enrolled providers using the state's allotment. Using these established criteria, NSIP determined which counties were experiencing elevated disease transmission. Based upon real-time analyses, NSIP allocated vaccines to those counties using a data-driven, targeted approach. Healthcare workers and healthcare facility staff within each county determined to have elevated disease transmission were likely at greater risk of exposure, development of COVID-19, and becoming too ill to work.

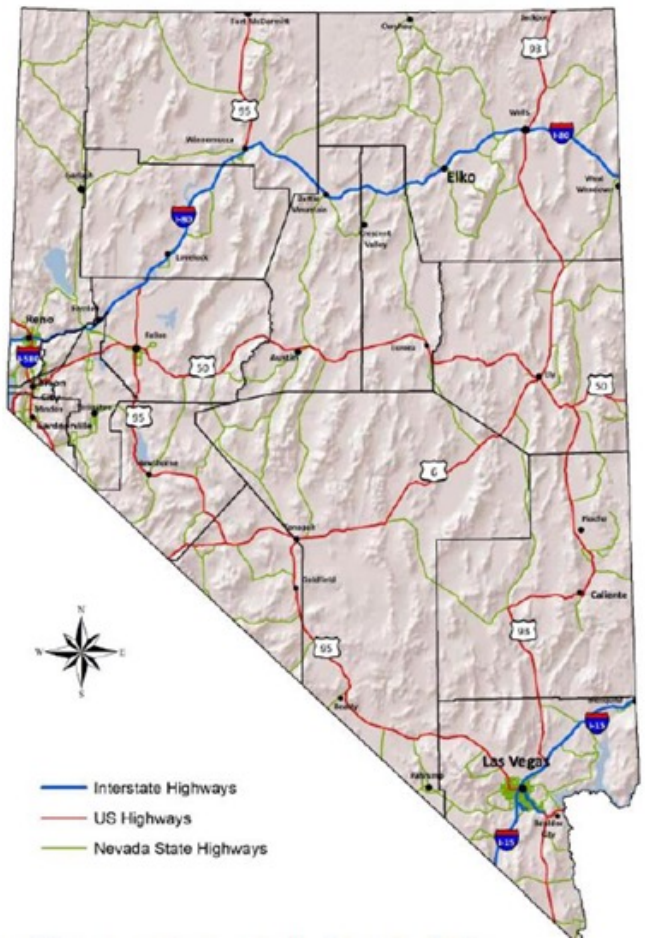
**While most Nevadans lived in urban areas, with the majority of Nevada's population and healthcare services in the metropolitan area of Las Vegas, those living in rural and frontier counties faced limited access to healthcare services due to provider shortages or lack of hospitals and clinics within driving range.**

A critical priority during the distribution of the COVID-19 vaccine to rural counties was the assurance of vaccines being shipped and handled efficiently to avoid wasting doses or reduced effectiveness during vaccine administration. Each of the COVID-19 vaccines had different handling requirements, but all had the need for cold chain storage ranging from about -70°C (-94°F) to about 2-8°C (36-46◦F) during specialized shipping. The requirement of ultra-cold storage would pose a challenge logistically for NSIP, given the topography of Nevada (see **Figure 69**).

Since only Clark and Washoe counties had ultra-cold storage capacities, all other counties could not receive direct shipment of the Pfizer/BioNTech vaccine. Additionally, vaccines had to be shipped in minimal dose intervals of 900 (Pfizer/BioNTech) and 100 (Moderna), which was more supply than the rural and frontier counties could handle. NSIP needed to make plans to determine vaccine re-distribution, where NSIP, PHP, and state Highway Patrol Officers would escort vaccines from the urban counties to rural PODs.

**Figure 69. Nevada Topography & Highway Systems**

(Source: 2019 Nevada State Health Needs Assessment)



## November-December 2020: Vaccine Distribution

**On November 9, 2020, Pfizer/BioNTech released data from their COVID-19 vaccine trials that showed a 90% efficacy rate. Almost one week later, on November 16, 2020, Moderna announced their vaccine had a 94.5% efficacy rate. With the first holiday season since the onset of the COVID-19 pandemic fast approaching, both vaccine manufacturers moved swiftly to seek Emergency Use Authorization (EUA) from the U.S. Food and Drug Administration (FDA).**

As COVID-19 vaccine data continued to look promising, NSIP continued to identify geographic areas and populations to evaluate how many vaccines each county would need based on existing county metrics and data sources. On November 21, 2020, a second exercise between NSIP and PHP was conducted as a dry run to prepare for the allocation of vaccines to Nevada. The focus of this exercise was to simulate the anticipated first seven days after the Centers for Disease Control and Prevention (CDC) allocated a vaccine allotment to Nevada. NSIP assigned specific roles and responsibilities to staff, including a lead for each of Nevada's 17 counties. While it was imperative to have state personnel closely monitoring activities, assigning local personnel with a better understanding of perceptions, unique challenges, and successful mitigation strategies within their communities increased the quality of a vaccination program. Other tasks included reviewing the vaccine ordering and distribution plan for both ultra-cold (Pfizer/BioNTech) and frozen (Moderna) vaccines to reach Nevada's identified Tier 1 workforce groups.

Based on information from OWS, Nevada expected to receive enough vaccine in its federal allocation to get through Tier 1 by the end of January 2021 and move quickly into the remaining prioritized groups during January and February 2021.

In December 2020, IZNV began television campaigns to message vaccine confidence and dispel vaccine misinformation among hesitant communities before the arrival of the COVID-19 vaccines. IZNV adapted its flu media campaign to message vaccine confidence to Nevadans and explain the logistics of who was eligible for the first vaccines when available. The goals of these campaigns were to empower families, combat myths and misinformation, and protect Nevada's communities before the arrival of the COVID-19 vaccine, while continuing to encourage Nevadans to roll up their sleeves for flu shots. A Full-Scale Exercise (FSE) was also performed throughout Nevada by NSIP and PHP to test the delivery and transfer of COVID-19 vaccines to rural and frontier counties across the state.

On December 11, 2020, the FDA issued the first Emergency Use Authorization (EUA) for the Pfizer/BioNTech COVID-19 vaccine for individuals 16 and older. Also on December 11, 2020, McKesson released clarification about the needles and syringes included in the COVID-19 ancillary supply kits for administering Pfizer/BioNTech's ultra-cold vaccine. There was some initial confusion about the quantities of needles and syringes included in the kits, and procuring the sheer number of needles and syringes needed to support an operation of this size involved additional complex analysis. In the end, COVID-19 vaccines and ancillary supplies were to be procured and distributed by the federal government via its centralized distribution contract.

Then on December 14, 2020, the first COVID-19 vaccines simultaneously arrived in Washoe and Clark counties and became immediately available to frontline healthcare workers. On December 18, 2020, the FDA issued a second EUA for the Moderna COVID-19 vaccine for individuals 18 and older. Throughout December, Nevada counties were vaccinating according to the guidelines in the COVID-19 Vaccine Playbook (linked above), which specified vaccinating those in Tier 1 first, which included healthcare, public health, and public safety personnel, and those living in long term care and assisted living facilities.

## January-December 2021: Year One with Vaccines

### By January 2021, counties were moving independently to vaccinate those in the prioritization lines. In February 2021, more POD locations were established within multiple counties.

On February 11, 2020, DPBH released a technical bulletin to establish quarantine guidance for people who were fully vaccinated against COVID-19. By February 27, 2021, the FDA had issued its third EUA for the Janssen (J&J) vaccine for individuals 18 and older. On March 1, 2021, NSIP updated the COVID-19 Vaccine Playbook to reflect ACIP recommendations to prioritize vaccinations for those 16-64 years of age with underlying health conditions. Also following ACIP recommendations, NSIP advised that mass vaccination events were to use this age-based criterion to expand vaccination efforts. Concurrently, the Board of Pharmacy expanded the Retail Pharmacy Program and began to recruit and enroll more healthcare providers that worked with vulnerable populations (e.g., cancer centers, dialysis centers, etc.) and could properly stock and administer COVID-19 vaccines. The Retail Pharmacy Program further expanded vaccine coverage throughout Nevada as it increased access to vaccination sites.

In March of 2021, there was a pause issued for the administration of Janssen vaccine due to concerns over adverse events. It was initially geared towards individuals who did not prefer mRNA vaccines and wanted to receive one dose instead of two for a completed series. This pause may have created unsettled feelings among those who were skeptical about the vaccines to begin with. After further investigation into data on Janssen vaccine side effects, the pause was lifted, and the product was reaffirmed to be effective by the CDC and ACIP as of April 27, 2021.

### By April 2021, vaccines became widely available as the supply outpaced the demand, and Nevadans were able to schedule their appointments regardless of priority status.

In April and May of 2021, NSIP continued to work with multiple DHHS divisions on messaging to encourage vaccination, especially among those who were vaccine hesitant. During this time, strategies to increase COVID-19 vaccination coverage were used across populations that were vaccine hesitant, underserved populations, and populations with low vaccination coverage. On May 10, 2021, the FDA expanded the EUA for the Pfizer/BioNTech COVID-19 vaccine to include adolescents 12-15 years of age. NSIP, in partnership with the Nevada Department of Education, began to prepare and engage schools in developing plans to administer COVID-19 vaccines to adolescents. Achieving high levels of COVID-19 vaccinations among eligible students as well as teachers, staff, and household members continued to be one of the most critical strategies to help schools safely maintain in-person operations.

On June 17, 2021, as part of a public health initiative called Vax Nevada Days, Nevada's governor and the Nevada DHHS in partnership with IZNV planned to give away $5 million in cash and prizes over eight weeks to nearly 2,000 Nevada residents who had initiated the COVID-19 vaccine process. Any Nevadan 12 and older who had at least one dose of a COVID-19 vaccine was entered using data collected by NV WebIZ. This vaccine incentive program was a way to garner further interest in COVID-19 vaccination and encourage those Nevadans who may not otherwise have planned to get vaccinated to do so.

On July 17, 2021, the GOTVax initiative was launched with the goal of increasing the COVID-19 vaccination rate in Southern Nevada. The mission was supported by local volunteers, state and local staff and resources, and FEMA. GOTVax teams conducted door-to-door outreach in strategically identified neighborhoods to distribute flyers and information on the vaccines and closest vaccination clinics, PODs, or community event. In August 2021, GOTVax expanded its program to include three Clark County DMV locations as vaccine clinics.

GOTVax

GET OUT THE VACCINE

On August 12, 2021, the FDA amended the EUA for the Pfizer/BioNTech and Moderna vaccines to include an additional third dose for immunocompromised people. The FDA approved the Pfizer/BioNTech vaccine as the first fully authorized COVID-19 vaccine for those 16 and older on August 23, 2021. On August 24, 2021, following the full approval of the Pfizer/BioNTech vaccine, many large organizations and states began to issue vaccination mandates for workers.

On September 22, 2021, the booster dose was authorized by the FDA as an extension of the COVID-19 vaccine primary series. Before the release of the booster dose, NSIP used aggregate data analyses from NV WebIZ to assess doses administered by patient location to continuously evaluate the state's vaccine administration capacity and the population eligible for booster doses. The continued analysis of Nevada's vaccinated population allowed NSIP to efficiently allocate additional doses to a variety of provider types and settings.

*Image courtesy of Katherine Welles - stock.adobe.com*

By October 29, 2021, the Pfizer/BioNTech COVID-19 vaccine was authorized for children ages 5-11, a group that was not previously authorized for immunization. On November 19, 2021, the FDA approved COVID-19 boosters for all adults over the age of 18 using either Pfizer/BioNTech, Moderna or the Janssen vaccine as a third dose six months after completing their primary series.

On December 10, 2021, the Pfizer/BioNTech booster dose was approved to include those ages 16-17.

December 14, 2021, marked the first-year anniversary of the shipment of COVID-19 vaccines across the U.S. According to NV WebIZ data, 55% of the vaccine eligible population (ages 5 and older) were completely vaccinated while 16% of the population eligible for a booster dose (ages 12 and older) had received a booster dose.

On December 16, 2021, the CDC gave a preferential recommendation to the Pfizer/BioNTech and Moderna COVID-19 mRNA vaccines considering their greater effectiveness and stronger safety profile.

# 2022: Year Two Vaccine Status Update

**In May 2022, the FDA limited the use of Janssen's COVID-19 vaccine as a last resort for adults who cannot accept vaccination from Pfizer/BioNTech or Moderna.**

**As of June 1, 2022, the Pfizer/BioNTech COVID-19 vaccine was available for those ages 5 and older; the Moderna COVID-19 vaccine was available for those 18 and older; and the Janssen vaccine was available in limited supply to those 18 and older.**

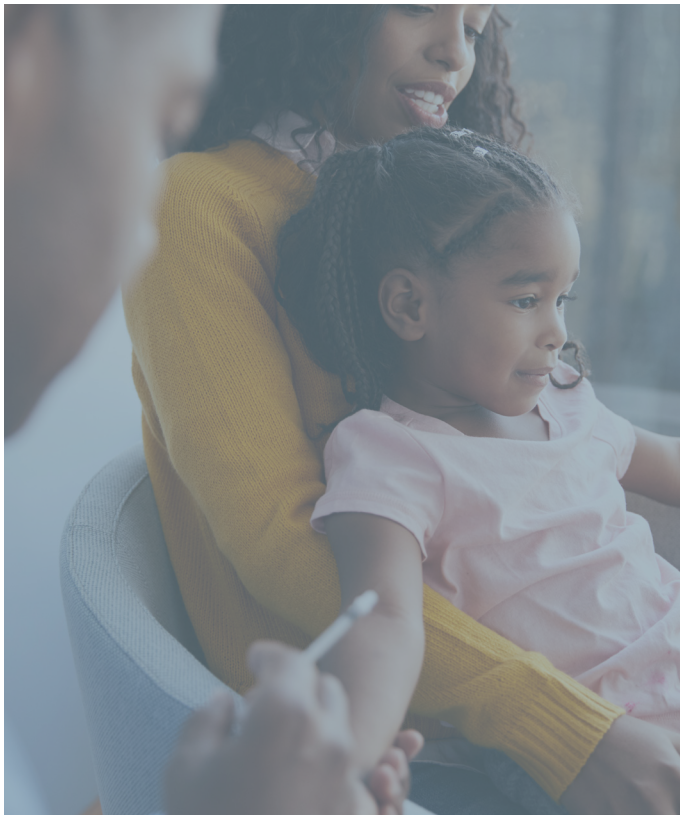
**Individuals eligible for booster doses include immunocompromised people and those ages 5 and older.**

On June 17, 2022, the FDA authorized the emergency use of the Moderna COVID-19 vaccine to include children six months to 5 years of age, and the Pfizer/BioNTech COVID-19 vaccine to include children six months to 4 years of age.

On July 19, 2022, the Novavax COVID-19 vaccine was approved for emergency use by ACIP for individuals 18 years of age and older as a primary vaccine series.

On August 22, 2022, the Centers for Disease and Prevention signed a decision memo that Novavax COVID-19 vaccine, Adjuvanted, be used as another primary series option for adolescents ages 12 through 17.

On August 31, 2022, the FDA issued amended Emergency Use Authorizations to both Moderna and Pfizer-BioNTech to authorize their bivalent formulations of the COVID-19 vaccine for use as a single booster dose at least two months following primary or booster vaccination. In addition, all monovalent mRNA COVID-19 vaccines were no longer authorized by the FDA as booster doses for individuals 12 years of age and older.



On October 12, 2022, the FDA issued amended Emergency Use Authorizations to both Moderna and Pfizer-BioNTech to authorize their bivalent formulations of the COVID-19 vaccine for pediatric use as a single booster dose, at least two months following primary or booster vaccination. In addition, Pfizer-BioNTech's monovalent mRNA COVID-19 vaccine was no longer authorized by the FDA to be administered as a booster dose for pediatric individuals 5-11 years of age.

These recommendations are regularly being updated and any new recommendations can be found here on the NV DPBH website.

On October 19, 2022, the FDA re-issued a letter of authorization to authorize the use of Novavax COVID19 Vaccine, Adjuvanted as a first booster dose for individuals ages 18 years of age and older.

**Throughout the COVID-19 vaccination response, continuous monitoring of FDA authorizations, and CDC and ACIP recommendations have been crucial for a successful outcome.**

The CDC's V-safe and Vaccine Adverse Events Reporting System (VAERS) were two programs that allowed NSIP to ensure successful outcomes. V-safe continues to provide personalized and confidential health check-ins via text message and web surveys to allow individuals to quickly and easily share COVID-19 vaccine experiences with CDC following vaccination. The VAERS is a national early warning system to detect possible safety problems in vaccines licensed in the U.S. VAERS data continues to be monitored by DBPH clinical staff and reviewed ad-hoc for-planning considerations.

NSIP continues to follow procedures for monitoring and updating critical planning and implementation strategies, including establishing performance targets, increasing access to public resources, increasing staffing, and expanding special programs.

As the COVID-19 vaccine response continues, NSIP continues to focus on:

- Increasing equitable access to vaccination services, monitoring COVID-19 vaccine uptake and coverage in critical populations
- Monitoring COVID-19 vaccine uptake and coverage in critical populations
- Enhancing strategies to reach populations with low vaccination coverage or uptake
- Partnering with commercial and private entities in addition to public health partners
- Monitoring vaccine inventories across the state

Many additional partnerships and outreach went into the COVID-19 vaccine rollout that was not able to be detailed in this report, including with Nevada Women, Infants and Children (WIC), Nevada Division of Welfare and Supportive Services (DWSS), the Maternal, Child, and Adolescent Health (MCAH) program at DPBH, and University of Nevada, Reno's University Center for Economic Development (UCED).

**This report is not a comprehensive account of every partnership, but rather highlights some of the partnerships and steps taken during this time.**

# COVID-19 VACCINATIONS IN NEVADA

This section aims to describe COVID-19 vaccine uptake in Nevada, broken out by key demographics and geography.

## Vaccinations In Nevada

**COVID-19 vaccines first arrived in Nevada on December 14, 2020, bringing about a new phase in the pandemic. The authorized COVID-19 vaccines in the United States have been effective at protecting people from getting seriously ill, being hospitalized, and even dying—especially people who get boosted. As with other diseases, staying up to date with recommended COVID-19 vaccine guidelines gives people the best protection against the virus.[53]**

As of the release of this report, the Centers for Disease Control and Prevention (CDC) has recommended that everyone ages 6 months and older get their COVID-19 vaccine. People who are moderately or severely immunocompromised have specific COVID-19 vaccine recommendations, including recommendations for an additional booster.[53] Four different COVID-19 vaccines have been authorized or approved for use in the United States to prevent COVID-19.[53] The mRNA vaccine products manufactured by Pfizer/BioNTech as well as Moderna are preferred. The Janssen COVID-19 vaccine is an adenovirus vaccine available to people who prefer the product or are unable to receive an mRNA vaccine. Novavax is a protein subunit vaccine and was the latest vaccine to be approved for use in the U.S. See the CDC's website or the NV DPBH COVID-19 technical bulletins for more detailed information.

**Recommendations regarding COVID-19 vaccines may change in response to increased reporting and information. The data in this report was analyzed through December 2021 and used the guidelines that had been published up till then. For the most up-to-date data on Nevada COVID-19 vaccines, please visit the Nevada Health Response dashboard.**

For the purposes of this report, below are the definitions of fully vaccinated, fully vaccinated with booster, and partially vaccinated:

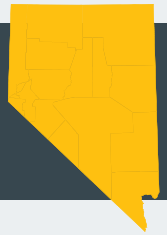
- Fully vaccinated: received two doses of an mRNA vaccine or one dose of the Janssen vaccine
- Partially vaccinated: received one dose of a two-dose series of an mRNA vaccine
- Fully vaccinated with booster: fully vaccinated plus at least one additional dose of an mRNA vaccine

Please note, these definitions have been updated since this data was analyzed, but these are the definitions this report will use. Note, these analyses did not include Novavax as the product was not available at the time.

## Data Considerations

Vaccination data was provided by the Office of Analytics within Nevada DPBH and represents COVID-19 vaccine doses reported to Nevada's immunization information system (IIS), NV WebIZ, by COVID-19 vaccine providers and pharmacies. This data represents a snapshot of vaccinations in 2020-2021 and was pulled April 14, 2022.

**Data is reported continuously and discrepancies between this report and Nevada DPBH data may occur depending on the date and time of input into NV WebIZ.**



**There is a small allocation of vaccines provided by the Federal Government to federal entities in Nevada such as tribal health clinics and Federally Qualified Health Centers (FQHCs) that are not reported as inventory in NV WebIZ but are included within the reporting of administered doses.**

It is important to note that Veterans Affairs (VA) hospitals and Indian Health Services (IHS) providers are not required to report to NV WebIZ. However, NV WebIZ has a high rate of reporting from IHS providers and is collaborating with VA to import records into the system.

The Nevada State Demographer data was used to evaluate the population of Nevadans, with 2020 numbers being official estimates, and 2021 numbers being projections. 2021 estimates have an anticipated release date of October 2022. This analysis compares data from March 2020-Decemeber 2021, since the 2022 calendar year was still ongoing as of the analysis of this data. A 2022 analysis will be completed and presented once data is available.

With any large population-based registry, data quality is always a consideration. 7.5% of racial and ethnic data was reported as missing, and 19% of racial and ethnic data was coded as two or more races or other. Since racial and ethnic data in this section was compared to Nevada State Demographer data, which does not have categories for two or more races, other or unknown, these groups were excluded from the race- and ethnicity-specific graphs. These graphs should be interpreted with caution, as they exclude approximately 26.5% of the data.

**Approximately 6% of county data was missing from NV WEBIZ for this analysis. If the county was missing initially, but a zip code was entered, a zip code crosscheck was run for each patient to match to their respective counties.**

**PLEASE NOTE**

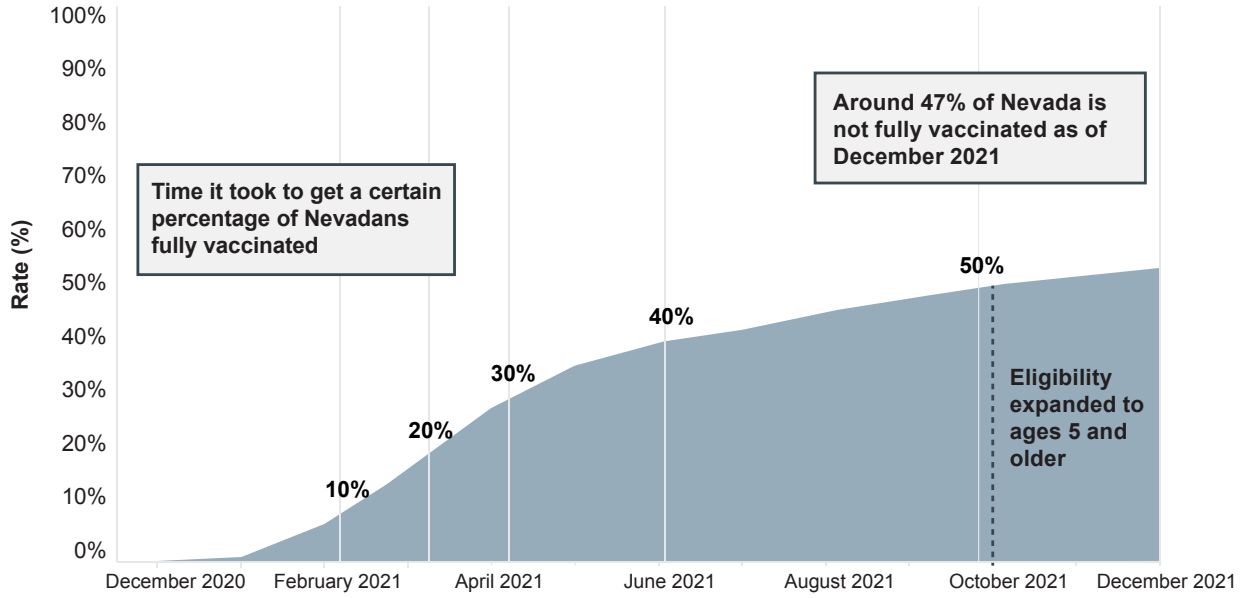
The data in this report was analyzed prior to the release of bivalent booster doses, and these are not included in any of the analysis found here.

## COVID-19 Vaccinations Overview

The following figure shows COVID-19 vaccination percentage increase over time. Increments of 10% are presented in the graph. Around 50% of Nevadans were fully vaccinated by October 2021.

**Figure 70. Percent of Nevadans Fully Vaccinated Against COVID-19, 2020-2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)



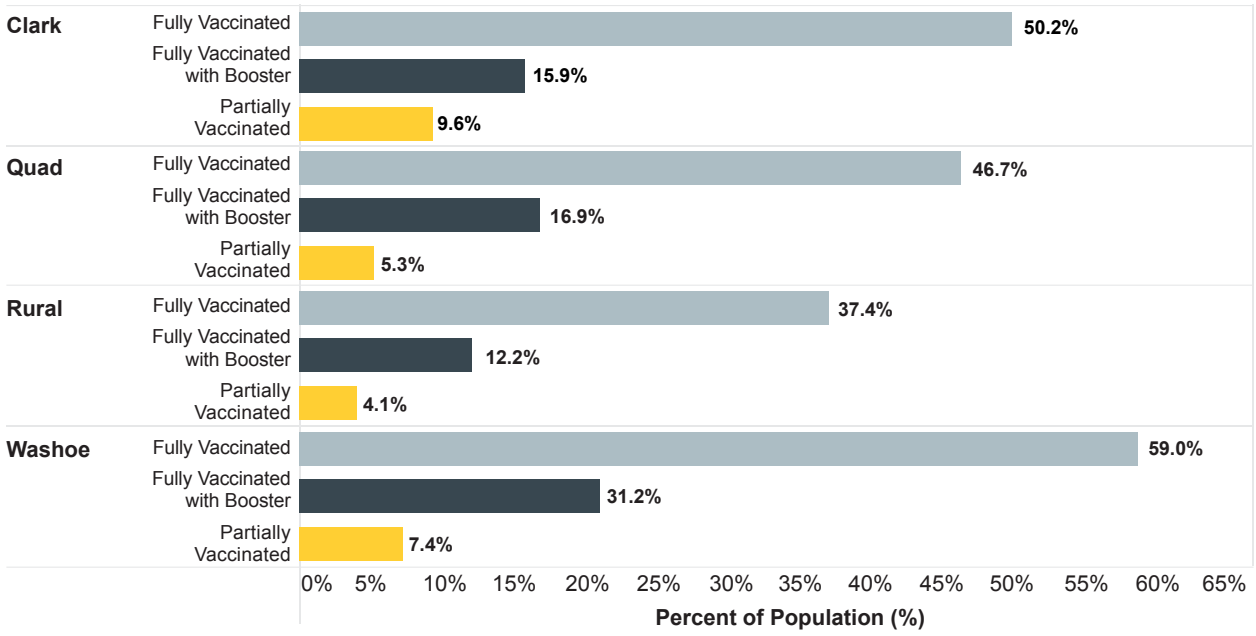

## COVID-19 Vaccinations by Geographic Area

**Figure 71** breaks down the percentage of Nevadans vaccinated by jurisdiction by the end of 2021. In Clark County, half of the population was fully vaccinated. Washoe County had the highest percent of its population fully vaccinated and fully vaccinated with booster, while the rural counties had the lowest percentage. This information continues to be used to focus on populations that have the greatest opportunity to increase COVID-19 vaccination rates.

**Figure 72** breaks down the percent of each county that was fully vaccinated and fully vaccinated with a booster. It is important to note that this graph and the previous graph include those who are fully vaccinated with a booster in both the fully vaccinated percentage and fully vaccinated with booster percentage. Carson City had the highest percent of its population fully vaccinated and fully vaccinated with a booster. Storey County had the lowest percentage of its population fully vaccinated, and Esmeralda County had the lowest rate of booster uptake.

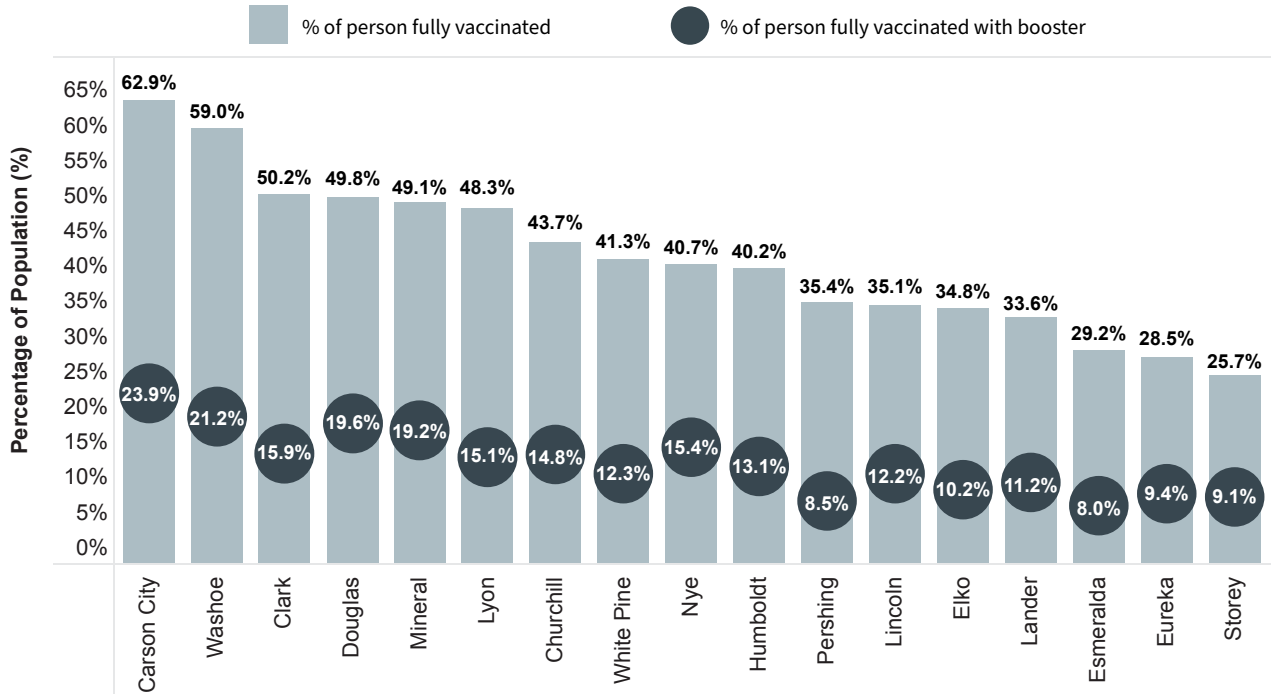
## Figure 71. Percentage of the Vaccinated Population in Nevada by Jurisdiction, 2021

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)




## Figure 72. Percent of Population Fully Vaccinated vs. Fully Vaccinated with Booster in Nevada by County, 2021

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)



# COVID-19 Vaccinations by Demographics

**Figure 73** depicts the share of COVID-19 vaccinations in each age group compared to the share of each age group's population in 2021. This highlights any age groups that were underrepresented or overrepresented in the share of vaccinations in 2021. Nevadans 5-11 years and 12-17 years were underrepresented in vaccinations.

**Figure 73. Percent of Fully Vaccinated Against COVID-19 by Age Relative to Nevada Population, 2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

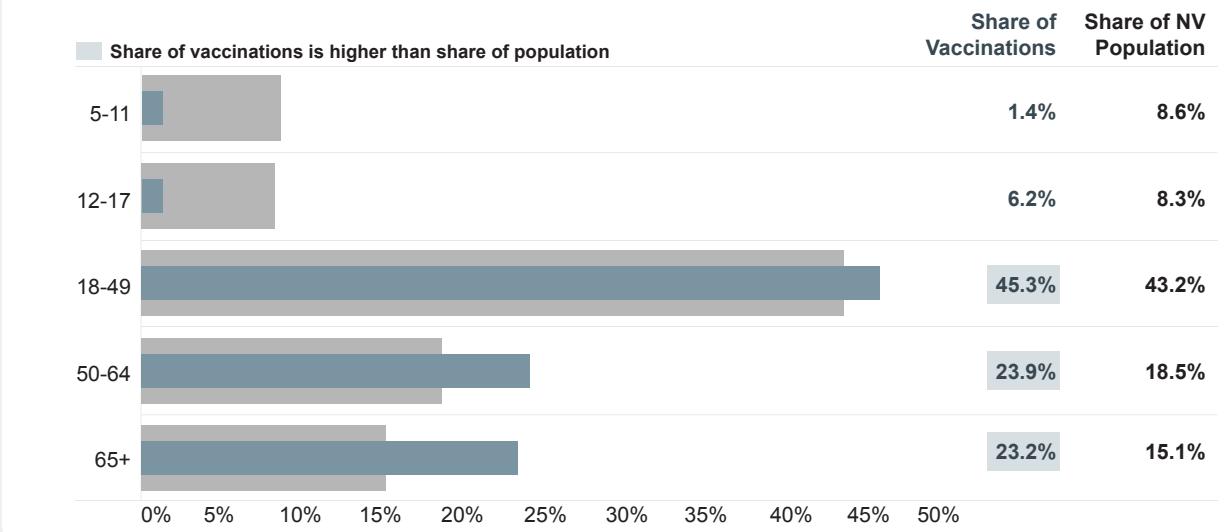
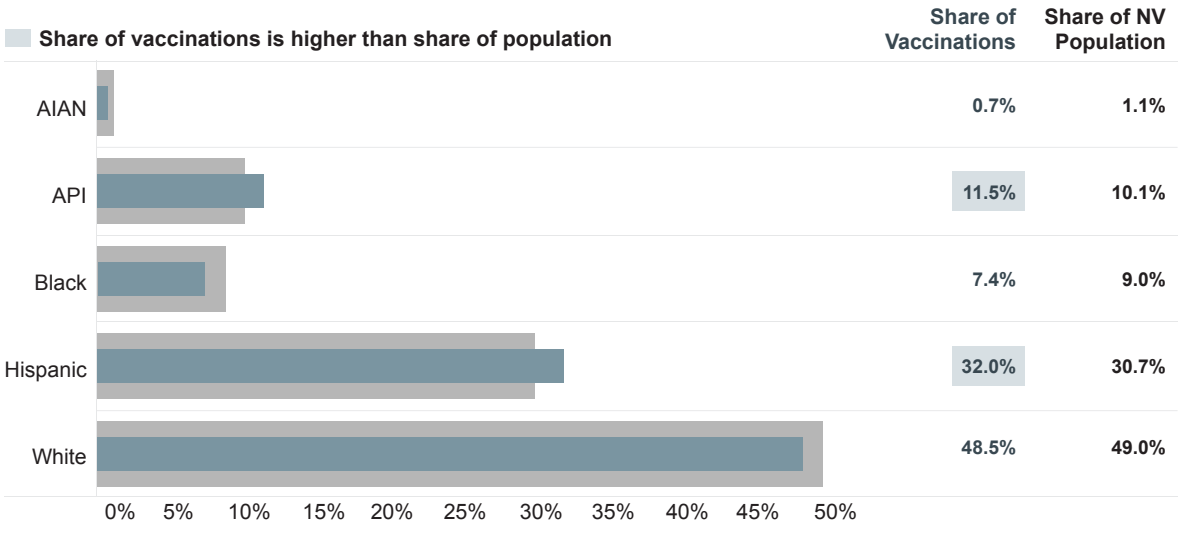



**Figure 74** shows the share of COVID-19 vaccinations in each racial and ethnic group compared to the share of the population they comprised in 2021. This highlights any age groups that were underrepresented or overrepresented in the share of vaccinations in 2021. The API and Hispanic populations were overrepresented in vaccinations, while all other groups were underrepresented.

**Figure 74. COVID-19 Vaccinations by Race and Ethnicity Relative to Nevada Population, 2021**

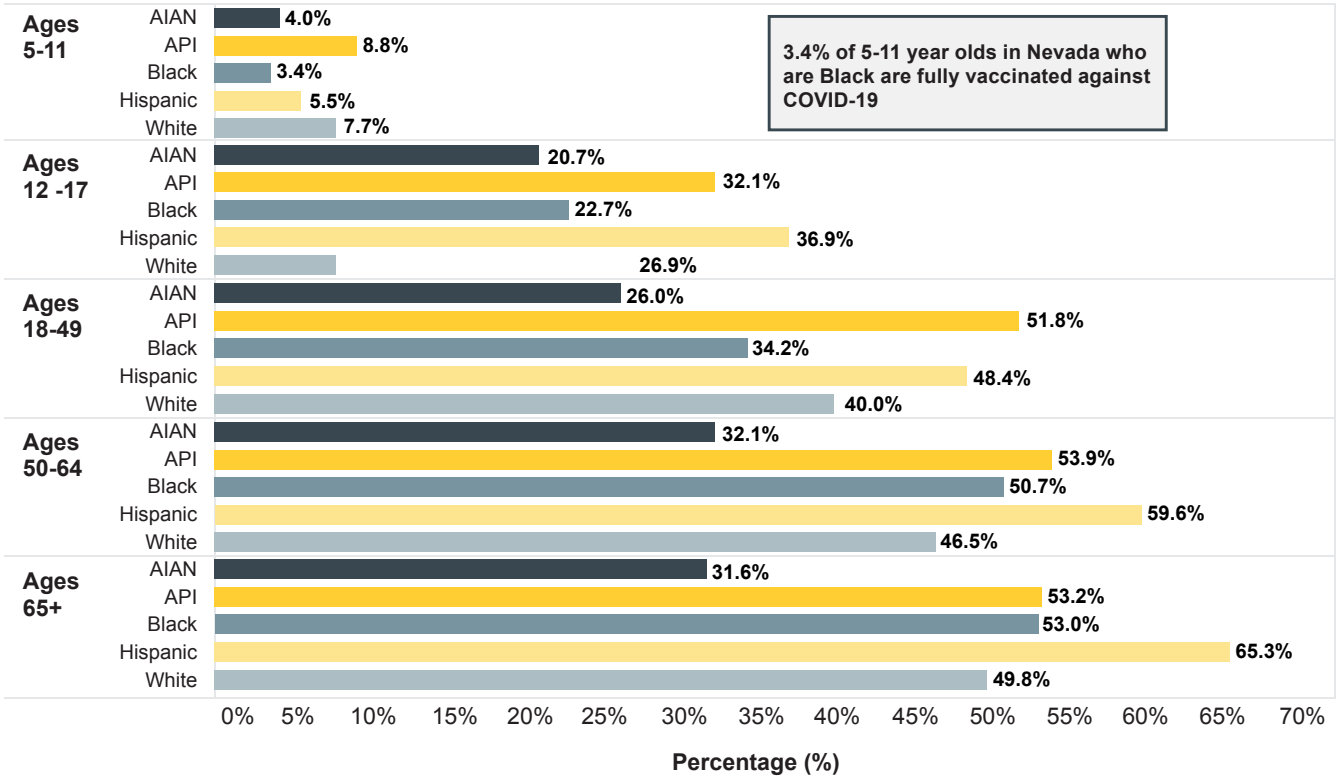
(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)



The following figure depicts the percent of Nevadans fully vaccinated against COVID-19 broken out by age as well as race and ethnicity.

**Figure 75. Percent of Persons Fully Vaccinated Against COVID-19 by Age and Race and Ethnicity, Nevada, 2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)




**8.8%**

**8.8% of API Nevadans 5-11 years old were vaccinated, which was the highest percentage of any race or ethnicity in this age group.**

**65.3%**

**65.3% of Hispanic Nevadans 65 and older were vaccinated, which was the highest percentage of any race or ethnicity in this age group.**

**The following three figures show the percent of persons fully vaccinated with a booster as a percentage of those fully vaccinated.**

**Figure 76** illustrates the percent of Nevadans fully vaccinated against COVID-19 by sex.

**Figure 76. Percent of Persons in Nevada Fully Vaccinated Against COVID-19 by Sex, 2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

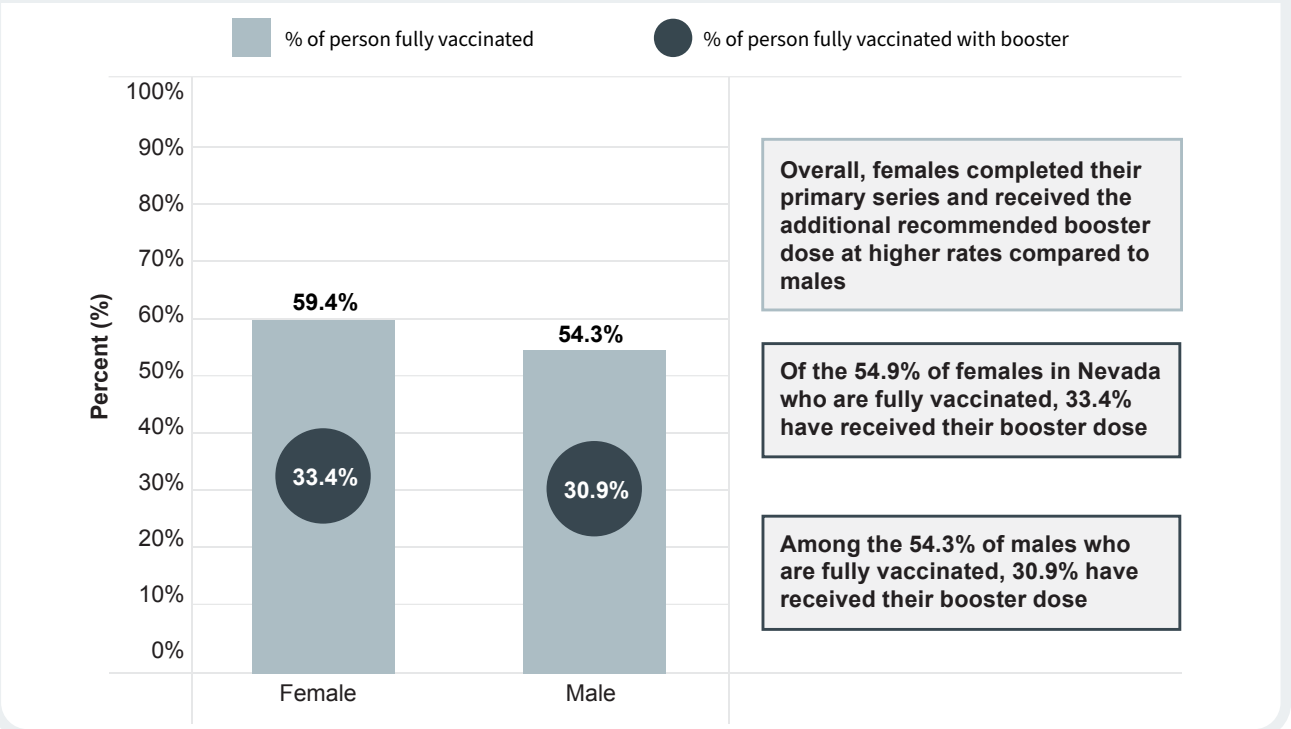



**Figure 77** illustrates the percent of Nevadans fully vaccinated against COVID-19 by age group. This figure compares the percent of Nevadans vaccinated within that age cohort to the total number of Nevadans within that age cohort.

**Figure 78** illustrates the percent of Nevadans fully vaccinated against COVID-19 by race and ethnicity. The API population had the highest percentage of its population vaccinated at 47.0%. The White population did not have the highest percentage of its population vaccinated but did have the highest share of that population getting a booster dose. While the Hispanic population was getting fully vaccinated at higher rates than other racial and ethnic groups (44.4%), they had lower rates of receiving the additional booster dose (19.3%).

## SUMMARY

During the first year of COVID-19 vaccination administration, a great deal of work was done in Nevada to combat the ongoing pandemic. However, Nevada faced many additional cases and lives lost due to the low demand for vaccination. NSIP continues to monitor the data regarding vaccination uptake, cases, hospitalizations, and deaths to make informed decisions on vaccination outreach. As the pandemic continues, so do the efforts for DPBH, NSIP, and community stakeholders to drive vaccination rates. The data from the first year of response highlighted areas of opportunity to increase efforts and initiatives to protect Nevadans against COVID-19.

**Figure 77. Percent of Persons in Nevada Fully Vaccinated Against COVID-19 by Age, 2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

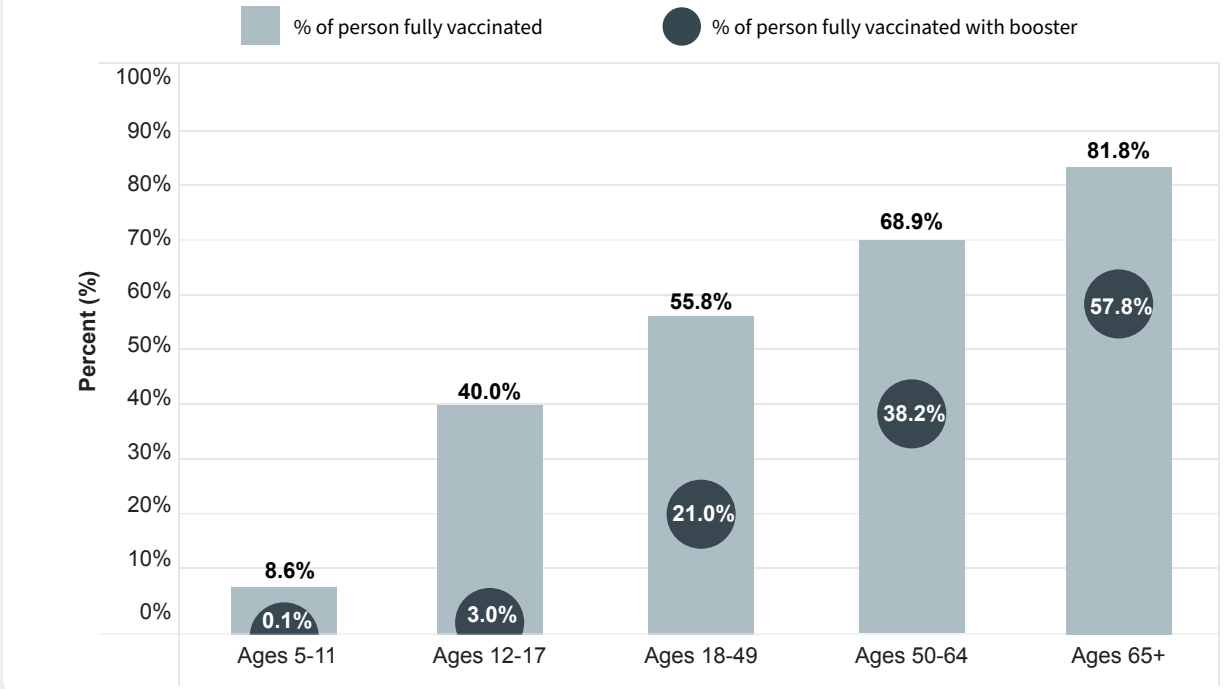
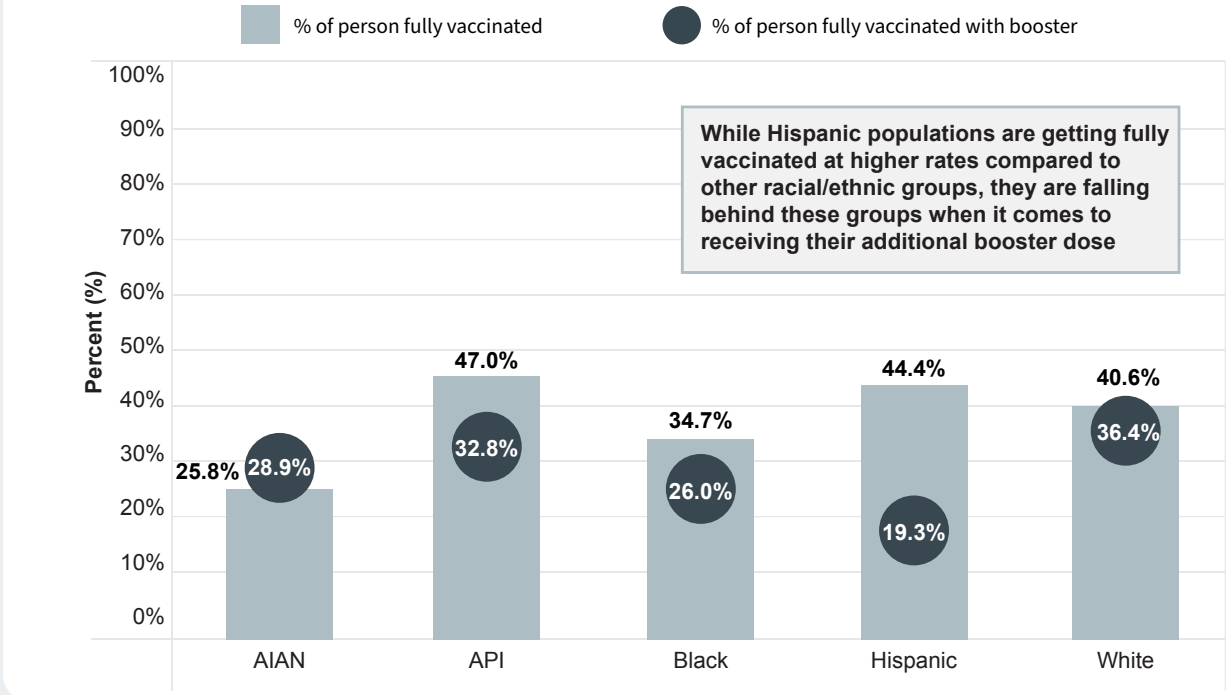



**Figure 78. Percent of Persons in Nevada Fully Vaccinated Against COVID-19 by Race and Ethnicity, 2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)



# NATIONAL IMMUNIZATION SURVEY ADULT COVID-19 (NIS-ACM) FOR NEVADA

This section aims to supplement COVID-19 vaccine data in Nevada using the National Immunization Survey to provide additional population breakouts that are not recorded in Nevada's Immunization Information System, NV WebIZ.

## NIS Survey Overview

**Beyond case, hospitalization, death, and vaccination data, NSIP also leveraged NIS survey data for generating initiatives to reach specific populations in Nevada. NV WebIZ is very effective at collecting population-level vaccination data in Nevada, however, it does not collect extensive demographic information beyond age, sex, and race and ethnicity. This section serves to highlight how the NIS-ACM was used in the absence of NV WebIZ data points to drive the vaccination response efforts.**

The National Immunization Surveys (NIS) are telephonic surveys conducted by the Centers for Disease Control and Prevention National Center for Immunization and Respiratory Diseases .[54] These surveys are used to monitor routine and influenza vaccination coverage among people in specific age cohorts, as well as COVID-19 vaccinations.[54] The NIS provides current state and local area estimates of vaccination coverage for all 50 states, the District of Columbia and some U.S. territories using standard survey methodology (ChildVaxView, TeenVaxView, COVIDVaxView).[55,56,57]

**Table 16. Time Periods and Sample Sizes of NIS-ACM Survey, 2021**

(Source: CDC National Center for Immunization and Respiratory Diseases, Immunization Services Division)

| Time Period (2021) | Sample Size (n) |
|---|---|
| Apr 22 - May 29 | 572 |
| May 30 - Jun 26 | 762 |
| Jun 27 - Jul 31 | 1,116 |
| Aug 1 - Aug 28 | 1,348 |
| Aug 29 - Sept 25 | 1,030 |
| Sept 26 - Oct 30 | 1,125 |
| Oct 31 - Nov 27 | 668 |
| Nov 28 - Dec 31 | 1,056 |

The NIS-ACM began April 2021 in response to the COVID-19 pandemic to assess COVID-19 vaccination coverage, uptake, and key attitudes and is still being conducted as of the release of this report. Data from non-institutionalized adults 18 years and older is collected by telephone interview using random-digit-dialed sample of cell phone numbers stratified by location.[58] Data is weighted to represent the non-institutionalized U.S. population and mitigate possible incomplete sample and non-response bias.[58] All responses are self-reported. Estimates should be interpreted with caution when there is a small sample size or wide confidence interval.[58] Any individual or organization that is interested in looking at this data in more detail will be able to find the complete dataset on the CDC's website.[59]

## Survey Methodology

### Surveys collected from April 22-December 31, 2021 for Nevada were examined.

**Table 16** outlines the time periods and sample sizes of the NIS-ACM surveys. For clarity purposes, the time periods in which the surveys were conducted are shown as intervals of time in the figures, as the exact date that the surveys were completed is unknown using the publicly available data (e.g., April 22-May 30, 2021, is shown as May-21 in the figures below).

# COVID-19 Vaccination Status Among Adults 18 And Older By Sociodemographic Characteristics In Nevada And The U.S.

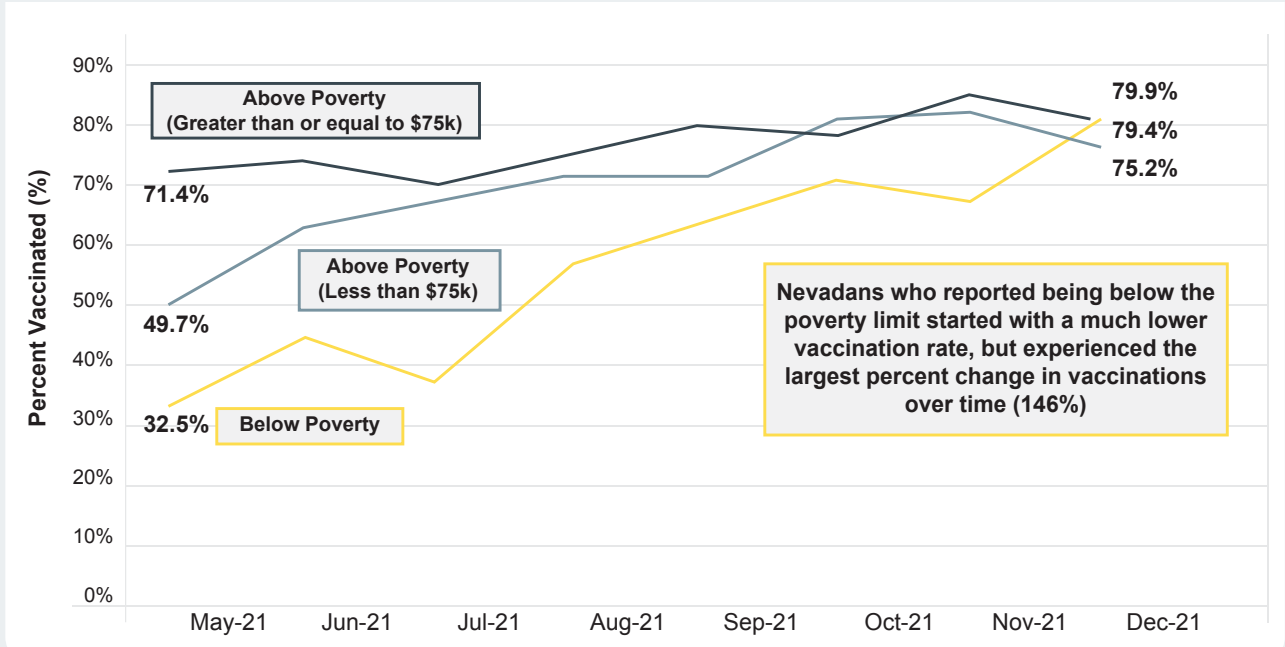
## In the NIS-ACM survey, respondents were asked if they had received at least one dose of a COVID-19 vaccine. (Possible answers: yes, no, don't know.) Respondents were also asked to self-report sociodemographic information.

For the following figures, respondents who stated they were vaccinated are shown over time to highlight trends in COVID-19 vaccination and vaccination hesitancy in Nevada adults by sociodemographic characteristics. For the following figures, the category of vaccinated includes respondents who are partially vaccinated (have received one dose of a two-dose series), as well those who have completed their vaccination series. This section will also highlight trends in the sociodemographic groups in Nevada compared to the U.S. This data is supplemental to NV WebIZ, as it does not capture any socioeconomic pieces of information.

**Figure 79** illustrates the change of COVID-19 vaccination status from May-December 2021 by poverty status in Nevada adults. In this case, poverty status is defined as below poverty, above poverty (less than $75,000 per year) and above poverty (greater than or equal to $75,000 per year).

**Figure 79. Percent of Nevadans Vaccinated Against COVID-19 by Poverty Status, May-Dec. 2021**

(Source: CDC National Center for Immunization and Respiratory Diseases, Immunization Services Division)




There was a substantial percent increase in respondents below the federal poverty limit who got vaccinated from May-December 2021 (146%). The percentage of respondents above the poverty limit but making less than $75,000 who received a COVID-19 vaccine also increased over time by 51%. Respondents with an income of $75,000 or more with a COVID-19 vaccine only had an 11% change from May-December but had the highest vaccination rate early on (71.4 %).

**Figure 80** shows the percentage of respondents with a disability who were vaccinated over time from May-December 2021. Nevadans who reported having any kind of disability saw a higher rate of vaccination over time than those who did not report a disability. This could be related to earlier access to vaccination and motivation to vaccinate sooner based on risk relative to serious illness.

**Figure 80. Percent of Nevadans Vaccinated Against COVID-19 by Disability Status, May-Dec. 2021**

(Source: CDC National Center for Immunization and Respiratory Diseases, Immunization Services Division)

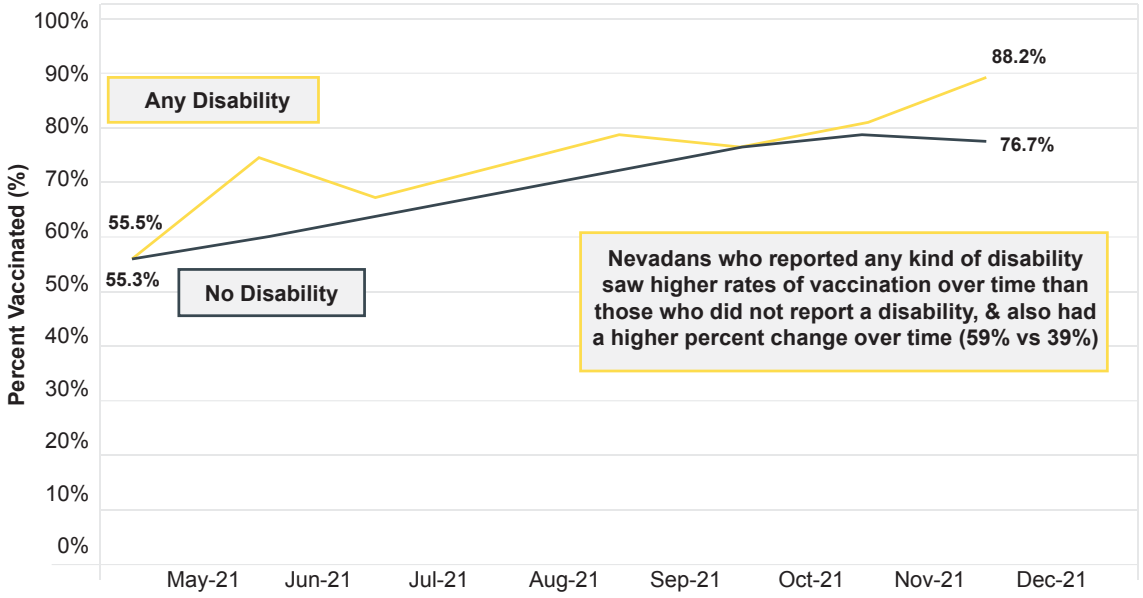



**Figure 81** shows the percentage of respondents with any kind of health condition that were vaccinated over time from May-December 2021. Nevadans with a pre-existing health condition had a higher vaccination rate each month, but Nevadans who didn't report a health condition had a larger percent change over time (43%).

**Figure 81. Percent of Nevadans Vaccinated Against COVID-19 by Health Condition, May-Dec. 2021**

(Source: CDC National Center for Immunization and Respiratory Diseases, Immunization Services Division)

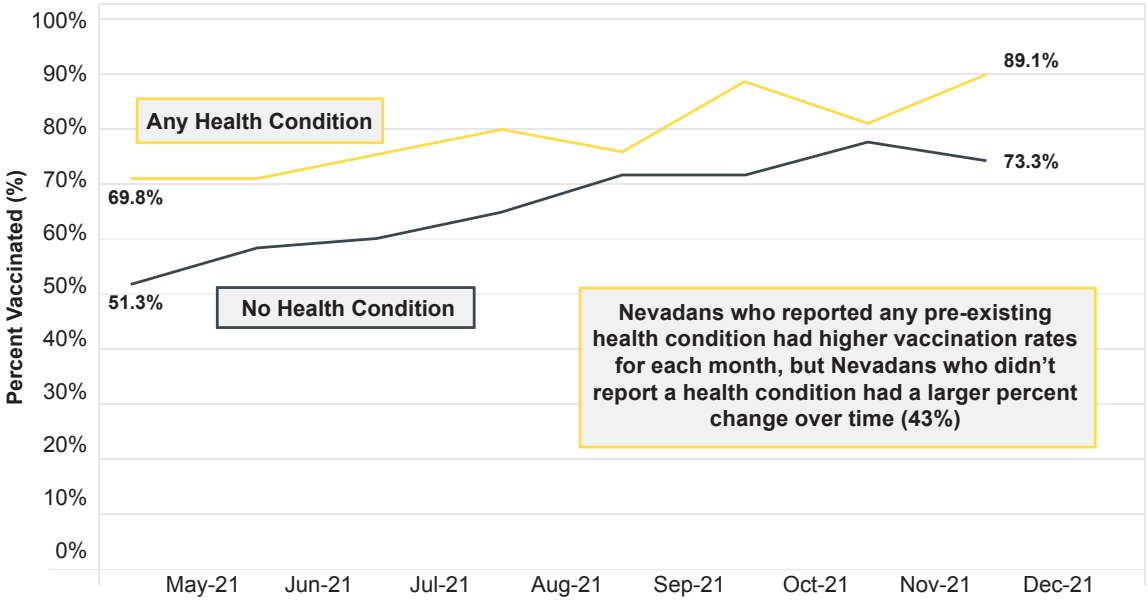
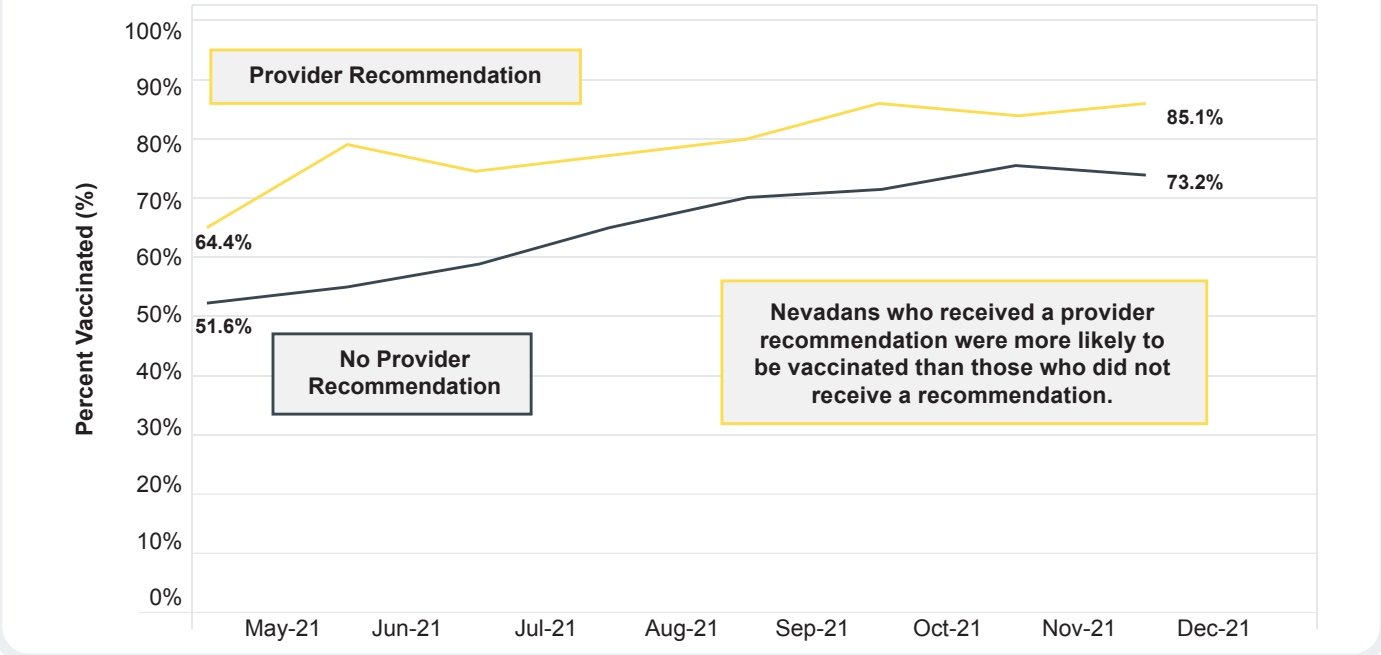


**Figure 82** shows the percentage of respondents that received a COVID-19 vaccination recommendation by their healthcare provider and got vaccinated from May-December 2021. Nevadans who reported a healthcare provider recommendation had a higher vaccination rate each month, demonstrating the positive impact provider engagement had on COVID-19 vaccination completion.

**Figure 82. Percent of Nevadans Vaccinated Against COVID-19 by Provider Recommendation, May-Dec. 2021**

(Source: CDC National Center for Immunization and Respiratory Diseases, Immunization Services Division)




## Barriers to Vaccination

### In addition to providing insight about the populations receiving vaccinations, the NIS-ACM surveys also supplied data regarding obstacles preventing Nevadans from getting their COVID-19 vaccination.

**Figure 83** depicts the percent of Nevadans who reported a specific barrier to receiving the COVID-19 vaccine from May-December 2021.

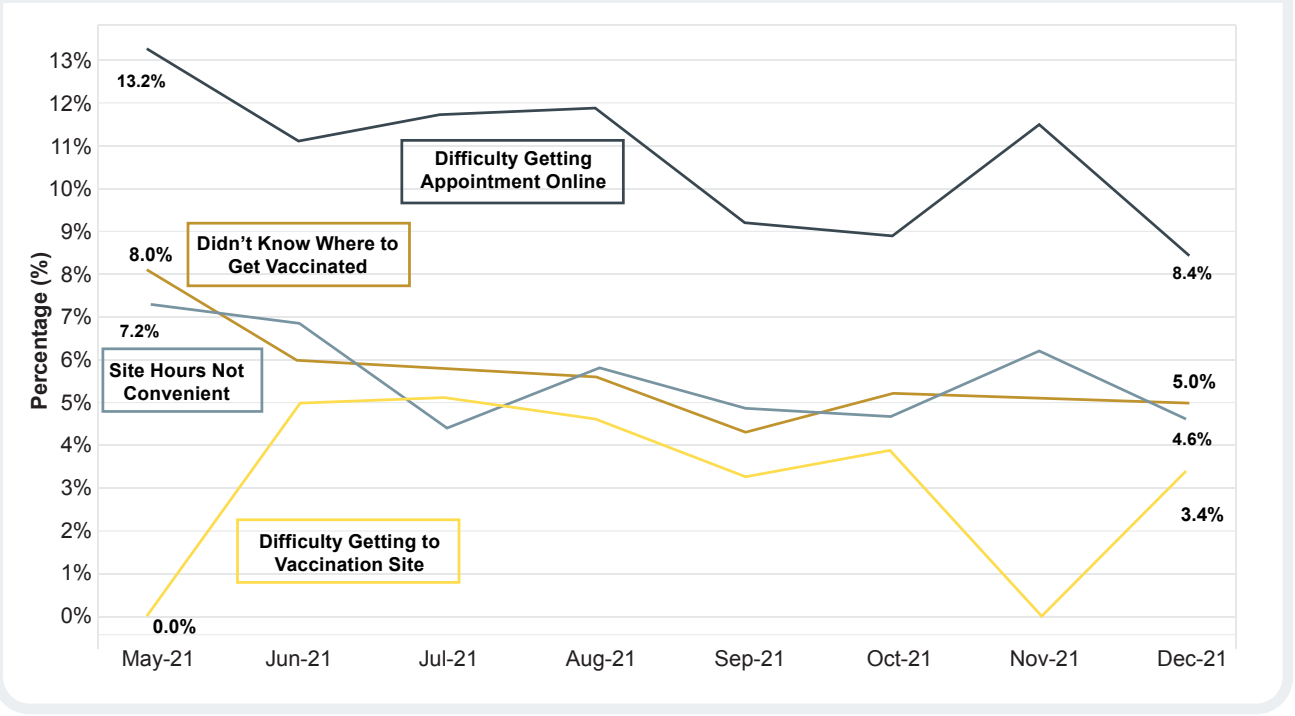
The dark blue line depicts the percent of Nevadans that reported difficulty in getting an appointment to get their COVID-19 vaccine online. The brown line depicts the percent of Nevadans that reported not knowing where to get their COVID-19 vaccine.

The light blue line depicts the percent of Nevadans that reported COVID-19 vaccination sites were not open at convenient times, which created a barrier to getting vaccinated. NSIP worked with vaccination partners to encourage clinics meet the needs of Nevadans and offer vaccines outside of typical working hours.

The yellow line depicts the percent of Nevadans that reported difficulty in getting to a COVID-19 vaccination site, which created a barrier to getting vaccinated. Aware of some difficulties accessing vaccination sites, NSIP worked with IZNV, FEMA, and CDPHP to create a Mobile Vaccine Unit (MVU) which brought COVID-19 vaccinations to Nevadans.

**Figure 83. Percent of Nevada Respondents Who Reported Specific Barriers to Receiving COVID-19 Vaccination Over Time**

(Source: CDC National Center for Immunization and Respiratory Diseases, Immunization Services Division)




To address these barriers, the governor's office, DPBH, and NSIP created the COVID-19 Vaccine Call Center. This call center was available seven days a week, 12 hours a day to answer questions regarding the COVID-19 vaccine and assist with scheduling. The COVID-19 Vaccine Call Center is still a live resource as of the release of this report and is available at 1-800-401-0946.

## SUMMARY

Since the first COVID-19 case was documented in Nevada, there have been continuous efforts to understand how the disease burdened our communities, which communities received vaccines, which population needed increased access to vaccinations, and what barriers needed to be addressed. Scrutinizing vaccination coverage, uptake, and key attitudes regarding COVID-19 among different demographics continues to help drive the COVID-19 vaccine response. Beyond COVID-19 vaccines, the pandemic forced Nevadans to stay home and impacted routine healthcare appointments, as well as routine and seasonal vaccinations. These next sections discuss how COVID-19 impacted other vaccination rates in Nevada.

# INFLUENZA IN NEVADA

This section aims to describe influenza vaccine uptake in Nevada during the pandemic, broken out by key demographics and geography, to understand the impact of COVID-19 on this seasonal vaccination.

## Influenza Overview

The COVID-19 pandemic largely impacted seasonal influenza (flu) and flu vaccine in Nevada. Early in the pandemic, a noticeable decline in flu cases was believed to be due to decreased testing. However, later data showed that flu cases had declined, likely as a result of increased public health safety measures for COVID-19 such as masking and social distancing. Additionally, there was a record percentage of Nevadans that received the flu vaccine during the 2020-2021 flu season.

Flu is a contagious respiratory illness caused by influenza viruses.[60] These viruses infect the nose, throat, and lungs, causing mild to severe symptoms, and can potentially lead to hospitalization and/or death.[60] While influenza viruses can be found year round, the flu season in the United States peaks between December-February.[61]

Two markers are used to measure the severity of influenza activity: the number of confirmed cases and those with influenza-like illness (ILI). A confirmed case requires a definitive diagnosis of influenza through laboratory confirmation in addition to signs and symptoms.[62] In contrast, case definitions for ILI are nonspecific for influenza and vary depending on the purpose for which they are used.[62] For the purposes of this report, ILI data will be presented. Confirmed cases are thought to be underestimates of the actual case count of influenza, so ILI is used to better assess the influenza case burden each season.[63]

An updated ILI definition was implemented during the 2021-2022 flu season by the Centers for Disease Control and Prevention (CDC) and is defined as fever (≥ 100°F, 37.8°C) in the presence of cough and/or sore throat.[62] This updated definition omits the previous criteria of "without a known cause other than influenza." This change is meant to increase the number of other respiratory illnesses captured by surveillance. It is important to note that the change in ILI definition coincided with the COVID-19 pandemic and could cause artificial inflation of the percentage of ILI.

The purpose of this section is to show the impact of COVID-19 on reported flu rates and vaccinations. We will examine the 2018-2019, 2019-2020, 2020-2021 and 2021-2022 (partial) flu seasons for Nevada.

## Surveillance Reporting

There are two distinct surveillance data sources used for this report: sentinel and syndromic. Sentinel surveillance data is reported by clinics and hospitals that have volunteered to be sentinel sites. Sentinel sites report aggregate ILI data weekly[64] into ILINet, the CDC's system for tracking outpatient data.

Syndromic surveillance data is near real-time emergency department, inpatient and outpatient data reported within 24 hours.[65] It is more robust and includes more providers than sentinel surveillance. This data is housed within the CDC's Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE), and relies on clinical indicators such as chief complaint, discharge diagnosis, and ICD-10 codes.[66]

## Influenza Hospitalizations

LHAs investigate influenza-associated hospitalizations and report to the Nevada DPBH within their jurisdiction.[67] Reporting LHAs are Southern Nevada Health District (SNHD), Washoe County Health District (WCHD), Carson City Health and Human Services (CCHHS), and Rural Health Services (RHS).[67]

## Influenza Deaths

Influenza-associated deaths are deaths 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 illness and death.[67] LHAs investigate all influenza deaths and typically review medical records retroactively up to 30 days from the date of death for an influenza diagnosis.[67]

## Flu Seasons

In Nevada, flu cases are reported to ILINET by the Mortality and Morbidity Weekly Report (MMWR) and run between weeks 40 through 20.[67]

**Table 17** defines the start and end dates for the most recent flu seasons.[68]

## Flu Vaccinations

Seasonal flu vaccines protect against the different influenza virus strains experts believe will be most common during an upcoming season.[69] The CDC recommends everyone six months and older receive one vaccination every season. Those at higher risk of complications from influenza are strongly recommended to be vaccinated. Exceptions do exist but are uncommon.[69]

**Table 17. Nevada Flu Season Time Frame**

*Data collected through 1/8/2022.

| Flu Season | Start | End | Weeks Per Season |
|---|---|---|---|
| 2018-2019 | 9/30/2018 | 5/18/2019 | 33 |
| 2019-2020 | 9/29/2019 | 5/16/202 | 33 |
| 2020-2021 | 9/27/2020 | 5/22/2021 | 34 |
| 2021-2022 | 10/3/2021 | 5/21/2022 | 14* |

The optimal time to receive a vaccination is before influenza begins to spread within the community. Usually, the vaccine is first available around September or October but is available throughout the season.[70] Although flu vaccine effectiveness can vary, it's still the best protection against the flu.[70] Recent studies have shown that flu vaccinations can reduce the risk of illness by between 40-60% among the overall population during some flu seasons.[70]

### ABOUT THE DATA

ILI surveillance and flu vaccination data was analyzed using SAS 9.4 (SAS Institute, Cary NC) and Tableau (2021.4). Surveillance data was provided by the Office of Public Health Investigations and Epidemiology (OPHIE) within the DPBH. Immunization data was provided by the Office of Analytics within the DPBH. Data from September 30, 2018-January 8, 2022 was analyzed.

# Sentinel Case Data

## Percent of ILI by Flu Season – Sentinel Surveillance

**Figure 84** shows the percent of visits meeting ILI criteria out of total visits within Nevada sentinel sites over time.

**Figure 84. Percent of ILI by Influenza Season — Sentinel Surveillance**

(Source: Nevada DPBH, Office of Public Health Investigations and Epidemiology)

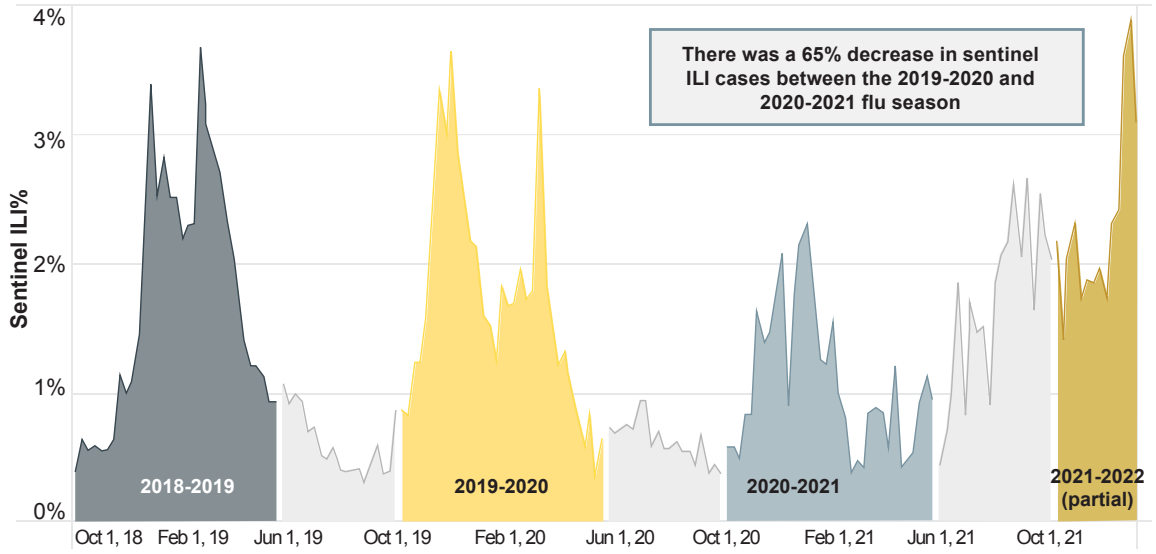



**Figure 85** shows the number of visits meeting ILI criteria within Nevada sentinel sites by influenza season. During the 2020-2021 season, coinciding with the COVID-19 pandemic, sentinel ILI visits decreased significantly when compared to past seasons. Due to measures taken to prevent the spread of COVID-19, comparing the 2020-2021 season there was a 55% decrease from the 2018-2019 season and a 65% decrease from the 2019-2020 season. This trend was not only seen at the national level, but globally as well.[71]

In Nevada, COVID-19 decision making regarding restrictions was transferred from the state to individual counties on May 1, 2021. Shortly after, mask mandates were lifted for fully vaccinated residents and vaccine verification was not strict or enforced.[72] There was a higher percentage of ILI seen in the off-season weeks between the 2020-2021 and 2021-2022 seasons than in previous off-season weeks due to the lifting of COVID-19 restrictions.[73]

## Sentinel ILI by Age and Flu Season

**Figure 86** shows the breakdown of numbers and percent of sentinel ILI cases separated into age cohorts for each of the last four flu seasons. Please note that data reported for the 2021-2022 flu season contains partial data up through MMWR week 1. The 0-4 year cohort starts with infants at six months, as this is the earliest children can receive a vaccine.

Adults ages 25-65 and older saw an increase in the percentage of cases during the 2020-2021 flu season, but the overall number of cases was still lower than other seasons. As discussed above, several factors related to COVID-19 are the cause of this decrease in overall ILI cases.

There was a decrease in ILI cases reported by sentinel sites for ages 0-24 for the 2020-2021 flu season. Children ages 0-4 typically make up the bulk of sentinel ILI cases but this changed during 2020-2021 when they made up the smallest percentage of cases. Pediatric visits to primary care clinics and emergency departments decreased significantly for both well and acute visits during the height of the COVID-19 pandemic.[73,74] Additionally, many children were not in school, which is typically a major factor in seasonal flu transmission.[75]

**Figure 85. ILI Visits by Influenza Season — Sentinel Surveillance**

(Source: Nevada DPBH, Office of Public Health Investigations and Epidemiology)

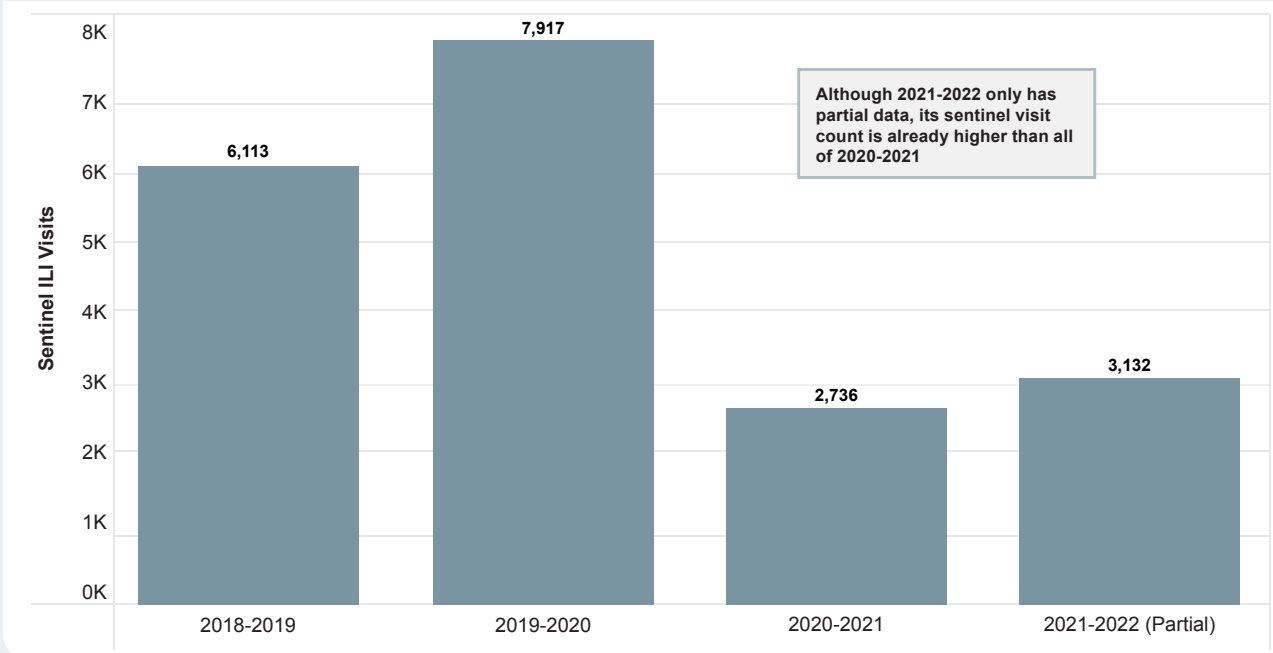
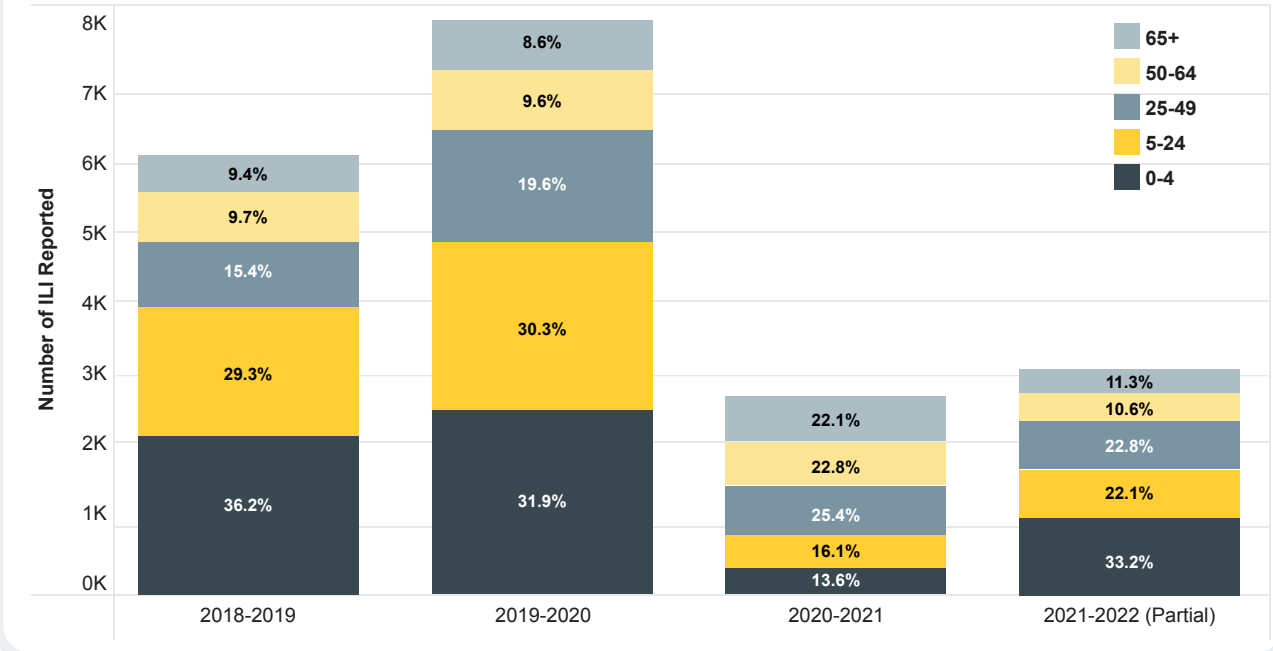



**Figure 86. Percent of Age Group for Reported ILI by Season — Sentinel Surveillance**

(Source: Nevada DPBH, Office of Public Health Investigations and Epidemiology)



## ILI by Visit Type and Season - Syndromic Surveillance

**Figure 87** shows the percentage of ILI visits out of the total visits for syndromic providers over time, starting with the 2018-2019 influenza season and going partially into the 2021-2022 flu season (January 8, 2022).

**Figure 87. Percent of ILI by Visit Type per Influenza Season — Syndromic Surveillance**

(Source: Nevada DPBH, Office of Public Health Investigations and Epidemiology)

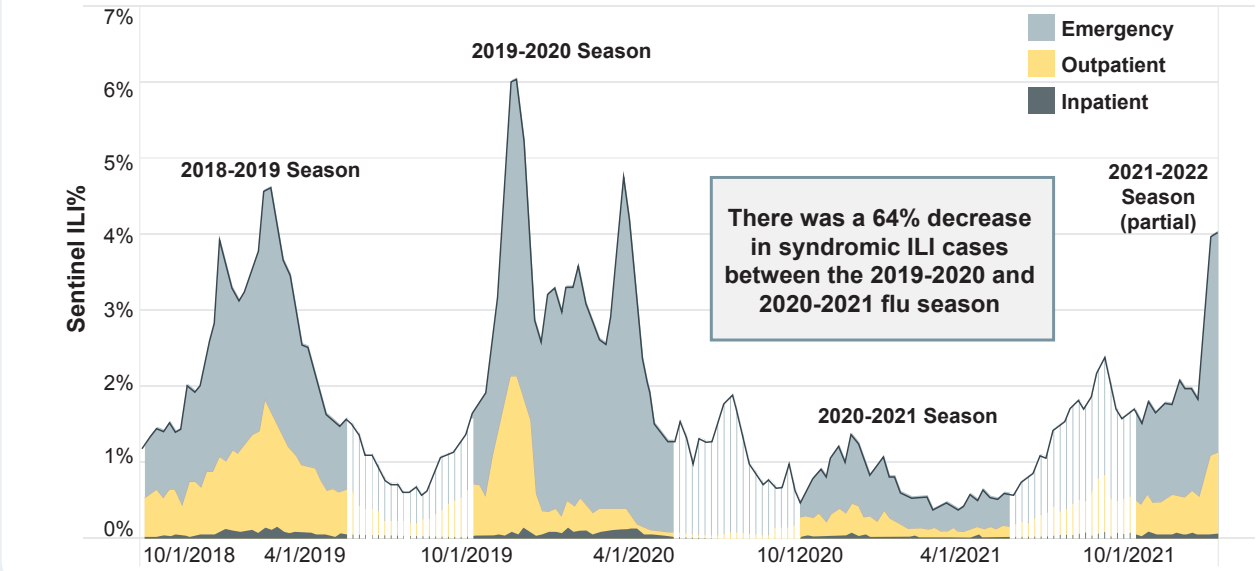



**Figure 88** shows the number of visits meeting ILI criteria for syndromic providers in Nevada by flu season. The 2019-2020 season saw the highest percentage of ILI visits and a decline was observed in the number of visits during COVID-19 in the 2020-2021 flu season (a 57% decrease from the 2018-2019 season, and a 64% decrease from the 2019-2020 season).

Each syndromic visit was categorized into visit type. Emergency department (ED), inpatient (IP), outpatient (OP), and observation patient (Obs) visits made up all of the ILI visits during the flu seasons examined. ED visits saw the most cases throughout each flu season while IP visits were the smallest percentage of visits. All four visit types trended downward during the 2020-2021 flu season, with a 69% decrease in ED visits for ILI between the 2019-2020 and 2020-2021seasons. This is consistent with data that showed ED, OP, and IP visits all decreased during the height of the COVID-19 pandemic.[74,76,77]

## Syndromic ILI by Age and Flu Season

**Figure 89** shows the breakdown of numbers and percent of syndromic ILI cases separated into age cohorts for each of the last four flu seasons (with partial data from 2021-2022 reported). It is important to note that the 0-4-year-old cohort starts with infants at six months, as this is the earliest children can get a flu shot.

Very similar trends in the ILI sentinel surveillance age breakdown are seen for the syndromic surveillance graph. Adults aged 25-65 and older saw an increase in the percentage of cases during the 2020-2021 flu season. Overall, the number of cases was still lower than other seasons. A decrease in ILI cases reported by sentinel sites for ages 0-24 years for the 2020-2021 flu season was seen.

**Figure 88. ILI Visits by Visit Type & Influenza Season — Syndromic Surveillance**

(Source: Nevada DPBH, Office of Public Health Investigations and Epidemiology)

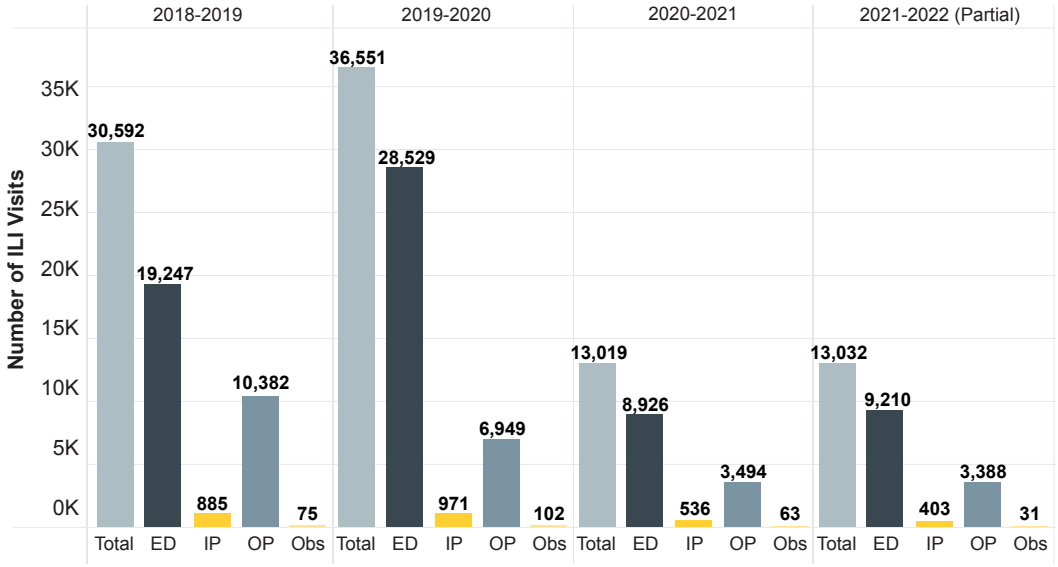



**Figure 89. Percent of Age Group for Reported ILI by Season — Syndromic Surveillance**

(Source: Nevada DPBH, Office of Public Health Investigations and Epidemiology)

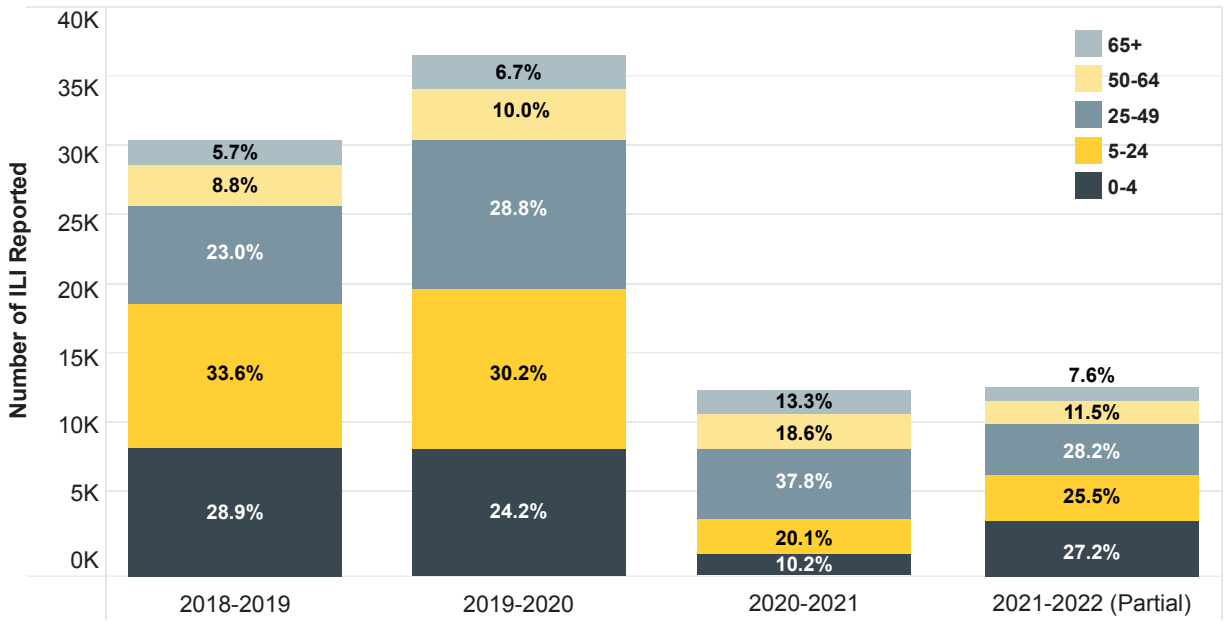


**Figure 90** shows the ILI cases by age cohorts for the 2019-2020 seasons compared to cohort distributions of the Nevada population. People ages 0-24 years were overrepresented in ILI cases during this flu season. People aged 25-65 and older were underrepresented in ILI cases. This is consistent with what is known about flu, with children making up the highest percentage of cases and being disproportionately impacted.[78] As seen in later figures, adults 65 and older were overrepresented in getting the flu shot, which might explain why they were underrepresented in ILI cases.

**Figure 90. ILI by Age Relative to Nevada Population, 2019-2020 Flu Season**

(Source: Nevada DPBH, Office of Public Health Investigations and Epidemiology, Nevada State Demographer)

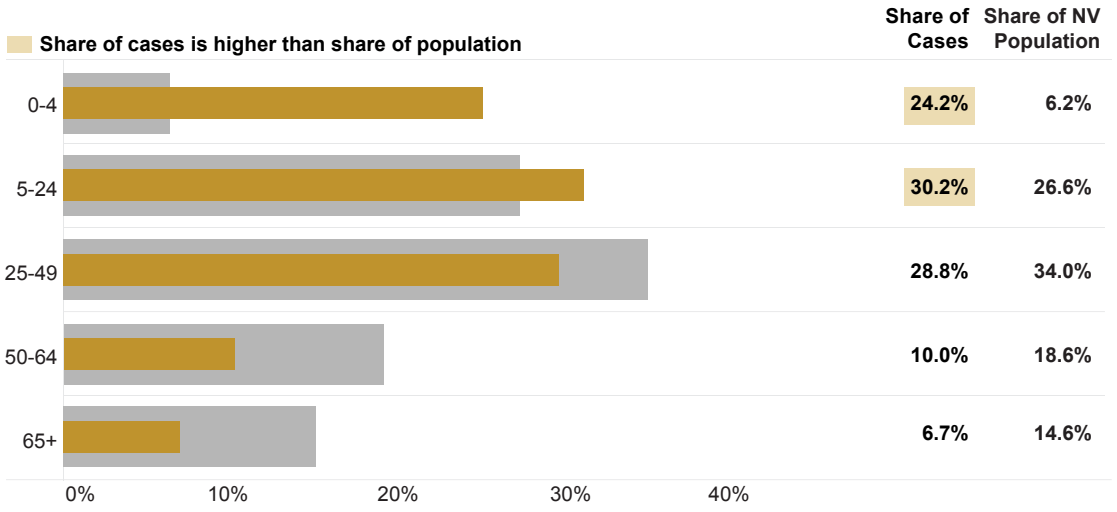
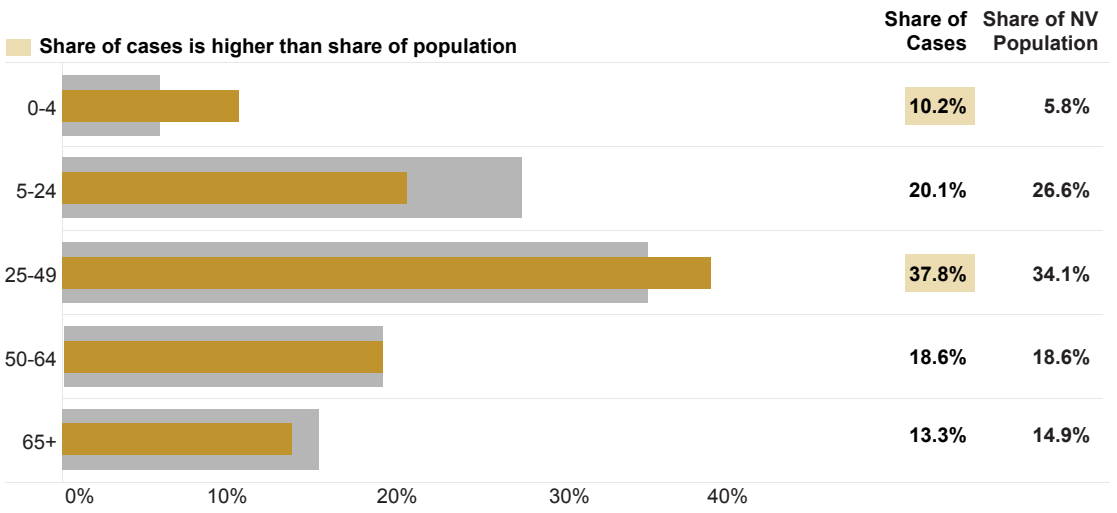



**Figure 91** shows the ILI cases by age cohorts for the 2020-2021 season compared to cohort distributions of the Nevada population. Children aged 0-4 years were still overrepresented in ILI cases by a smaller margin than in past seasons. Adults aged 25-49 were also overrepresented for the first time. Individuals from 5-24 years were most underrepresented during this season. Many children in this age cohort were not attending school during much of this period.

**Figure 91. ILI by Age Relative to Nevada Population, 2020-2021 Flu Season**

(Source: Nevada DPBH, Office of Public Health Investigations and Epidemiology, Nevada State Demographer)



## ILI Deaths And Hospitalizations by Jurisdiction and Season

**Figure 92** breaks down flu-associated deaths by LHA jurisdiction for the last four flu seasons (with partial data from 2021-2022 reported). Flu deaths decreased from past flu seasons for the SNHD and WCHD during the 2020-2021 flu season. CCHHS and RHS saw few deaths caused by flu throughout all seasons. SNHD saw an 89% decrease from the 2019-2020 flu season to the 2020-2021 flu season.

**Figure 92. Influenza Deaths by Nevada Jurisdiction and Flu Season**

(Source: Nevada DPBH, Office of Public Health Investigations and Epidemiology, Nevada State Demographer)

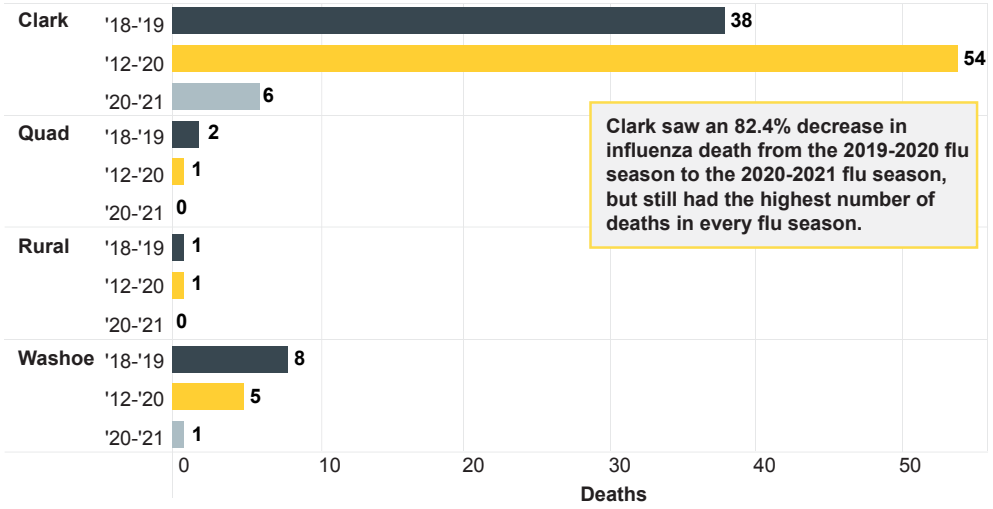
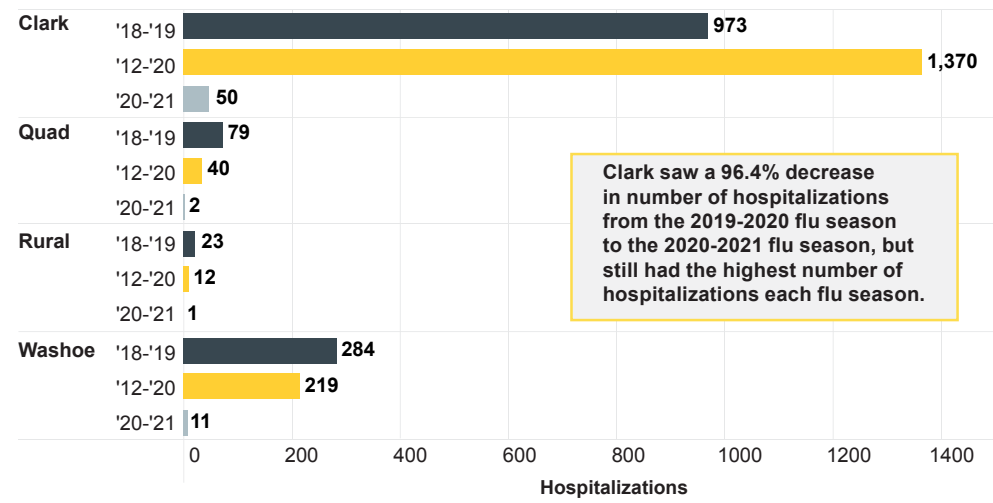



**Figure 93** breaks down flu-associated hospitalizations by LHA jurisdiction for the last four flu seasons (with partial data from 2021-2022 reported). Hospitalizations decreased for all jurisdictions during the 2020-2021 flu season, with SNHD experiencing a 96% decrease, WCHD and CCHHS both experiencing a 95% decrease, and RHS experiencing a 92% decrease from the 2019-2020 flu season to the 2020-2021 flu season.

**Figure 93. Influenza Hospitalizations by Nevada Jurisdiction and Flu Season**

(Source: Nevada DPBH, Office of Public Health Investigations and Epidemiology)



## Flu Vaccination Data

**Figure 94** shows flu vaccinations over time in Nevada. October had the highest number of flu vaccinations administered for each flu season shown with 2020-2021 having the greatest increase in flu vaccine uptake.

**Figure 94. Influenza Vaccinations by Season in Nevada**

(Source: Nevada DPBH, Office of Analytics)

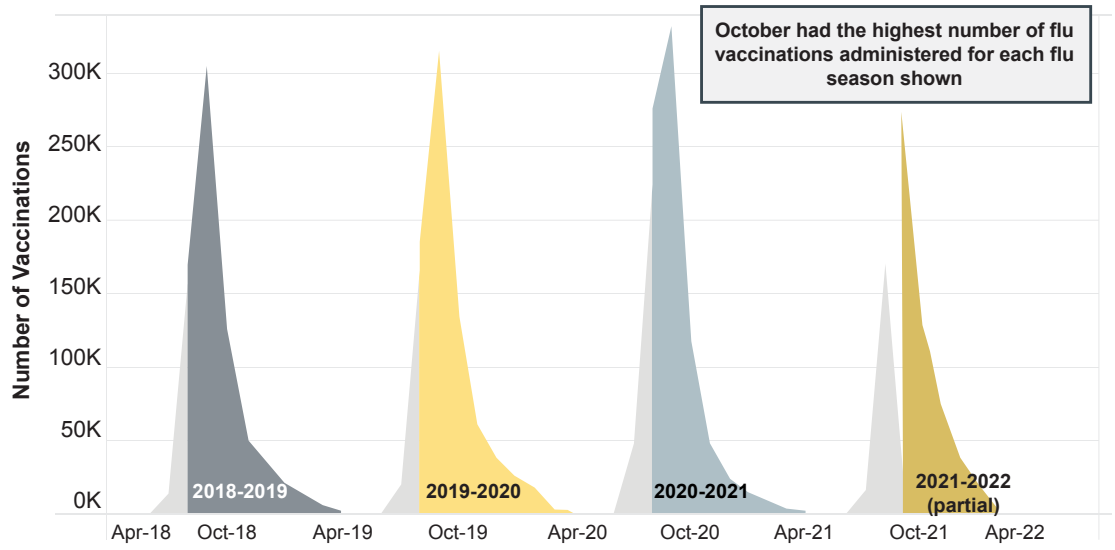



**Figure 95** shows the vaccination percentage of each Nevada county over the last three complete flu seasons along with a statewide percentage. Nevada averaged 24.3% of its population vaccinated, a smaller percentage than reported by the Centers for Disease Control and Prevention (CDC) using survey data (~40%),[79] and well below the Healthy People 2030 U.S. target of 70%.[80]

Carson City had the highest vaccination percentage for each season. Storey County had the lowest percentage of vaccinations for the three seasons. Esmeralda, Lyon, and Mineral Counties all saw an increase in vaccinations during the 2019-2020 flu season, but an overall decrease from the 2018-2019 flu season to the 2020-2021 flu season.

**Figure 96** shows the average flu vaccination rate over the last three complete flu seasons by county. Carson City had the highest average vaccination rate at 38%, and Storey County had the lowest average vaccination rate at 8%. Eight of Nevada's 17 counties (Carson City, Washoe, Douglas, Mineral, Churchill, Lyon, Humboldt, and Lander) were above the state average of 24.3%.

**Figure 95. Percent Change in Influenza Vaccination Rates by County and Flu Season**
**2018-2019 | 2019-2020 | 2020-2021**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

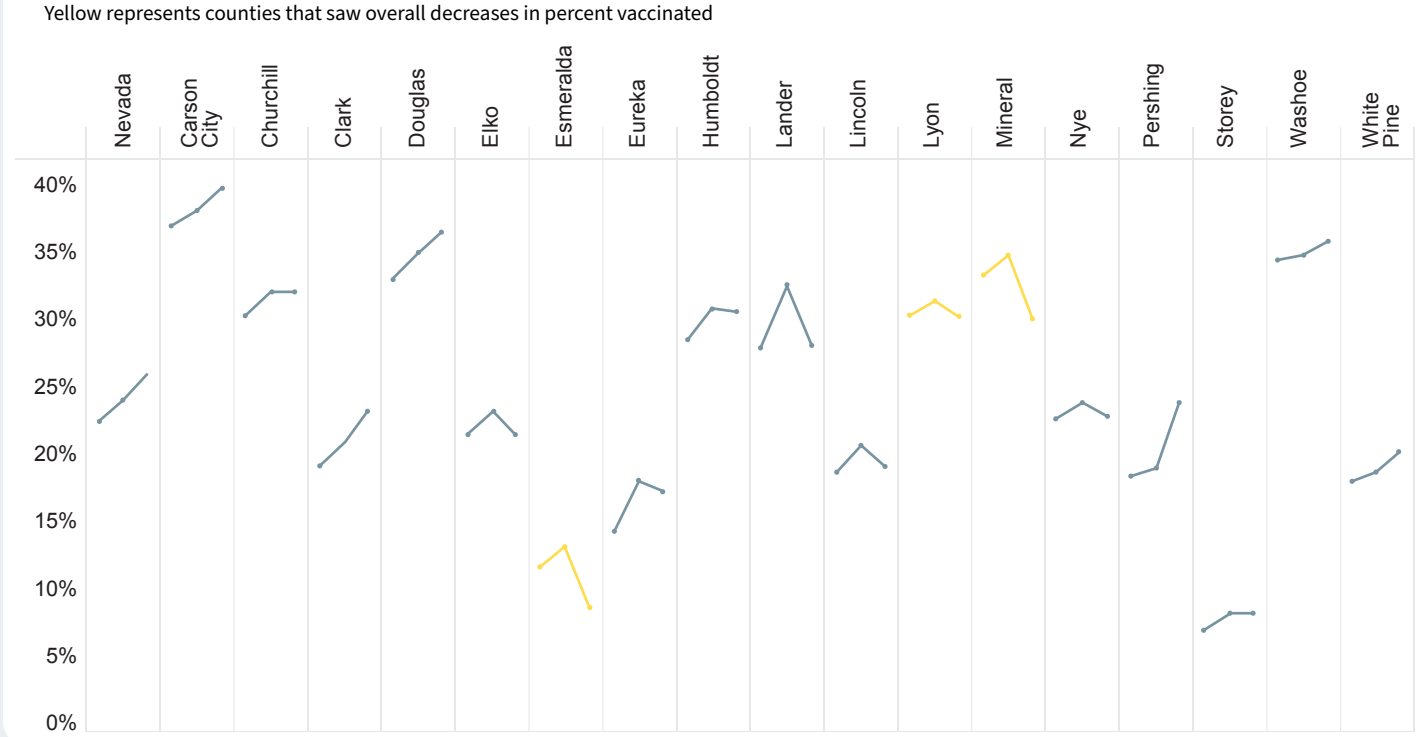
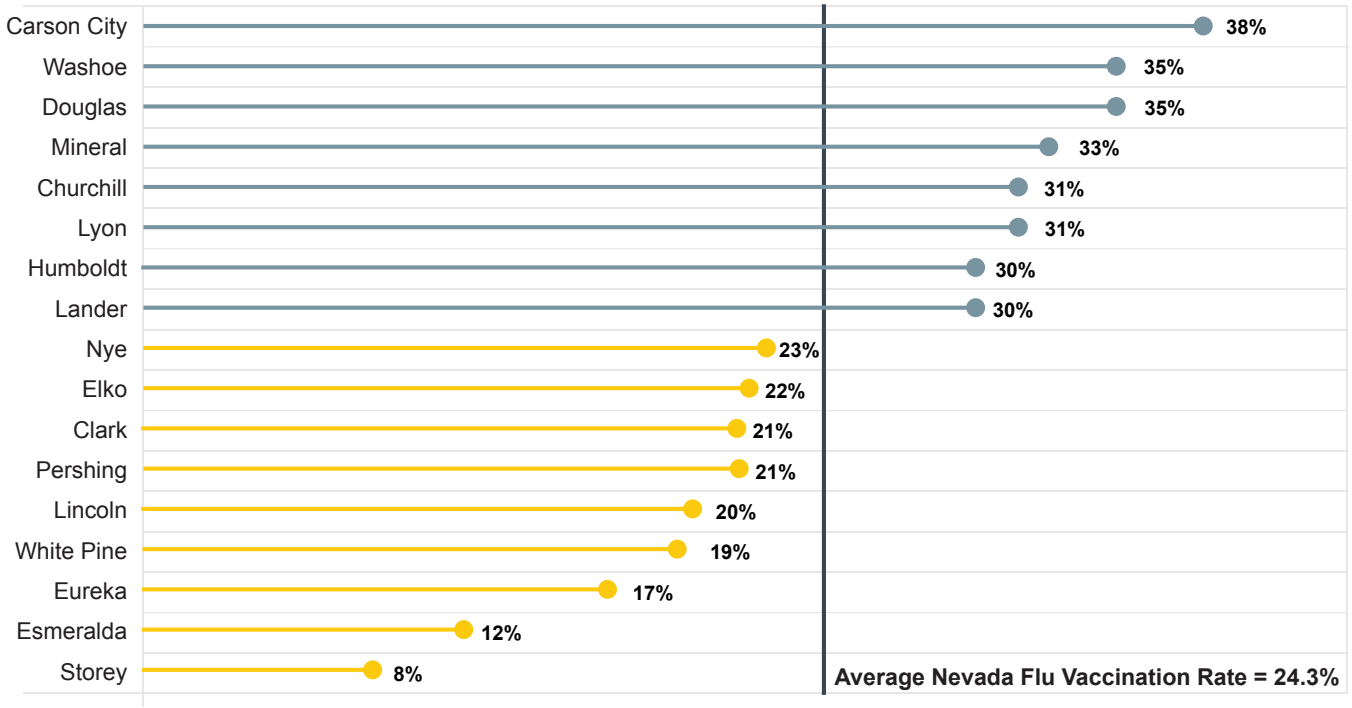



**Figure 96. Average Flu Vaccination Rate Over the Last Three Complete Flu Seasons by Nevada County**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)



## Flu Vaccination Data

**Figure 97** groups the counties into their respective jurisdictions to show the flu vaccination rate by season. All LHAs saw a rate increase of 1-4% over the past three flu seasons.

**Figure 97. Influenza Vaccination Rates by Jurisdiction and Season**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

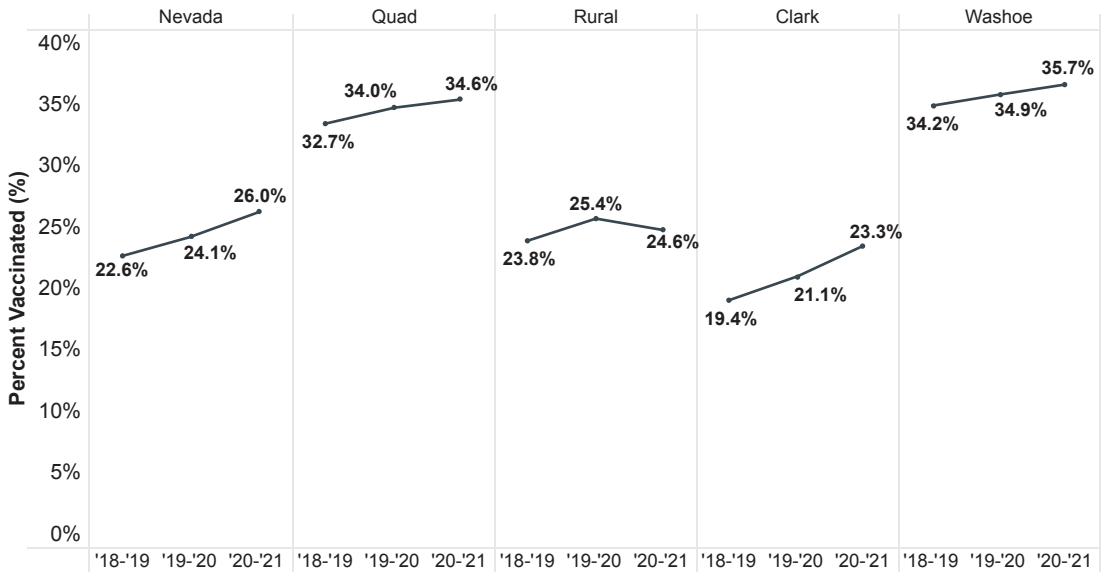



**Figure 98** shows percent of vaccinations by sex for each season. Females made up a larger proportion of individuals vaccinated for every season measured. This is consistent with some past studies in the U.S.[81] Previous data indicates that gender differences in flu vaccination diminish with age as the overall vaccine rate improves.[81]

**Figure 99** shows vaccination percentage broken down by age cohort for each season. The 2020-2021 flu season saw an increase in overall vaccinations compared to previous seasons, with vaccination rates for almost each age cohort staying relatively consistent. Children from 0-4 years saw a slight decrease in vaccinations between the 2020-2021 and 2021-2022 flu seasons. This indicates that although people were more prone to getting a flu shot, no age cohort had an increased rate of uptake compared to the other age cohorts during the pandemic. Nevadans aged 65 and older consistently had the highest rate of vaccination. Advancing age has been shown to be strongly associated with increased flu vaccine uptake.[82]

**Figure 98. Influenza Vaccinations by Sex and Season in Nevada**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

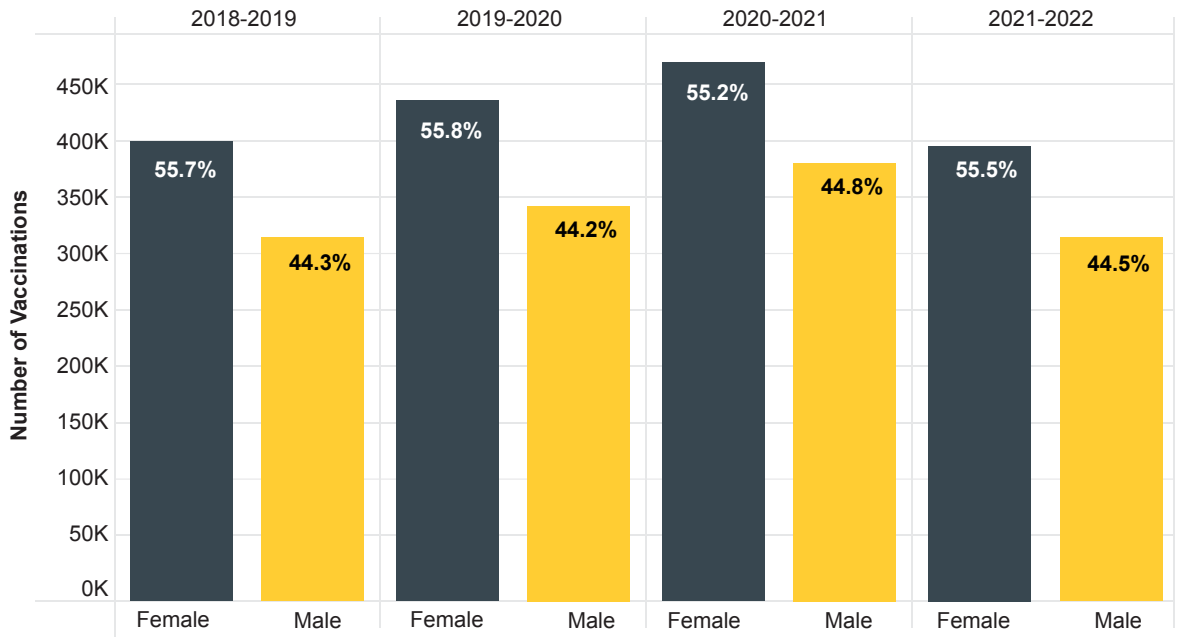
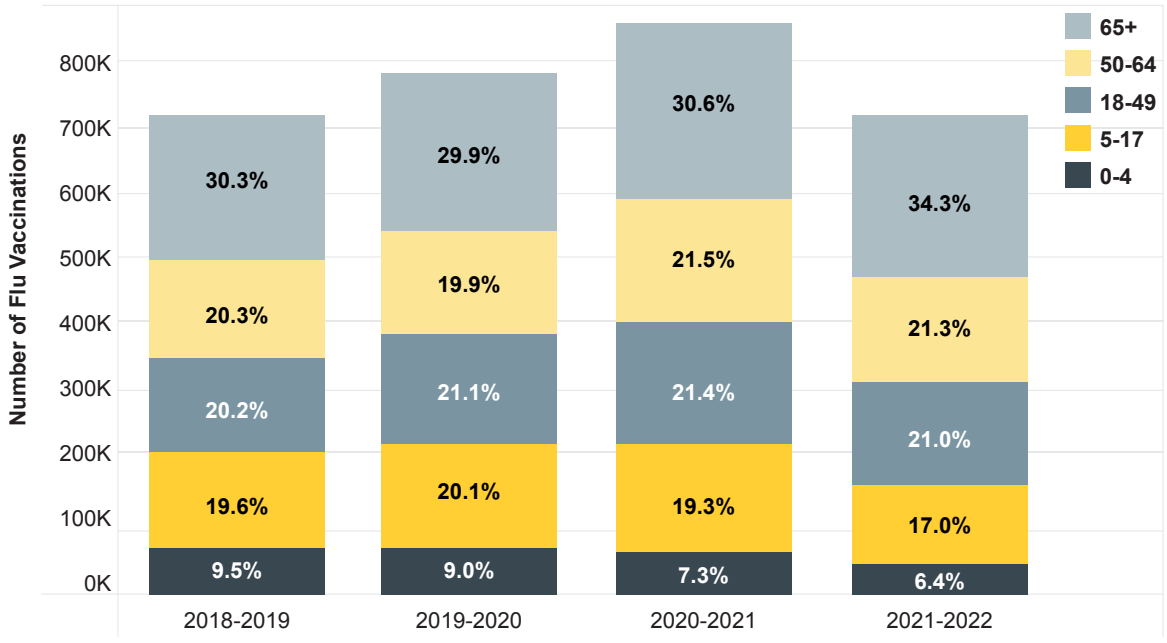



**Figure 99. Percent of Age Group for Influenza Vaccinations by Season**

(Source: Nevada DPBH, Office of Analytics)



## Flu Vaccination Data

**Figure 100** shows the percentage of flu vaccinations each age cohort represented for the 2019-2020 flu season compared to cohort distributions of the Nevada population. Nevadans from 0-4 years and 50-65 years and older were overrepresented in flu vaccinations, while Nevadans aged 5-49 were underrepresented. Adults aged 18-44 are often the age group least likely to report getting a flu vaccination,[82] while adults over age 60 report the highest vaccination rate.[82] This trend is consistent with COVID-19 vaccine uptake as well.

**Figure 100. 2019-2020 Flu Vaccinations by Age Group, Relative to Nevada Population**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

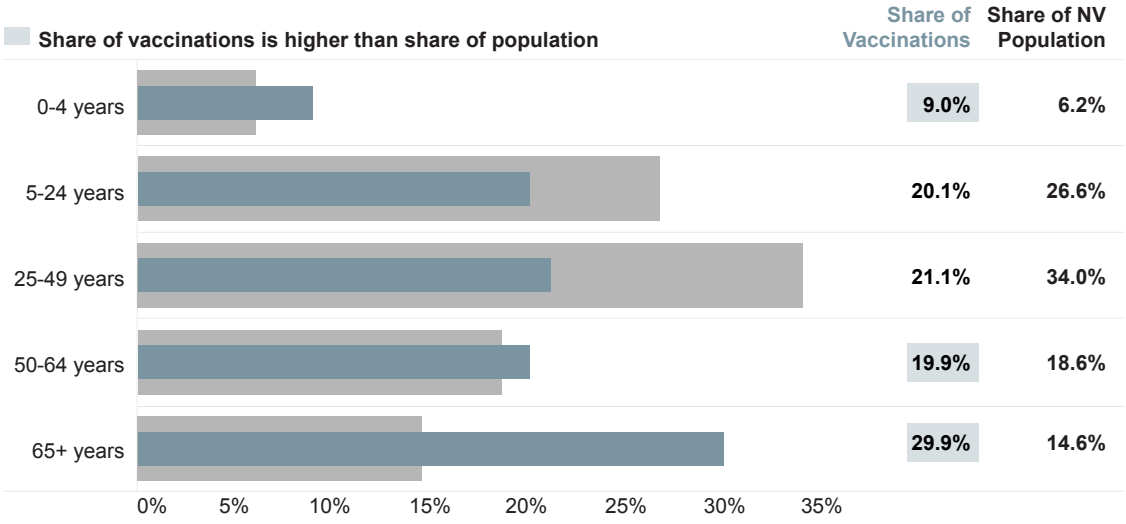



**Figure 101** shows the flu vaccination percentage of each age cohort for the 2020-2021 flu season compared to cohort distributions of the Nevada population. The same trend during the last two seasons was seen showing Nevadans aged 5-24 years being underrepresented.

**Figure 101. 2020-2021 Flu Vaccinations by Age Group, Relative to Nevada Population**

(Source: Nevada DPBH, Office of Analytics, Nevada State Demographer)

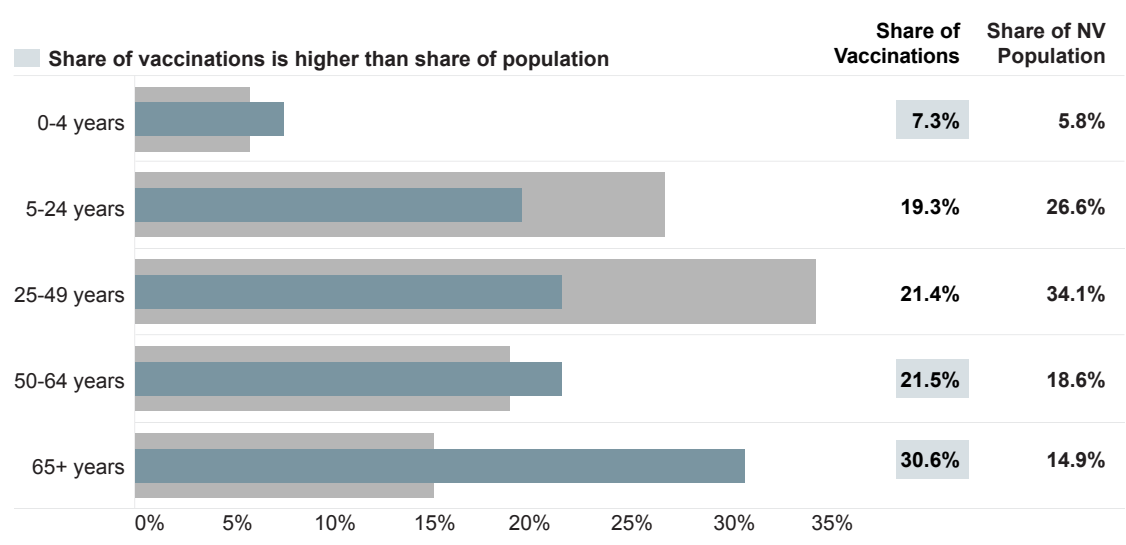
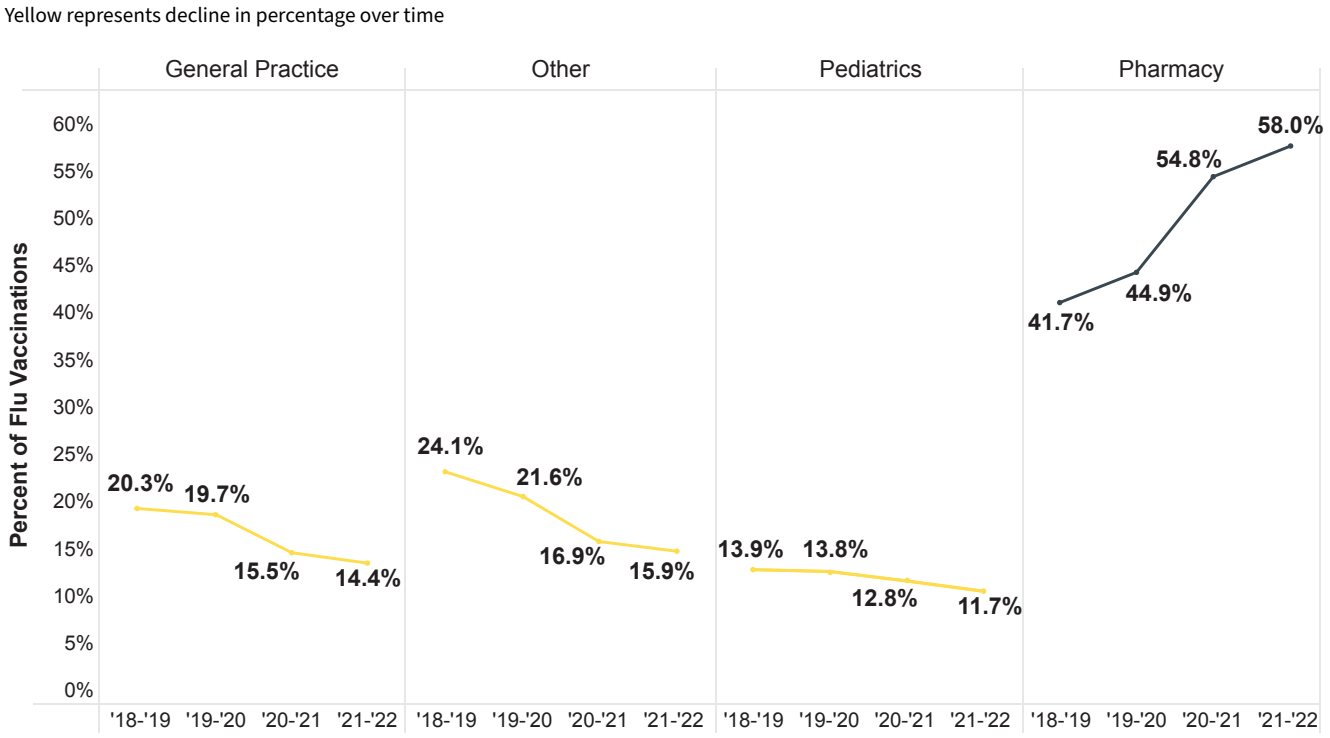


**Figure 102** shows the types of providers that administered flu vaccinations across influenza seasons. General practices, pediatric offices, pharmacies, and other providers are shown. The other category captures various provider types: adult medicine, employee health and LHAs, as well as vaccines that were recorded by a provider but were not administered by them.

**Figure 102. Types of Providers Adminstering Flu Vaccinations by Flu Season in Nevada**

(Source: Nevada DPBH, Office of Analytics)




Pharmacies were already the most used provider type for Nevadans to get their influenza vaccinations, and this trend has only increased during the pandemic (41.7% to 58.0%). There are several possible reasons for this, including canceled flu shot clinics in workplaces, limited availability, decreased desire to visit doctor's offices, and increased concern about getting sick due to the COVID-19 pandemic.[83] All other provider types decreased during the pandemic.

## SUMMARY

The pandemic had many ripple effects throughout the nation beyond disease burden, which was seen in flu cases and flu vaccination rate. While COVID-19 momentarily decreased the spread of flu and increased vaccine uptake, it had varying affects for other routine childhood and adolescent vaccines. This is explored in the next section of this report.

# CHILDHOOD VACCINATIONS IN NEVADA

This section aims to describe the state of childhood immunizations in Nevada during the pandemic, broken out by key demographics and geography, to understand the impact of COVID-19 on these routine immunizations.

## Childhood Vaccination Overview

**During the height of the COVID-19 pandemic, routine visits to healthcare providers declined significantly, and as a result, childhood immunization rates were also thought to have declined in the U.S.[84,85] Although routine immunizations have slowly been increasing to pre-pandemic levels across the U.S., there is still a lag in catch-up vaccinations for children.[86] This section serves to highlight the impact of COVID-19 on routine childhood and adolescent immunizations.**

### Vaccine Schedules

Vaccines are recommended by the ACIP and Centers for Disease Control and Prevention (CDC) to ensure that the public health is safeguarded against vaccine preventable diseases. For children, the ACIP recommends getting vaccinated against 14 potentially serious illnesses during the first 24 months of life.[87] Vaccinations are recommended for diphtheria, tetanus, and acellular pertussis (DTaP); inactivated poliovirus (IPV); measles, mumps, and rubella (MMR); hepatitis A and B (HepA and HepB, respectively); pneumococcal conjugate (PCV13); varicella (chicken pox); rotavirus; and haemophilus influenzae type b (Hib). The combined 7-vaccine series, or 7-series, includes ≥4 doses of DTaP, ≥3 doses of poliovirus vaccine, ≥1 dose of measles-containing vaccine, the full series of Hib (≥3 or ≥4 doses, depending on product type), ≥3 doses of HepB, ≥1 dose of VAR, and ≥4 doses of PCV.[87]

The purpose of this section is to determine the percentage of Nevada children that were immune or protected from VPDs. We examined protection rates prior to the onset of the COVID-19 pandemic as well as during the 2020 quarantine and in 2021 to understand the impact of COVID-19 on routine childhood vaccinations.

**Figure 103** outlines the 7-series recommendations for children by age 24 months. Children from 4-6 years are recommended to continue the DTaP, IPV, varicella, and MMR vaccination series that started during infancy with an additional dose of each vaccine.[87] Adolescents ages 11-12 years are recommended to begin the vaccination series for tetanus, diphtheria, and acellular pertussis (Tdap), human papillomavirus (HPV), and meningococcal (MenACWY), though adolescents can begin the HPV vaccine series as early as age 9.[87]

**Figure 103. Combined 7-Series Schedule Recommended for Children by Age 24 Months**

(Source: Advisory Committee on Immunization Practices)

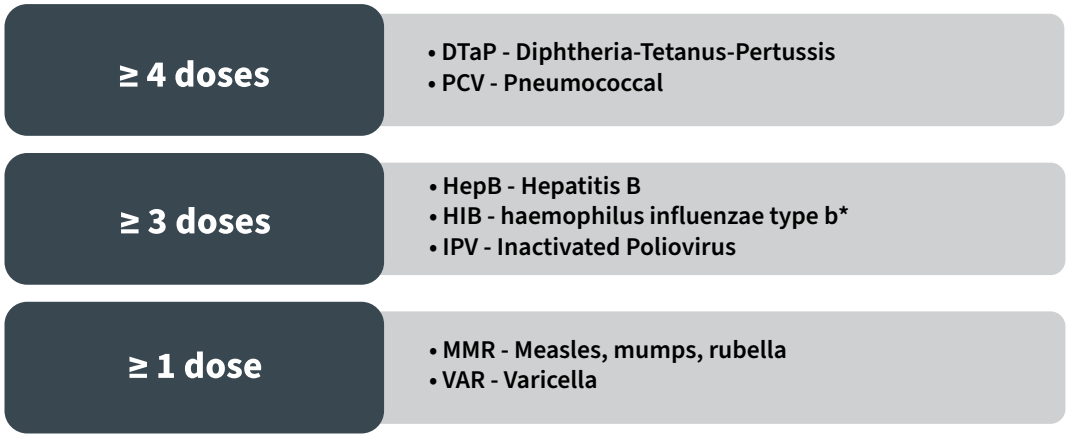
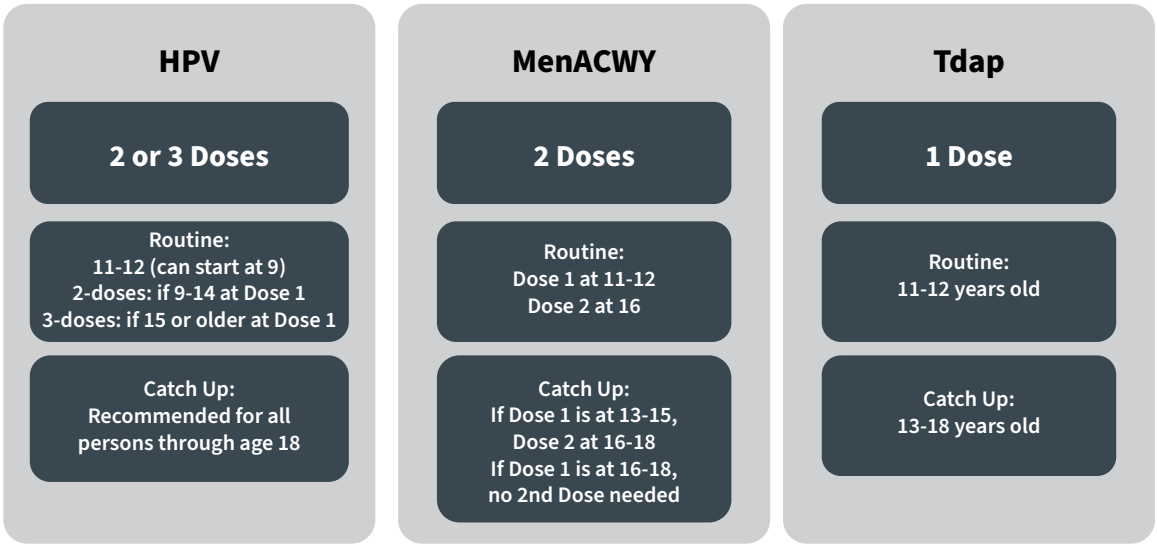



**Figure 104** provides an overview of the recommendations for adolescent vaccinations.

**Figure 104. Adolescent Routine and Catch-Up Vaccine Schedule**

(Source: Advisory Committee on Immunization Practices)



# Childhood Vaccination Rates by Age 24 Months In Nevada From 2019-2021

**Table 18** shows the vaccination rates by age 24 months for vaccines listed separately and by the 7-series.

The rotavirus protection assessment is determined through evaluation by age eight months, while the HepA protection is determined through evaluation by age 35 months. Nevada State Demographer data estimated populations by whole years, so rotavirus assessment by age eight months was not feasible using Nevada State Demographer data and thus was not examined in this report.

Additionally, because NSIP followed CDC guidance in assessing protection by age 24 months, we did not evaluate children receiving their second HepA dose; however, the first HepA dose by age 24 months was examined.

**Table 18. Vaccination Coverage by Age 24 Months Among Children Born in Nevada, 2016-2019**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

| Vaccine/Dose | Analysis Year (Birth Years) | | |
|---|---|---|---|
| | **2019** (2016-2017) | **2020** (2017-2018) | **2021** (2018-2019) |
| **DTaP** | | | |
| ≥3 doses | 93.7% | 91.4% | 81.6% |
| ≥4 doses | 76.9% | 74.6% | 65.8% |
| **PolioVirus** | | | |
| ≥3 doses | 92.5% | 90.2% | 77.8% |
| **MMR** | | | |
| ≥1 dose | 89.9% | 91.2% | 77.8% |
| **Hib** | | | |
| Primary Series | 93.2% | 91.2% | 81.6% |
| Full Series | 74.7% | 74.2% | 65.8% |
| **VAR** | | | |
| ≥1 dose | 89.3% | 87.5% | 77.6% |
| **PCV** | | | |
| ≥3 doses | 91.5% | 89.6% | 80.1% |
| ≥4 doses | 75.3% | 74.3% | 66.1% |
| **Hep A** | | | |
| ≥1 dose | 88.2% | 86.8% | 77.5% |
| **Combined 7-Series** | 69.1% | 67.9% | 59.3% |

## ABOUT THE DATA

Childhood vaccination data was analyzed in SAS 9.4 (SAS Institute, Cary, NC) and Tableau (2021.4). Immunization data was provided by the Office of Analytics. Nevada State Demographer data was used to evaluate the population of children in Nevada with 2018-2020 population numbers being official estimates and 2021 population numbers being projections. 2021 numbers may be updated when official estimates are released in the future.

Childhood assessment was conducted during the 2019–2021 analysis years, and adolescent assessment was conducted during the 2018-2021 analysis years. The absence of 2018 analysis among children was due to data quality considerations that are currently ongoing. Future amendments to this report may provide greater detail regarding the data quality and provide the 2018 analysis rate for children.

A future school addendum is planned to explore school data for kindergarten and grades 7 and 12 for the most recent school years to assess how Nevada is doing on school required vaccinations.

Additionally, data quality is always an important consideration. Race and ethnicity was missing for approximately 20% of childhood and adolescent records, so no concrete conclusions should be made when examining race and ethnicity graphs. This is discussed in more detail later on in this section.

## METHODOLOGY

The American Immunization Registry Association (AIRA) provides each state with support for their IIS. AIRA released a guide in 2015 to help states leverage their IIS to determine childhood immunization coverage assessment. *The Analytic Guide for Assessing Vaccination Coverage Using an IIS* served as the framework for the methodology and was used to evaluate the coverage rate among Nevada children and adolescents in this report.[88] Only valid doses that were administered as part of both routine and catch-up schedules were considered in the analysis.

# 7-Series Vaccination Rates in Nevada

**Figure 105** shows the rate of 7-series vaccinations by age 24 months in Nevada from 2019-2021. Since 2019, infants experienced a decline in the 7-series vaccination rate each subsequent year.

**Figure 105. Rate of 7-Series Vaccination by Age 24 Months by Year, Nevada**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

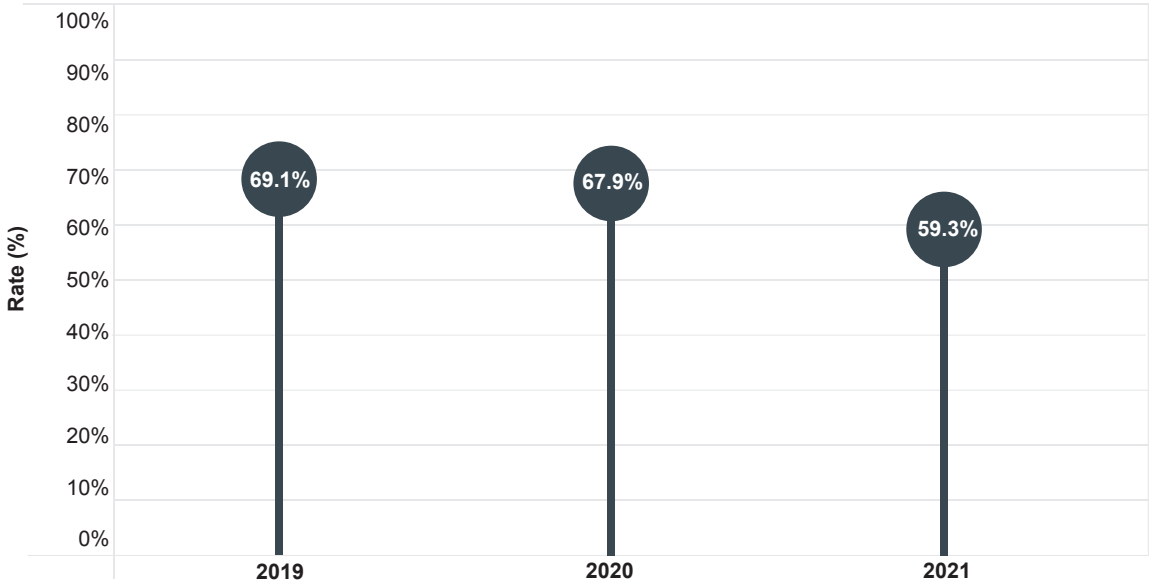
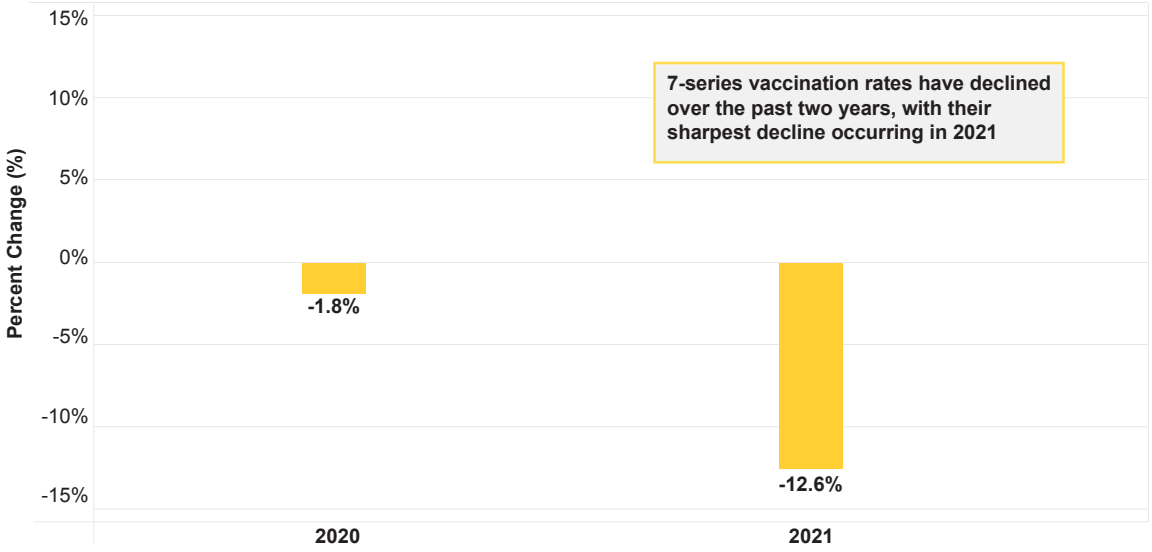



**Figure 106** depicts the percent change in 7-series rate from the previous year.

**Figure 106. Percent Change from Previous Year in 7-Series Vaccination Rates by Age 24 Months by Year, Nevada**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)



## 7-Series Vaccination Rates and Jurisdiction

Analysis of the 7-series vaccination rate in the state's four jurisdictions of Clark, Washoe, Quad and Rural found that despite declines in the 2021 rate for every jurisdiction, the rate in Washoe County remained consistently higher than the state's overall rate for each analysis year.

**Figure 107** shows the rate of 7-series vaccination for each jurisdiction in each year.

**Figure 107. 7-Series Vaccination Rate by Age 24 Months by Jurisdiction and Year**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

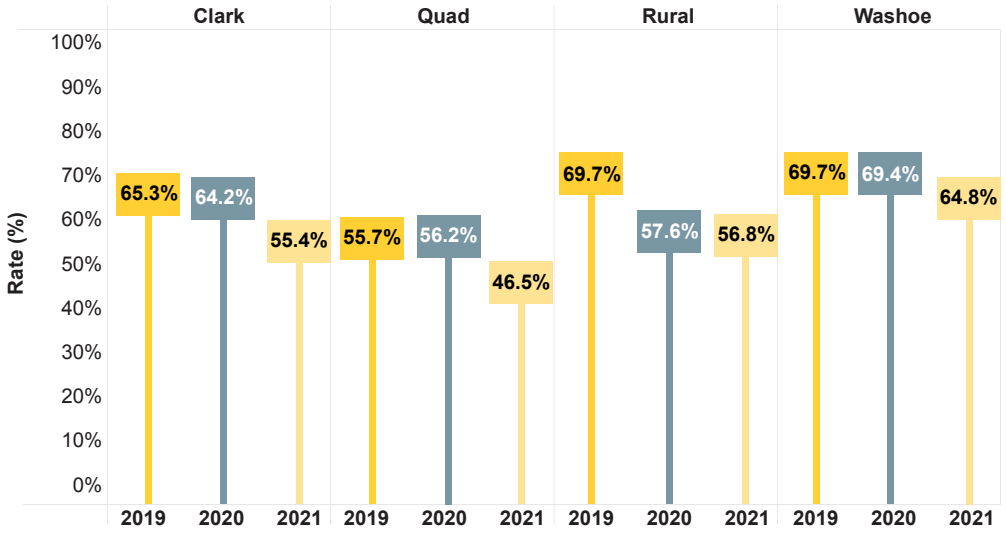
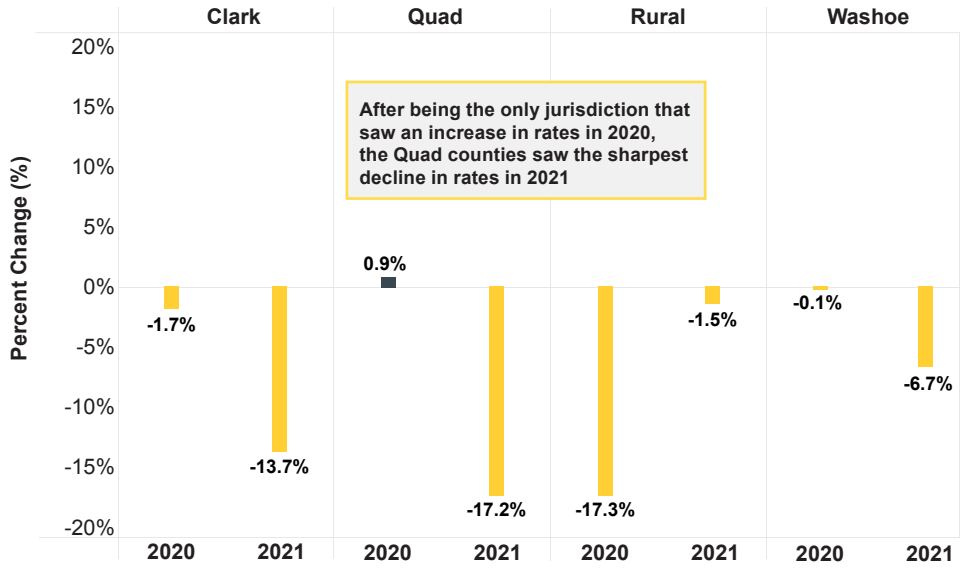



**Figure 108** shows the percent change in the 7-series rate from the previous year for each jurisdiction. Quad-County was the only jurisdiction to see the rate increase slightly in 2020 but had the sharpest decline in 2021 compared to the other jurisdictions. Despite having the highest 7-series rate in 2019 in the state and across jurisdictions, rural jurisdictions saw the largest decline between 2019-2021, with the 7-series rate dropping 18.5%.

**Figure 108. 7-Series Vaccination Rate by Age 24 Months by Jurisdiction, 2020-2021**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)



## 7-Series Vaccination Rate by Race and Ethnicity

Between 2019-2021, Hispanic children in Nevada had the highest 7-series vaccination rate compared to other races and ethnicities. **Figure 109** shows the 7-series rate among known races and ethnicities in Nevada.

**Figure 110** shows the percent change among Nevada children from the previous year, broken down by race and ethnicity. API, Hispanic, and White children saw the only increases in the 7-series vaccination rate from 2019-2020, while the rate among AIAN and Black children declined for that year. The rate among AIAN children declined even further from 2020-2021, decreasing by 28.3%, the largest percent change across all races and ethnicities. Conversely, Black children saw the only increase to the 7-series vaccination rate from 2020-2021.

Despite the rate being relatively stable between 2019-2020, AIAN children saw the largest decline in the 7-series vaccination rate between 2019-2021. While Hispanic children in Nevada had the second largest percent change among all races and ethnicities, the 7-series rate among Hispanic infants in 2021 remained the highest compared to other racial and ethnic groups.

**Figure 109. 7-Series Vaccination Rate by Age 24 Months by Race and Ethnicity, 2019-2021**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

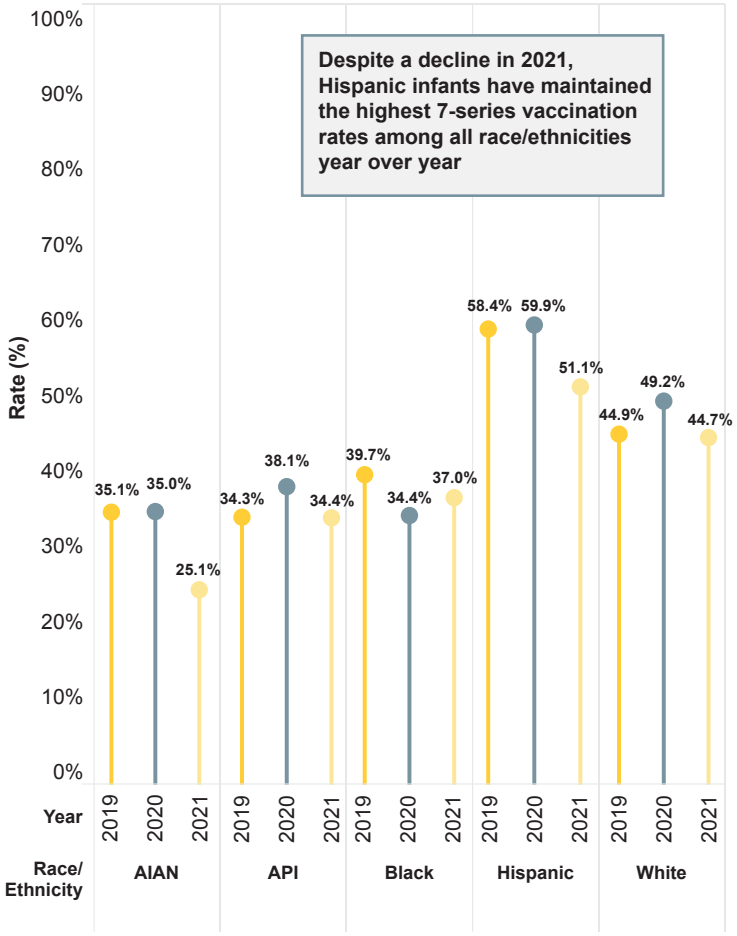
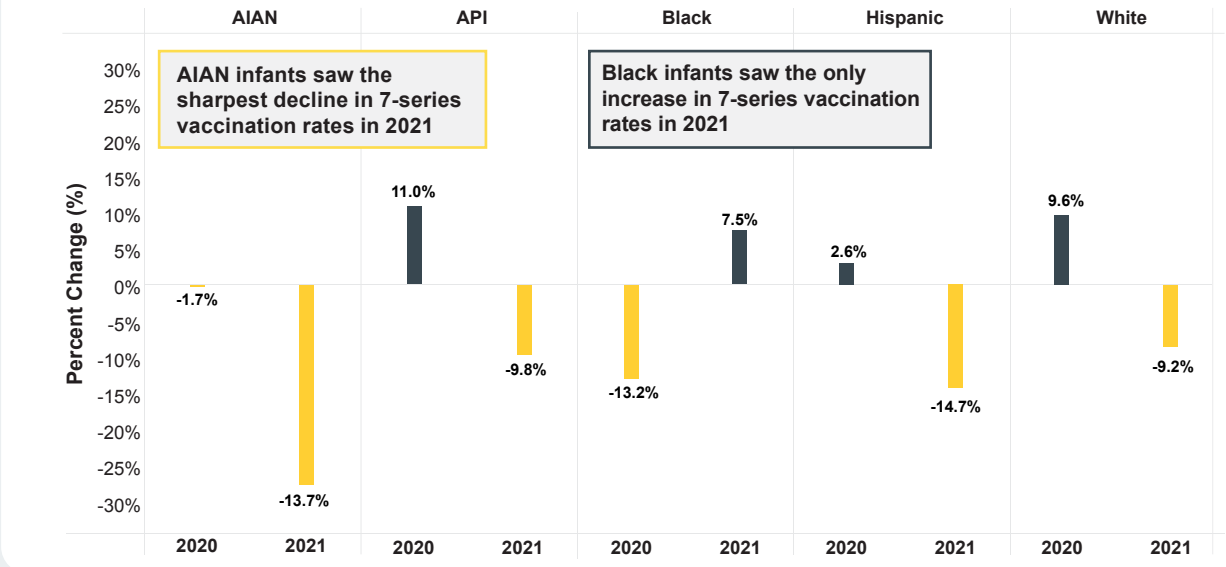



**Figure 110. 7-Series Vaccination Rate by Age 24 Months by Race and Ethnicity, 2020-2021**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)



## Limitations

One limitation in the analysis is that the Nevada State Demographer data does not capture multi-race and other racial and ethnic identities. These groups are more varied among Nevada residents. This is data that a provider office or the IIS might capture. More than 10% of children in the IIS identified as having two or more races, but the absence from the Nevada State Demographer capture in the Nevada population meant they were excluded from any demographic analysis. Additionally, nearly 20% of children had unknown or missing race and ethnicity data in the IIS, which also excluded them from demographic analysis.

**Figure 111** highlights the limitations of the race and ethnicity analysis given the large amount of missing data.

**29%**

On average, nearly 29% of Nevada children were one or two vaccines away from completing the 7-series.

**45.1%**

Of those missing only one vaccine to complete the series, 45.1% were missing their pneumococcal conjugate (PCV13) vaccine...

**35.8%**

...35.8% were missing their DTaP vaccine. Both vaccines require four doses to complete the series.

**Figure 112** details which vaccines were missing among Nevada children who were only one vaccine away from completing the 7-series.

**Figure 113** depicts the number of vaccines needed among Nevada children to complete the 7-series.

**Figure 111. Nevada Children with at Least One Vaccination by Age 24 Months by Known and Unknown Race and Ethnicity, 2019-2021**

(Source: NV DPBH, Office of Analytics)

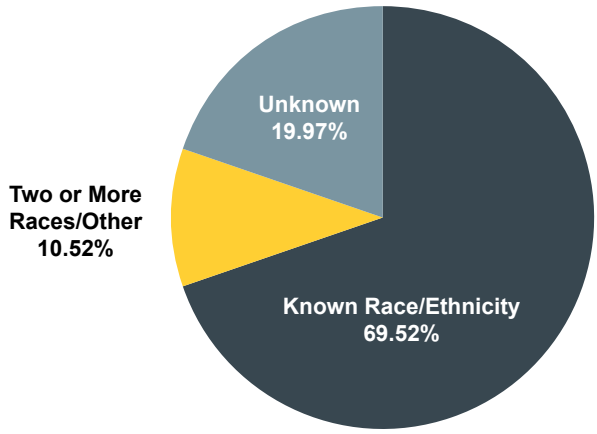



**Figure 113. Number of Additional Vaccines Needed to Complete the 7-Series**

(Source: NV DPBH, Office of Analytics)

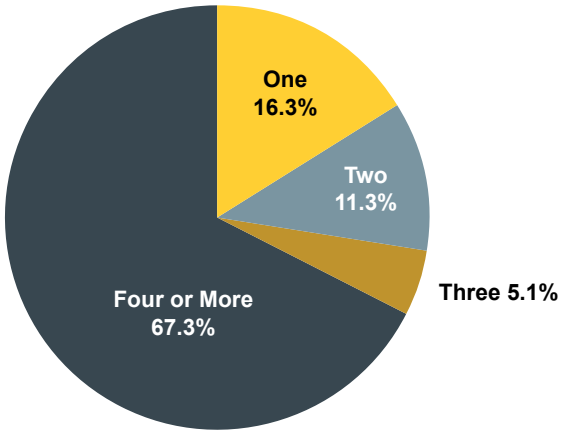
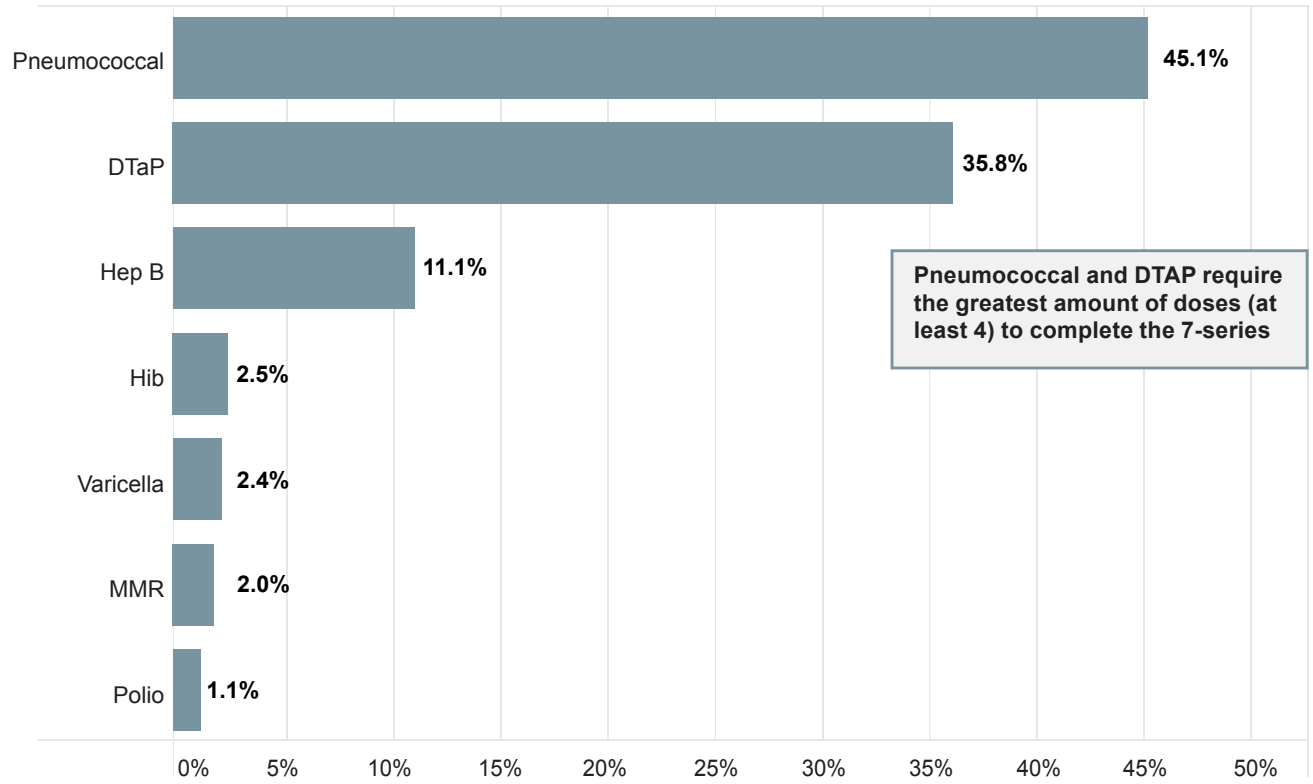


**Figure 112. Vaccine Type Needed to Complete the 7-Series**

(Source: NV DPBH, Office of Analytics)




## SUMMARY

While it cannot be said for certain why, the decline in the 7-series rate during the pandemic in 2020-2021 was likely the result of a variety of compounding factors. It is possible that parents concerned about the risk of a COVID-19 infection and were less inclined to expose their young children to clinical settings, opting to wait or forgo routine vaccines on schedule[89]. Another likely explanation for the decline may be related to logistics surrounding the number of vaccines needed by age 24 months. Infants need at least 15 vaccine doses by 24 months of age to be considered as having completed the series.

With normal business interrupted as clinical staff responded to the COVID-19 emergency, it is possible that offices did not have the capacity to remind parents of needed vaccines, making it likely that children fell behind. An amendment to this report is planned to evaluate whether the 7-series rate for 2020-2021 proved significantly different if the age limit is increased from 24 months. The amendment will also examine the time it took to catch up children on the 7-series.

This analysis has been used to engage providers statewide and initiate vaccine campaigns to encourage parents to bring in their children to complete their vaccine series. The impact on childhood vaccine rates in Nevada is an unintended consequence of COVID-19. It will continue to be monitored and remain a priority to maintain protection again VPDs.

# Adolescent Vaccination Rates in Nevada

Adolescents aged 11-12 years old are recommended to get one dose of Tdap and the first dose of both the MenACWY and HPV vaccination series. The HPV vaccine series can begin as early as nine years old. Adolescents not following the recommended vaccine schedule are encouraged to catch up on vaccinations at the first available opportunity. The age at which the first dose of HPV vaccine is administered determines whether an adolescent will need two or three doses to be up to date on the series. If the first dose of HPV vaccine is administered to adolescents 9-14 years old, then two doses are needed to complete the series. If the first dose is administered at 15 years or older, then three doses are needed. For the graphs below, up to date is defined as someone who has gotten all appropriate doses using the routine or catch-up schedule. Note that there are school requirements in Nevada for both Tdap and MenACWY, but not the HPV vaccine.

**Figure 114** shows the rate of 13–17 year olds in Nevada with at least one dose of HPV, MenACWY, and Tdap vaccines across all four analysis years (2018-2021).

**Table 19** provides the rate of recommended adolescent vaccines and shows the percent change from 2018-2021. Overall, HPV and MenACWY rates increased from 2018-2021, while the Tdap rate, which is generally highest among the three vaccines, declined slightly.

Between 2018-2021, Black and Hispanic adolescents in Nevada had the highest vaccination initiation rates compared to other races and ethnicities.

**Figure 115** shows the rate of adolescents with at least one dose of HPV, MenACWY, and Tdap vaccines among known races and ethnicities in Nevada. The rate of HPV vaccination was lower than MenACWY and Tdap for all races and ethnicities. This could likely be a result of the grade 7 school requirement of at least one dose for those vaccines, while the HPV vaccine is not currently required by schools in Nevada for enrollment.

**Table 19. Vaccination Coverage Among Adolescents, Nevada, 2018-2021**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

| Vaccine/ Dose | 2018 | 2019 | 2020 | 2021 | % Change from 2018 to 2021 |
|---|---|---|---|---|---|
| **HPV** | | | | | |
| ≥1 dose | 68.2% | 68.2% | 68.1% | 70.7% | 3.7% |
| UTD | 37.4% | 39.9% | 42.1% | 45.2% | 20.9% |
| | | | | | |
| **MenACWY** | | | | | |
| ≥1 dose | 87.4% | 86.8% | 87.1% | 91.7% | 4.9% |
| 16 year olds w/ ≥2 doses | 13.2% | 13.9% | 12.0% | 13.8% | 4.5% |
| 17 year olds w/ ≥2 doses | 25.3% | 25.7 | 24.5% | 25.5% | 0.8% |
| | | | | | |
| **Tdap** | | | | | |
| ≥1 dose | 99.0% | 93.7% | 91.2% | 93.7% | -5.4% |

**Figure 114. Adolescents with at Least One Dose by Vaccine, Nevada, 2018-2021**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

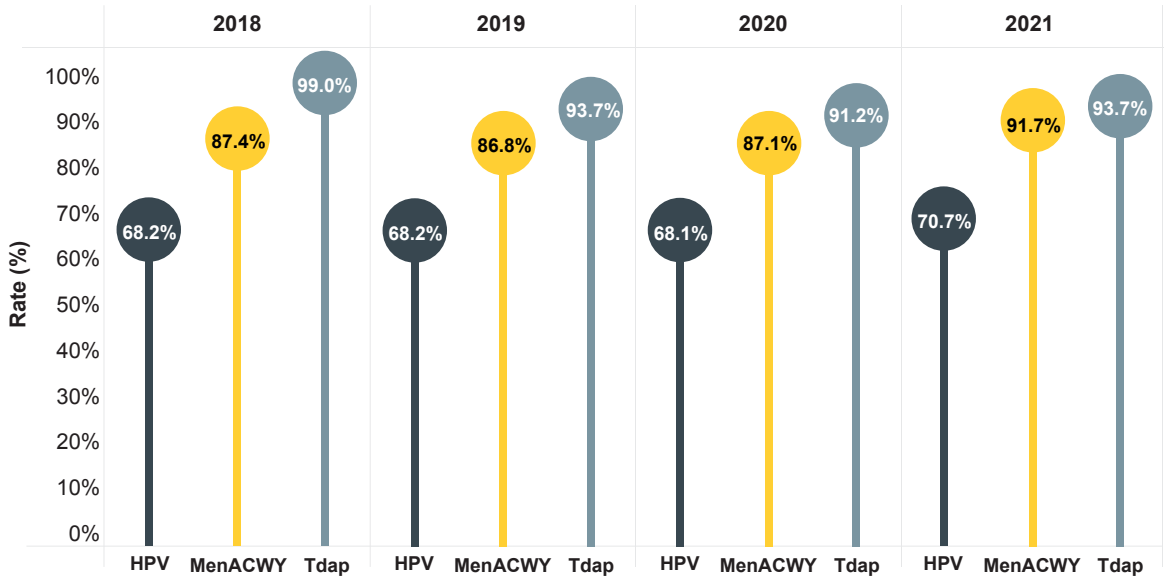



**Figure 115. Adolescents with at Least One Dose of HPV, MenACWY, or Tdap by Race and Ethnicity, 2018-2021**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

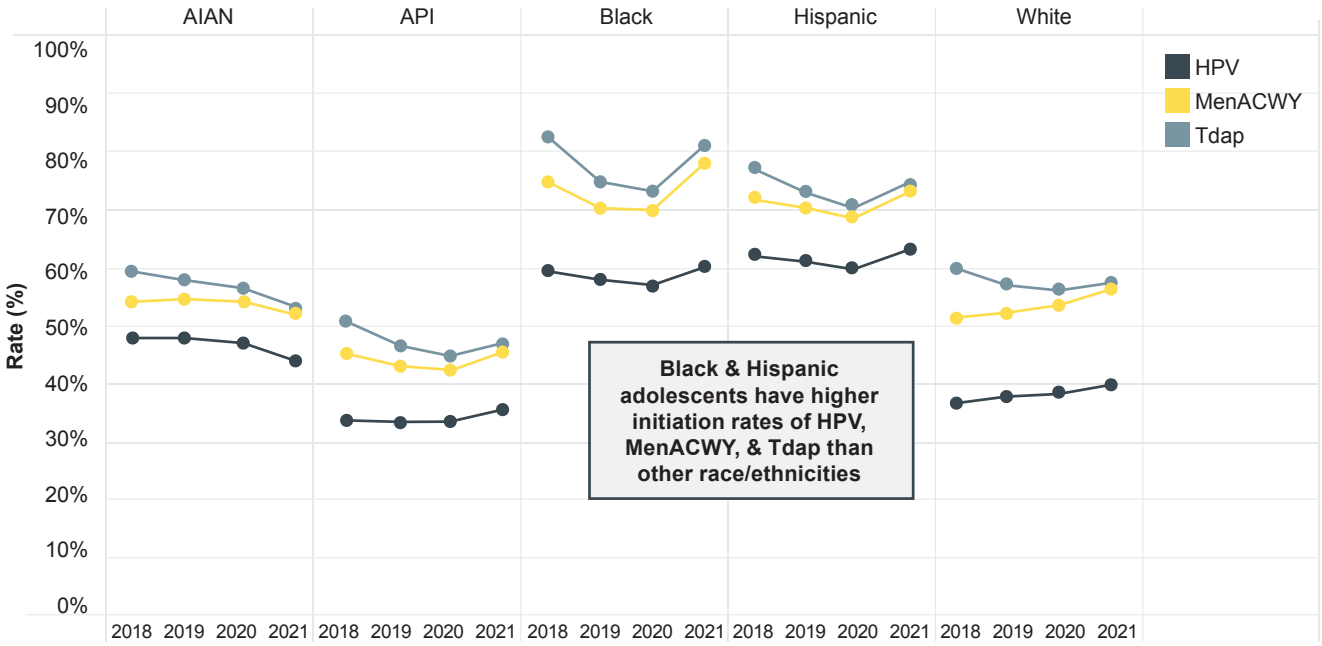
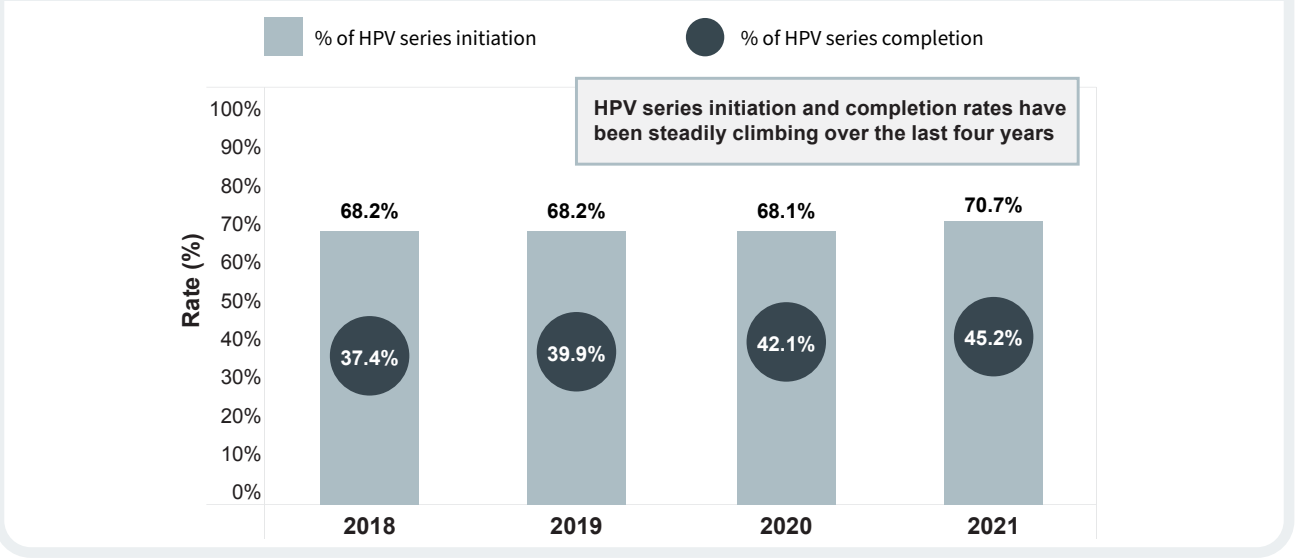


**Figure 116** shows the rate of HPV series initiation (at least one dose) and completion (up to date (UTD), which is two or three doses depending on the age at dose one). The rate of HPV series initiation, represented by the bars in the figure below, increased overall between 2018-2021. The rate of HPV series completion, represented by the circles in the figure below, followed a similar trend. From 2018-2021, the HPV up to date rate increased by the greatest amount (20.9%) compared to other adolescent recommended vaccinations.

**Figure 116. HPV Initiation and Completion Among Adolescents, 2018-2021**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)




## HPV

**The HPV vaccine was originally only recommended to adolescent females, but recommendations were updated in 2011 to include males. This change resulted in vaccination campaigns to encourage vaccination among young males who have remained behind females in their initiation and up to date (UTD) completion rate.**

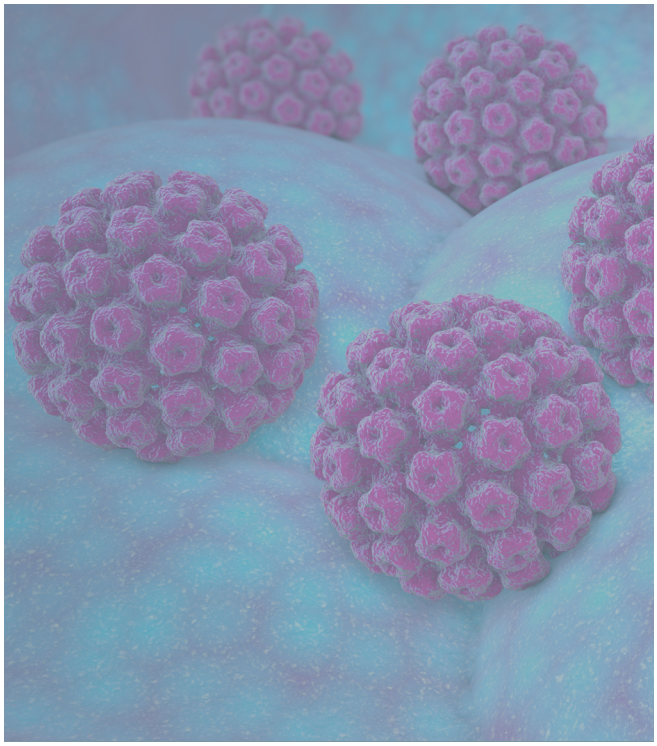


**Figure 117** shows the HPV initiation (bars) and UTD completion (circles) among females and males between 2018-2019. While females have a higher initiation and completion rate than males in each analysis year, the female initiation rate declined slightly in 2019 and again in 2020. Conversely, males saw a steady increase in both the initiation and UTD rate year over year.

Analysis of the vaccination rate in the state's four jurisdictions found that the HPV UTD rate increased year over year for every jurisdiction, with the rate in Washoe County being the highest among the jurisdictions, exceeding the state's rate each year.

**Figure 117. HPV Initiation and Completion Among Adolescents by Sex and Year**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

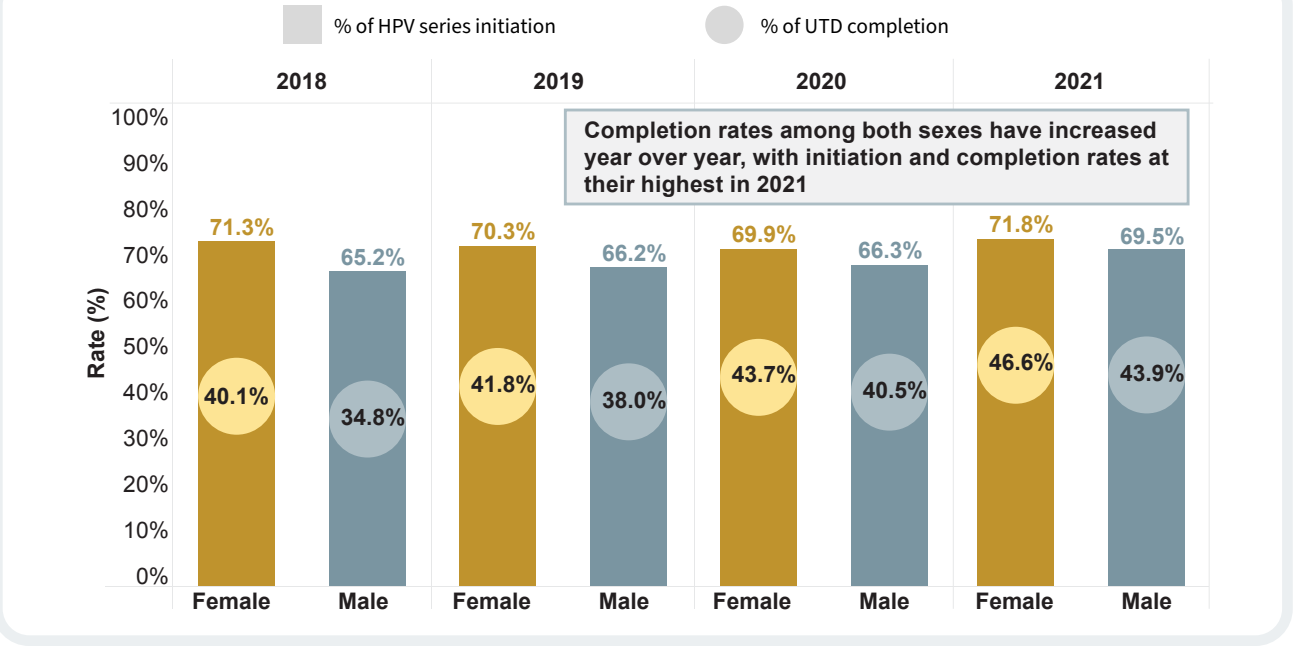



**Figure 118** shows the HPV UTD rate for each jurisdiction in each year, while **Figure 119** shows the percent change in the UTD rate from the previous year.

**Figure 118. Rate of Adolescents Up to Date on HPV by Jurisdiction and Year**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

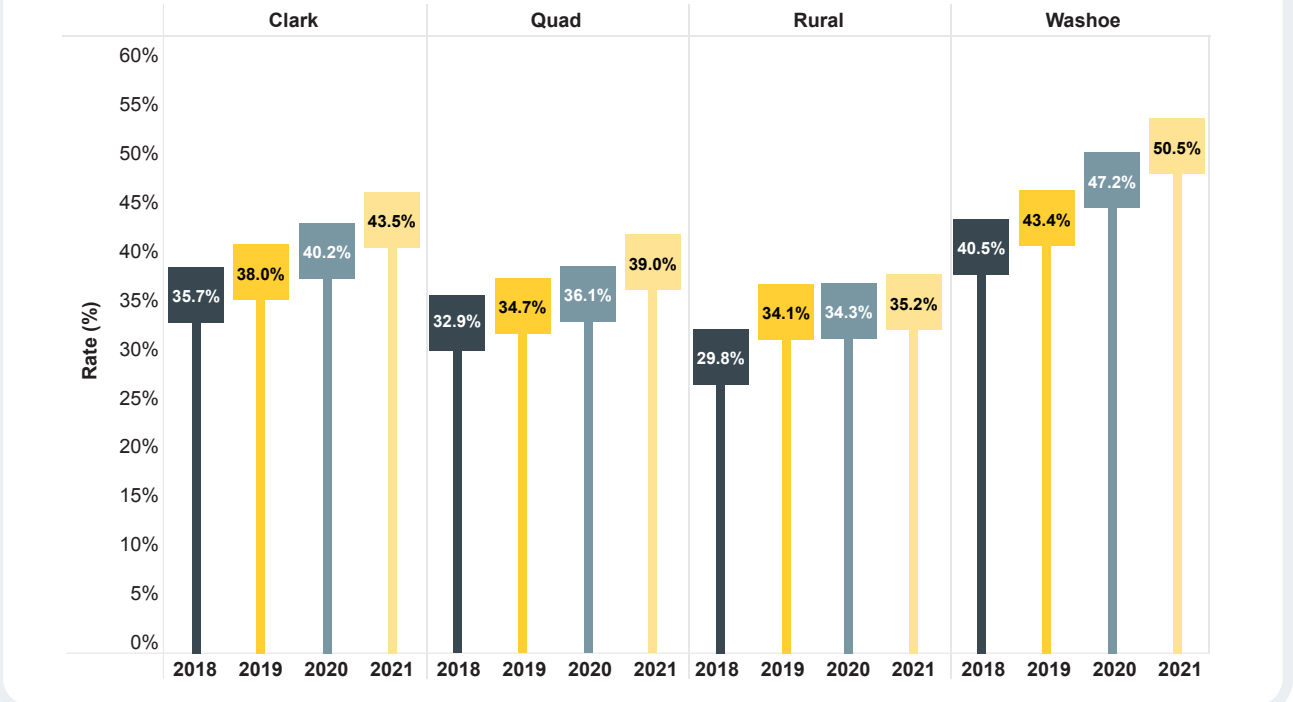
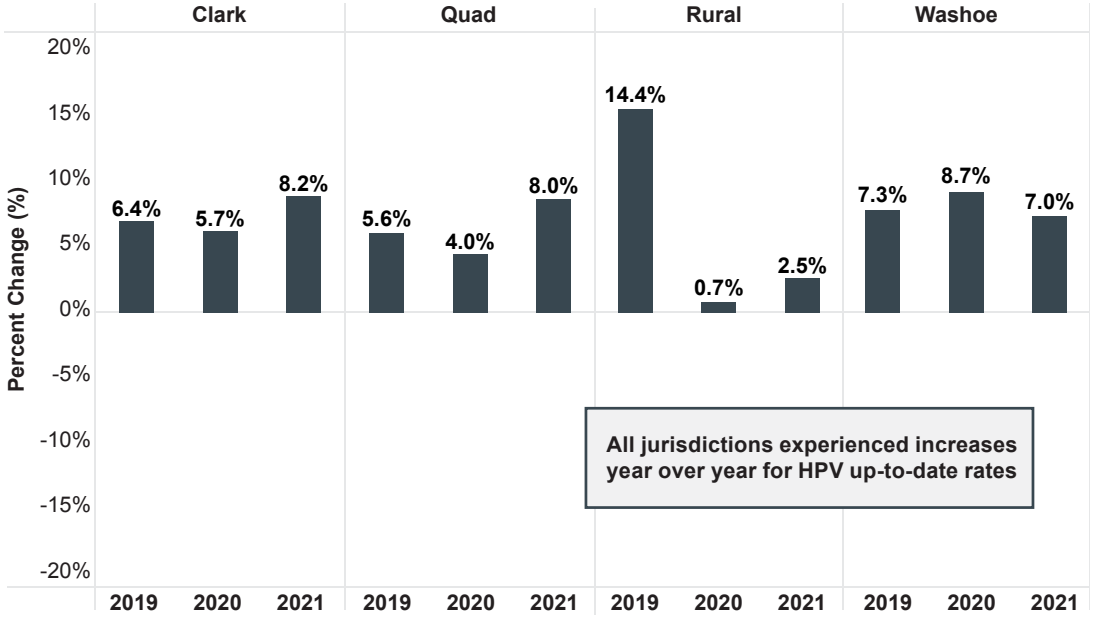


**Figure 119. Percent Change in HPV Up to Date Rates Year-Over-Year by Jurisdiction**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)




The state and each jurisdiction experienced increases in the HPV UTD rate for every consecutive year between 2018-2021. Washoe County had the highest percent change with the rate increasing 24.7% from 2018-2021.

**Figure 120** depicts adolescents who were up to date on the HPV vaccine by race and ethnicity between 2018-2021.

The AIAN adolescent rate saw the only decline in 2020-2021. Meanwhile, the rate among API adolescents was the lowest for each year compared to all other races and ethnicities. The Hispanic adolescent rate was the highest among all races and ethnicities for each analysis year.

**Figure 121** shows the percent change in the HPV UTD rate among Nevada adolescents from the previous year, broken down by race and ethnicity. AIAN adolescents saw the only decline in rate between 2019-2021, while the rate among adolescents of other races and ethnicities increased every year.

From 2018 to 2021, the rate of HPV series completion increased among each race and ethnicity group. White adolescents experienced the greatest increase (27.6%). Despite having the smallest change in rate between 2018-2021, Hispanic adolescents had the highest rate of HPV series completion in each analysis year compared to other races and ethnicities.

**Figure 120. HPV Vaccination Rate Among Adolescents Up to Date on HPV Vaccination by Race and Ethnicity**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

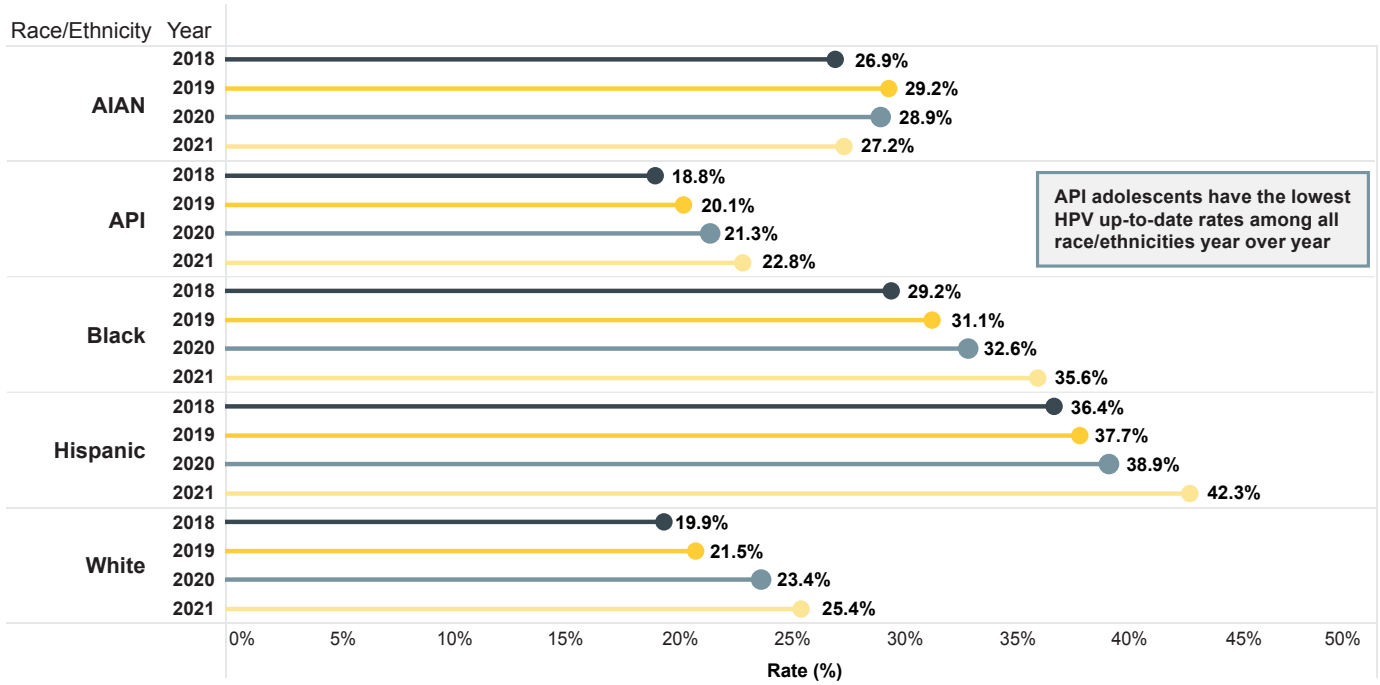
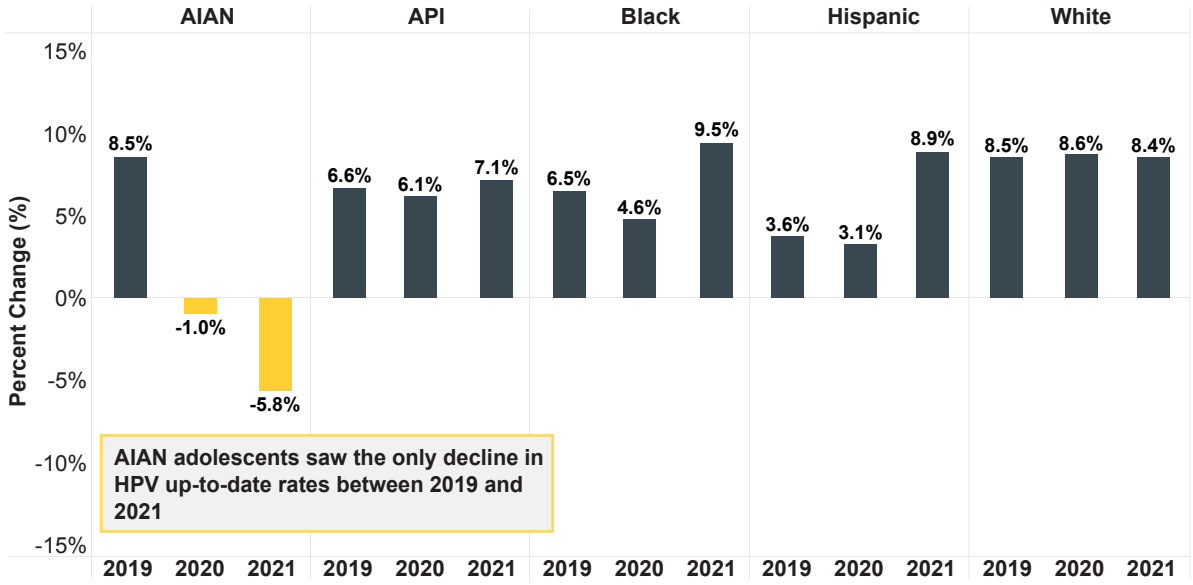
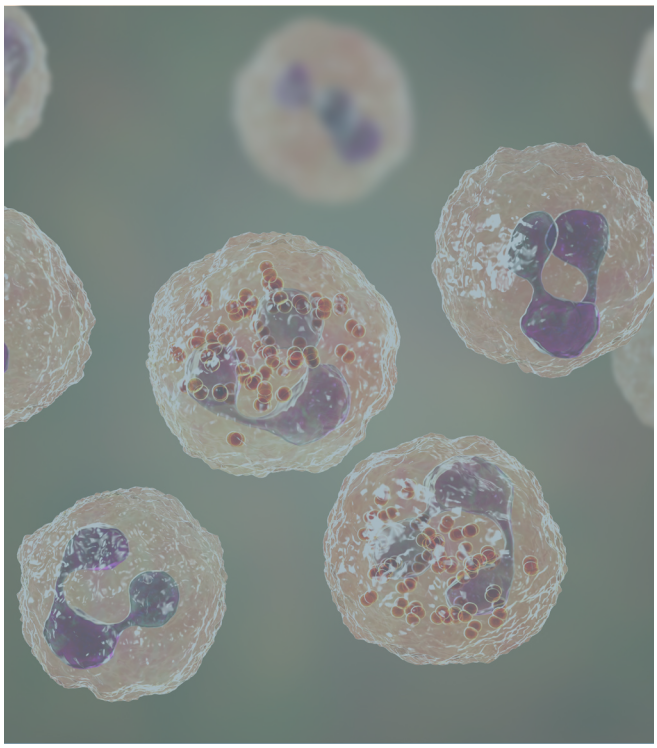



**Figure 121. HPV UTD Rate Year-Over-Year by Race and Ethnicity**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)



## MenACWY



**Effective July 1, 2022, students enrolled in the grade 12 throughout Nevada were required to receive the meningococcal vaccine (MenACWY) prior to the start of the 2022-23 school year. The requirement, approved by the State Board of Health as a state regulation, is for all public, private, and charter schools in Nevada. The data in this report examines adolescent vaccinations up to 2021, which is prior to the requirement being put in place. It is anticipated that rates for a dose of MenACWY in 16-17 year olds will increase over time due to the new requirement.**

Among adolescents aged 16-17, 2020 had the lowest up-to-date (UTD) rate for MenACWY with the rate among 16 year olds dropping to 12.0% (a 13.6% change) and the rate among 17 year olds dropping to 24.5% (a 4.7% change). Despite the decline in completion rate among 16-17 year olds in 2020, the initiation rate in this age group increased year over year. In 2021, the MenACWY initiation rate increased 10.5% among 16 year olds from the prior year to reach 95.5%, and the rate among 17 year olds saw a 5.6% increase to reach 90.9%.

**Figure 122** shows the initiation and completion rate among 16-17 year olds for MenACWY, while **Figures 123** and **124** display the percent change in the rate from the previous year for each age group.

**Figure 122. MenACWY Initiation and Completion Among Adolescents by Age And Year**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

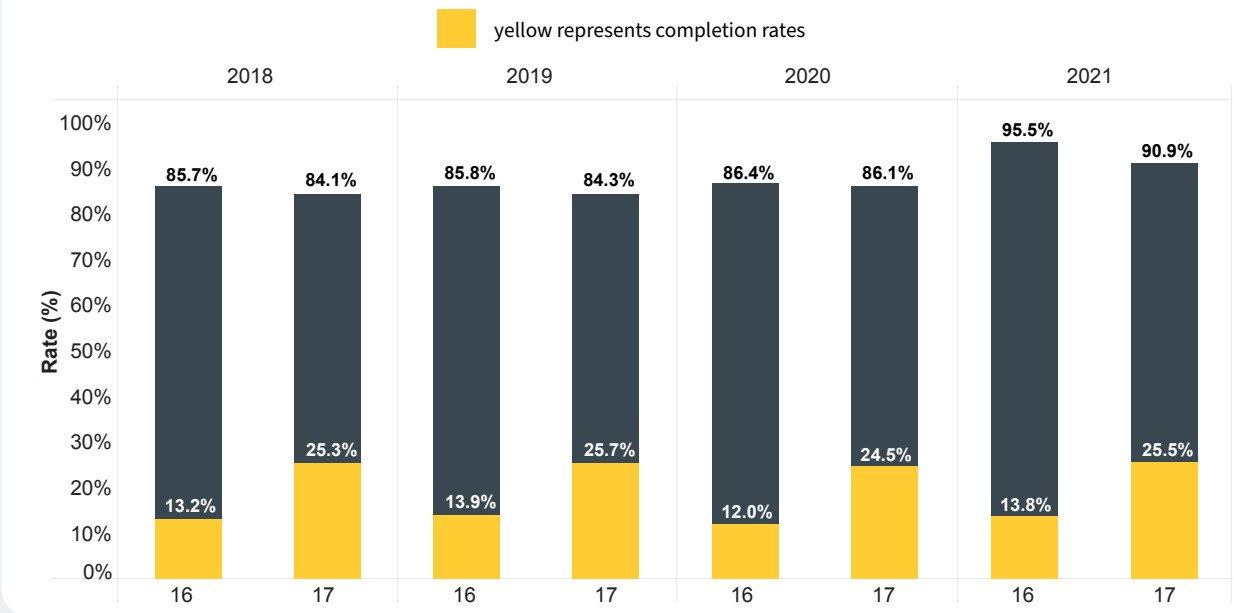


**Figure 123. MenACWY Initiation Rate Among 16-17-Year-Olds, Nevada, 2019-2021**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

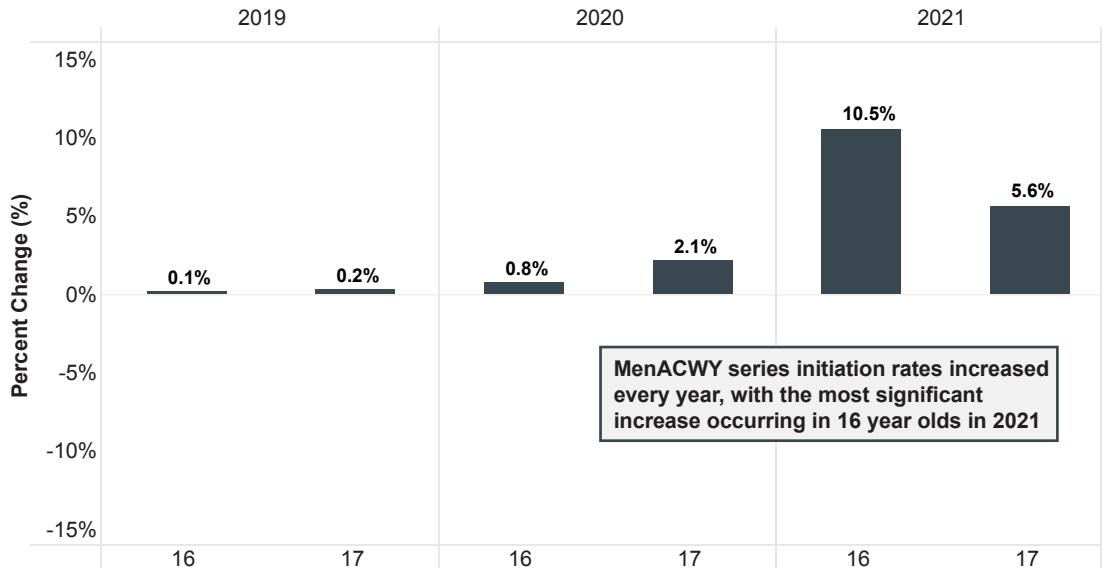



**Figure 124. MenACWY Completion Rate Year-Over-Year Among 16-17-Year-Olds, Nevada**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

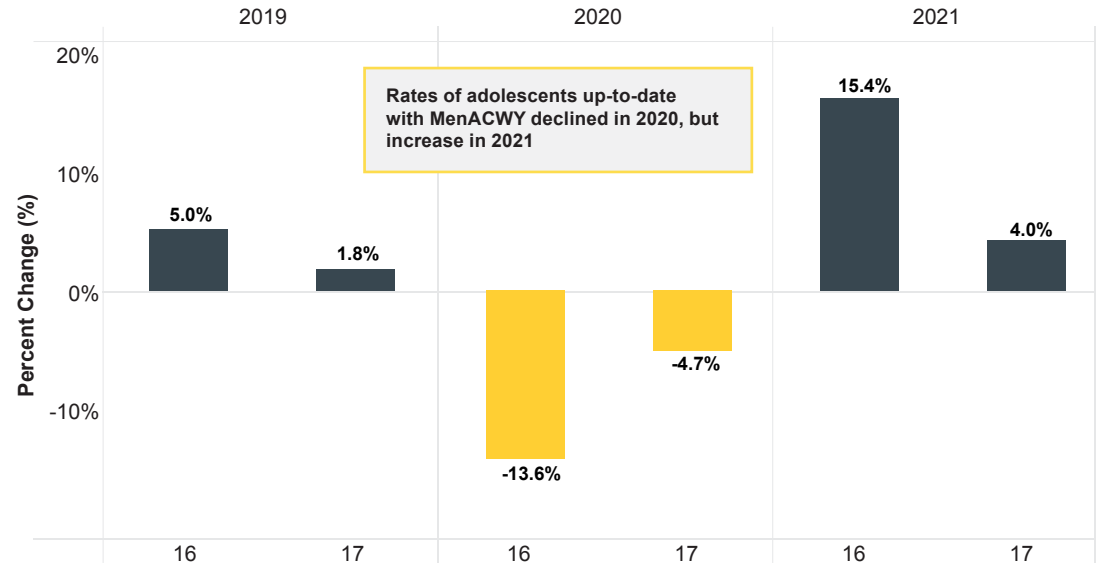


**Figure 125** shows the MenACWY UTD rate for each jurisdiction in each year, while **Figure 126** shows the percent change in the UTD rate from the previous year. Clark and Washoe counties tended to have higher rates of 16 and 17 year-olds being up to date.

**Figure 125. MenACWY UTD Rate Among 16-17-Year-Olds by Jurisdiction and Year**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

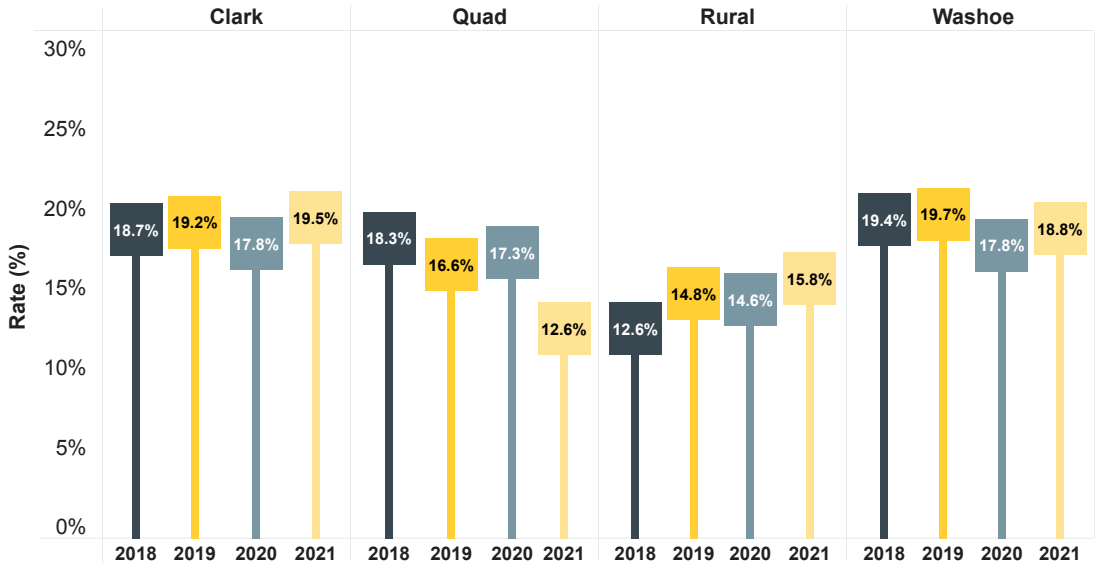
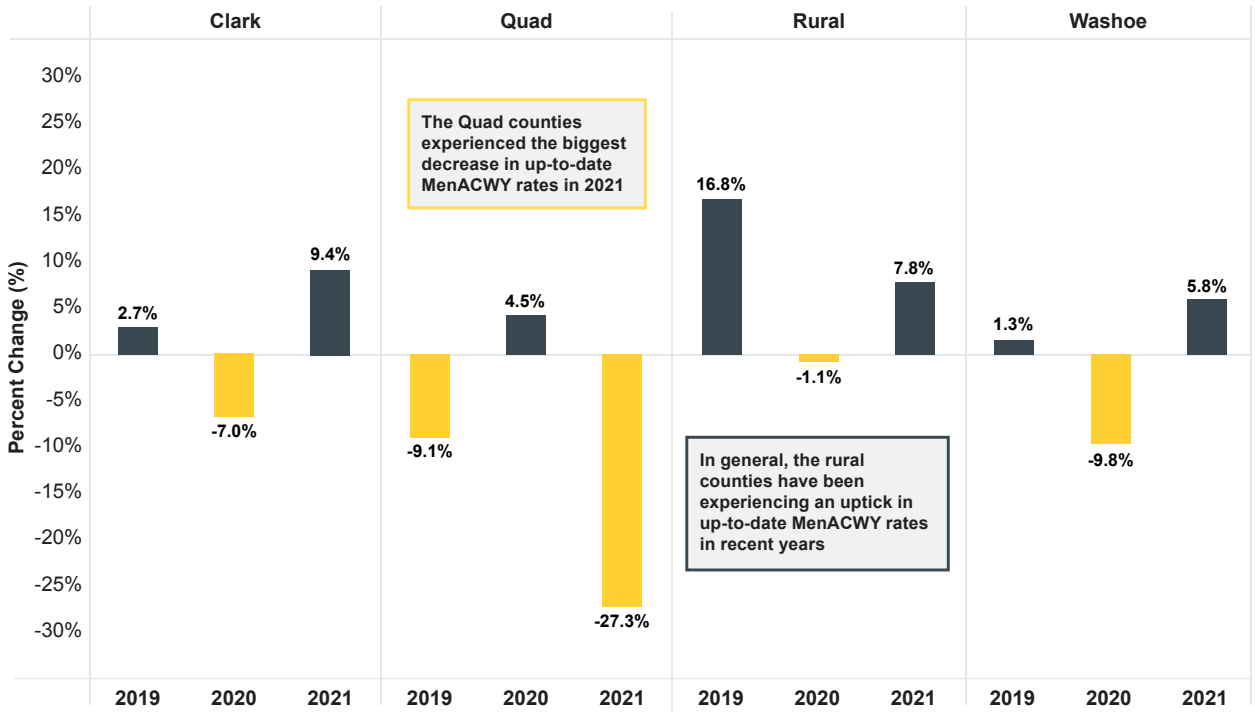



**Figure 126. Percent Change in MenACWY UTD Rate Year-Over-Year by Jurisdiction**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)



Overall, the Nevada MenACWY UTD rate among 16-17 year olds has improved since 2018, increasing by 2.1%. Clark County has seen its rate increase by 4.3% between 2018 and 2021, while rural counties have seen the largest improvement with an increase of 25.4%.

**Figure 127** depicts adolescents up to date on MenACWY by race and ethnicity between 2018-2021, while **Figure 128** shows the percent change in rates from the previous year. The MenACWY rate among AIAN adolescents declined year over year, and the percent change among AIAN adolescents between 2019-2020 was the sharpest decline seen across all races and ethnicities during analysis years. All races and ethnicities saw a decline in 2020 completion rate, but most groups saw the rate rebound in 2021 with the exception for AIAN and White adolescents.

**Figure 127. MenACWY UTD Rate Among 16-17-Year-Olds by Race And Ethnicity, 2018-2021**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)

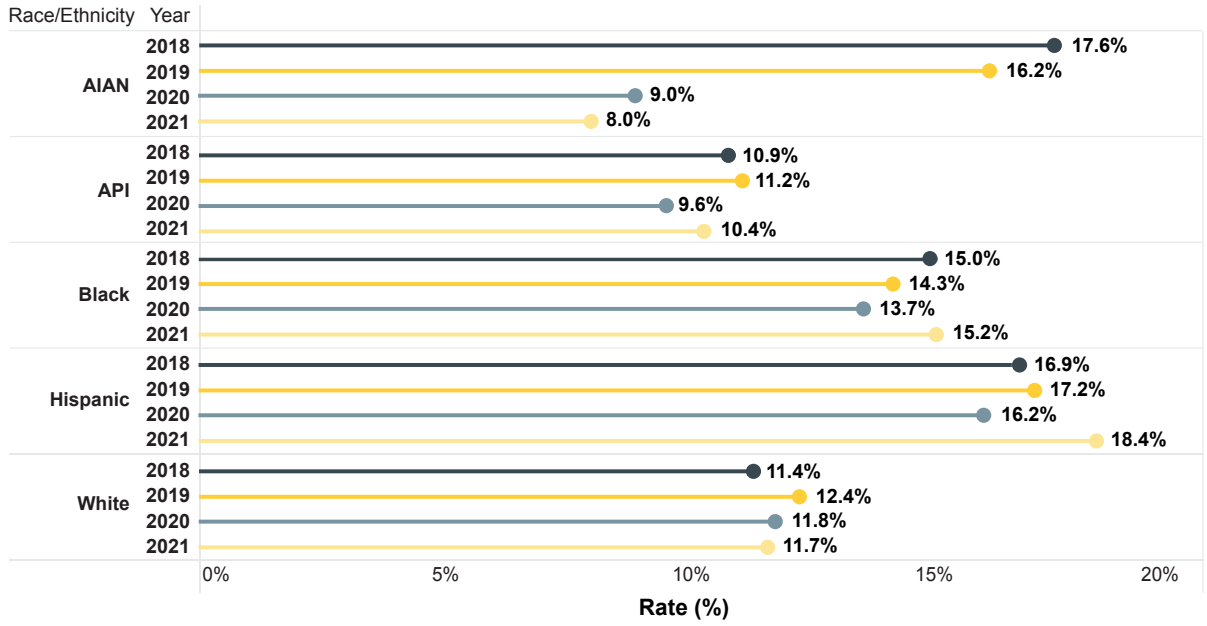
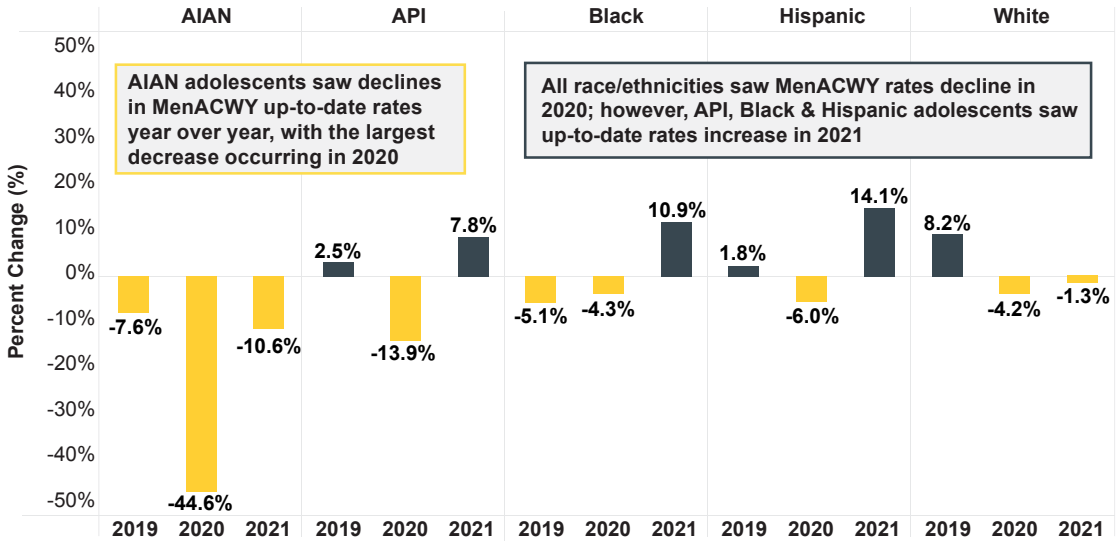



**Figure 128. MenACWY UTD Rate Year-Over-Year by Race and Ethnicity, 2019-2021**

(Source: NV DPBH, Office of Analytics, Nevada State Demographer)



Across all races and ethnicities, the MenACWY completion rate saw a decline in 2020. This trend was seen not just in Nevada, or even the U.S., but across the globe. Lockdown policies played a role in disrupting routine clinical care, and parents hesitated to attend office visits out of fear of COVID-19 infection.[85,86] While some groups saw the rate rebound in 2021, the MenACWY completion rate among AIAN and White adolescents declined even further. Prior to the pandemic, the MenACWY completion rate among AIAN adolescents was among the highest across all races and ethnicities. The sharp decline seen during the pandemic years means that outreach is needed to improve the completion rate and protect adolescents in Nevada against meningitis. Additionally, outreach within Quad-County is necessary to improve the completion rate among adolescents since the jurisdiction experienced the only decline in MenACWY rate between 2020-2021. The new school requirement for adolescents in grade 12 will likely improve the MenACWY completion rate throughout the state, but education and outreach will ensure that the more vulnerable populations are not left unprotected against VPDs.

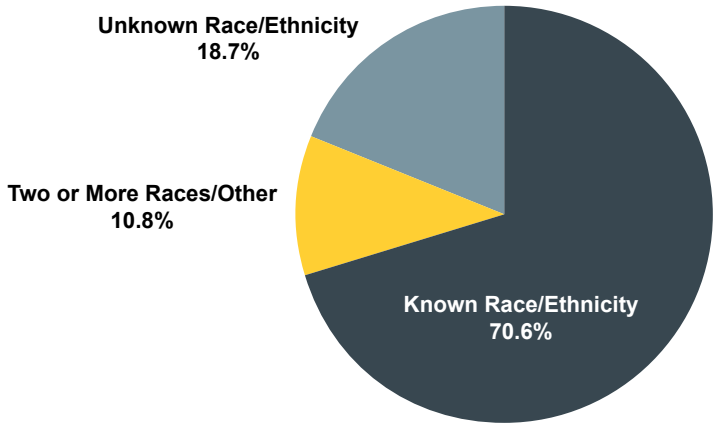
## Limitations

More than 10% of adolescents with at least one dose of the recommended vaccines analyzed in the IIS identified as having two or more races, but the Nevada State Demographer did not capture this data in the Nevada population, meaning they were excluded from any demographic analysis. Additionally, more than 18% of adolescents had unknown or missing race and ethnicity data in the IIS, which also excluded them from demographic analysis.

**Figure 134** highlights the limitations of the race and ethnicity analysis given the large amount of missing data within the IIS or the Nevada State Demographer data.

**Figure 129. Percent of 13-17-Year-Olds in Nevada WebIZ with Known vs. Unknown Race and Ethnicity Who Have Received at Least One Dose of HPV, MenACWY, or Tdap, 2019-2021**

(Source: NV DPBH, Office of Analytics)



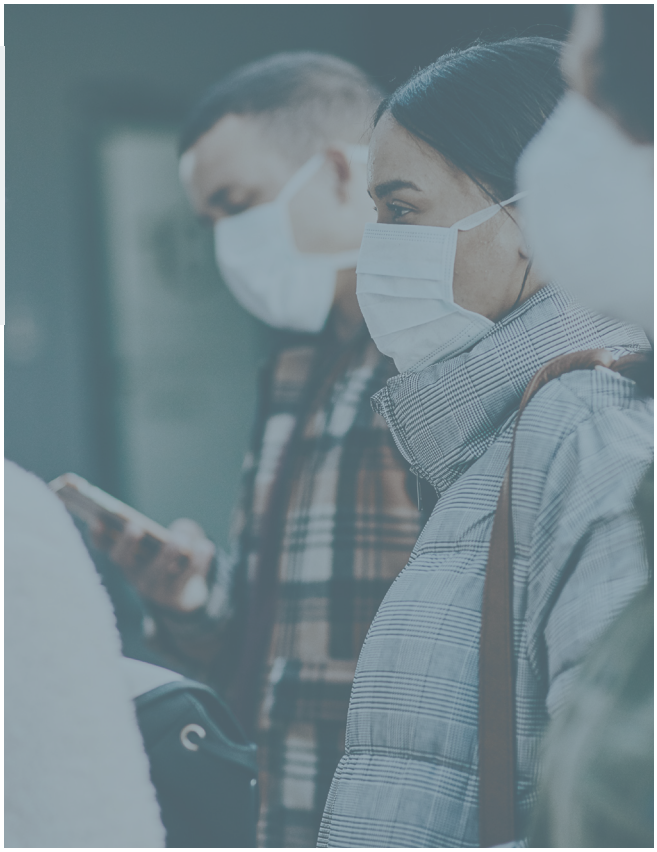

SUMMARY

Unlike infant 7-series rates, adolescent vaccination rates remained steady or increased throughout the pandemic. HPV completion rates have been trending upward for both males and females in Nevada. Completion rates of MenACWY remained low, but this is expected to change with the new requirements for adolescents in grade 12 in Nevada. Black and Hispanic adolescents seemed to have higher initiation rates of all adolescent vaccinations examined, but it is important to note that around 30% of records in NV WebIZ were not captured in this analysis due to the limitations outlined above.

# CONCLUSION

In late 2019, the state of Nevada, the United States and the entire world took on one common enemy: the coronavirus. The learning curve was exceptionally steep, given that COVID-19 was a completely novel virus and a response of similar scale to draw from simply did not exist. Many trails needed to be blazed to treat, prevent, and control the spread of the virus. At the same time, the medical community, government agencies, first responders, educational and religious institutions, businesses, and the general public also participated in managing infection through masking, social distancing and other important safety-minded behavior modifications. Rectifying the ensuing indirect consequences—especially the noteworthy decrease in uptake of routine child and adolescent vaccinations—was also a priority in the months and years following the onset of the COVID-19 pandemic.

**Through science, technology, innovation, collaboration, communication, logistics, real-time data, and the ability to react and adapt to new information as it developed, Nevada was able to respond to the coronavirus swiftly and decisively.**



Once COVID-19 vaccines rolled out under emergency use authorization, every effort was made to reach every vaccine-eligible Nevada resident from urban to frontier jurisdictions to offer and encourage vaccination uptake. Several federal and state agencies, spearheaded in Nevada by NSIP, partnered together, developed a COVID-19 Vaccine Playbook, and leveraged technology to help protect the health of Nevadans. Leaders in the fight against COVID-19 in the Silver State remained mindful of equity and inclusion from Day One, as Nevada is a diverse state in terms of demographics, topography, and jurisdictions.

From the state's first COVID-19 case on March 5, 2020 until the release of this report, and beyond, Nevadans have risen, and continue to rise to the challenges that the coronavirus has created. Though COVID-19 has not been irradicated to date, infection and mortality rates have declined significantly, and efforts continue to significantly lessen the occurrence and severity of the virus and its indirect consequences. Thanks to the extensive data collection, analysis, documentation, and lessons learned throughout the pandemic, Nevada is more prepared than ever before for any future public health crisis.

# APPENDIX

## Glossary

| Key Terms | Definitions |
|---|---|
| Acellular pertussis (Tdap) | Tdap vaccination offers the best prevention against pertussis, tetanus, and diphtheria. Tdap stands for tetanus and diphtheria toxoids with acellular pertussis. |
| Adherence | Attachment or commitment to a person, cause, or belief. The quality or process of sticking fast to an object or surface. |
| Adolescents | Those people between 10-19 years of age. |
| Amendments | A minor change or addition designed to improve a text, piece of legislation, etc. |
| Cohorts | A group of people banded together or treated as a group. |
| Comorbid | Denoting one or more medical condition is present in the same person at the same time. |
| Comorbidities | The simultaneous presence of two or more diseases or medical conditions in a patient. |
| Compounding factors | A compounding factor is a number greater than one, that a present value is multiplied by to work out its Future Value. |
| Consecutive | Following continuously. |
| Consolidated municipality | The merger of two governments into one (usually a city and a county), also referred to as “full governmental consolidation.” |
| Conversely | Introducing a statement or idea which reverses one that has just been made or referred to. |
| Chronic Obstructive Pulmonary Disease (COPD) | A condition involving constriction of the airways and difficulty or discomfort in breathing. |
| Cumulative hospitalizations | Measures the running total number of COVID-19 hospitalizations in an area since the beginning of the pandemic. |
| Deidentified | To anonymize data, often preserving the original identification data separately. |
| Diphtheria | An acute, highly contagious bacterial disease-causing inflammation of the mucous membranes, formation of a false membrane in the throat that hinders breathing and swallowing, and potentially fatal heart and nerve damage by a bacterial toxin in the blood. It is now rare in developed countries because of immunization. |
| Disparities | A noticeable and usually significant difference or dissimilarity in economic or income disparities. |
| Disparity | A great difference. |
| Disproportionately | To an extent that is too large or too small in comparison with something else. |
| Epidemiology | The branch of medicine which deals with the incidence, distribution and possible control of diseases and other factors relating to health. |
| Eviction moratorium | The eviction moratorium prohibits any action by a landlord, owner, or other person to remove or cause the removal of a covered tenant from the residential property for non-payment of rent. |
| Exacerbated | To make (a problem, bad situation or negative feeling) worse. |

| Key Terms | Definitions |
|---|---|
| Exemption | The process of freeing or state of being free from an obligation or liability imposed on others. |
| Geographical isolation | The physical separation of members of a population. |
| Human papillomavirus (HPV) | A type of virus that can cause abnormal tissue growth (for example, warts) and other changes to cells. |
| Hypertension | Blood pressure that is higher than normal. |
| Immunocompromised | When an immune system is weakened, defenses are low, affecting the body's ability to fight off infections and diseases. |
| Inequities | Lack of fairness or justice. |
| Jurisdictions | A geographical area or region; the official power to make legal decisions and judgments. |
| Meningococcal (MenACWY) | The MenACWY vaccine is given by a single injection into the upper arm and protects against four strains of the meningococcal bacteria: A, C, W and Y, which cause meningitis and blood poisoning (septicemia). |
| Mitigation measures | Efforts to prevent, reduce or control adverse environmental effects of a project, and include restitution for any damage to the environment caused by those effects through replacement, restoration, compensation, or any other means. |
| Nonessential | Not absolutely necessary. |
| Non-institutionalized | Not belonging to, relating to, characteristic of or appropriate to an institution; not institutional or noninstitutional care for the elderly, for example. |
| Non-response bias | When subjects who refuse to take part in a study, or who drop out before the study can be completed, are systematically different from those who participate. |
| Overrepresented | As the representation of a group in a category exceeds expectations for that group or differs substantially from the representation of others in that category. |
| Poverty-limit | The poverty threshold, poverty limit, poverty line or breadline is the minimum level of income deemed adequate in a particular country. |
| Random-digit-dialed | Random-digit dialing (RDD) is a method of probability sampling that provides a sample of households, families, or persons through a random selection of their telephone numbers. |
| Rotavirus | Any of a group of RNA viruses, some of which cause acute enteritis in humans. |
| Sociodemographic characteristics | A combination of social and demographic factors that define people in a specific group or population. |
| Standard survey methodology | A systematic method for gathering information from (a sample of) individuals for the purposes of describing the attributes of the larger population of which the individuals are members. |
| State demographer data | Demographic data refers to data that is statistically socio-economic in nature such as population, race, income, education, and employment, which represent specific geographic locations and are often associated with time. |
| Tetanus | A bacterial disease marked by rigidity and spasms of the voluntary muscles. |
| The Great Recession | The Great Recession refers to the economic downturn from 2007-2009 after the bursting of the U.S. housing bubble and the global financial crisis. |
| Underrepresented | Having less than adequate or sufficient representation. |
| Vulnerable populations | Those at greater risk for poor health status and healthcare access, experience significant disparities in life expectancy, access to and use of healthcare services, morbidity, and mortality. |

# APPENDIX

## Abbreviations

| Abbreviated | Full | Pages |
|---|---|---|
| AAFP | American Academy of Family Physicians | 57 |
| AAP | American Academy of Pediatrics | 57 |
| ACIP | Advisory Committee on Immunization Practices | 57, 59, 60, 62, 64, 80, 83, 85, 86, 114 |
| ACS | American Community Survey | 6, 17 |
| ADSD | Nevada Aging and Disability Services | 68 |
| AIAN | American Indians and Alaskan Natives | 33-35, 40, 43-45, 53-55, 91, 92, 94, 119, 123, 126, 127, 131, |
| AIRA | American Immunization Registry Association | 62, 63, 116, 137 |
| API | Asian/Pacific Islander | 33-35, 43-45, 53-55, 91-94, 119, 123, 126, 127, 131, |
| BCFCW | Bureau of Child Family and Community Wellness | 79 |
| BLM | Bureau of Land Management | 68 |
| BLS | Bureau of Labor Statistics | 13-15 |
| BOP | Board of Pharmacy | 80 |
| CCHHS | Carson City Health and Human Services | 68-70, 101, 107 |
| CDC | Center for Disease Control and Prevention | 2, 5, 21-23, 56-59, 61, 62, 64, 66, 75-77, 79, 80, 82-84, 86, 87, 95-101, 108, 114, 116 |
| CDPHP | Chronic Disease Prevention and Health Promotion | 79, 98 |
| CHIP | Children's Health Insurance Program | 18 |
| CHW | Community health worker | 71, 72 |
| CMS | Centers for Medicare and Medicaid Services | 58 |
| COPD | Chronic Obstructive Pulmonary Disease | 18, 19, 48 |
| COVID-19 | Coronavirus disease 2019 | 2, 3, 5, 7, 9-56, 59, 64-72, 74-89, 91-100, 102-104, 112-114, 121, 132-134, 138-143 |
| DCFS | Division of Child and Family Services | 68 |
| DDM BV | Dimensional Data Model Business Views | 18, 25 |
| DETR | Department of Employment, Training and Rehabilitation | 68, 79 |
| DHCFP | Division of Health Care Financing and Policy | 68 |

| Abbreviated | Full | Pages |
|---|---|---|
| DOH | Department of Health | 66 |
| DHHS | Department of Health and Human Services | 2, 11, 23, 56, 57, 63, 65, 69, 70, 75, 76, 80, 83 |
| DMV | Department of Motor Vehicles | 68, 76, 84 |
| DPBH | Department of Public and Behavioral Health | 2, 23-45, 56, 76-79, 83, 85-94, 99, 101-113, 116-132 |
| DPHHS | Department of Public Health and Human Safety | 62 |
| DTaP | Diptheria, tetanus and acellular pertussis | 114-116, 120, 121 |
| DWSS | Division of Welfare and Supportive Services | 68, 86 |
| ED | Emergency Department | 104, 105 |
| EMR/EHR | Electronic medical/health record | 62 |
| ESSENCE | Electronic Surveillance System for the Early Notification of Community-Based Epidemics | 100 |
| EUA | Emergency Use Authorization | 75, 82-84 |
| ExIS | External Information System | 66 |
| FDA | Food and Drug Administration | 57, 75, 82-87 |
| FEMA | Federal Emergency Management Administration | 68, 72, 84, 98 |
| FFS | Fee-for-service | 18, 25 |
| FQHC | Federally Qualified Health Center | 68, 72, 88 |
| FSE | Full scale exercise | 75, 82 |
| GOTVax | Get Out the Vax | 69, 70, 72, 75, 84 |
| HBV | Hepatitis B virus | 61 |
| HEDIS | Healthcare Effectiveness Data and Information Set | 63 |
| HepA | Hepatitis A | 114, 116, |
| HepB | Hepatitis B | 114, 115 |
| Hib | Haemophilus influenzae type b | 114-116, 121 |
| HL7 | Health Level 7 | 62 |
| HPSA | Health Professional Shortage Area | 17 |
| HPV | Human Papillomavirus | 3, 115, 122-127, 132 |
| HRSA | Health Resources and Services Administration | 80 |
| ICD-10 | International Classification of Diseases 10th Revision | 24, 100 |
| IHS | Indian Health Services | 88 |
| IIS | Immunization Information System | 56, 57, 62, 63, 66, 67, 88, 116, 120, 132, 137 |
| ILI | Influenza-like illness | 100-106 |
| IP | Inpatient | 104, 105 |
| IPOM | Immunization Program Operations Manual | 58 |

# Abbreviations

| Abbreviated | Full | Pages |
|---|---|---|
| IPV | Inactivated poliovirus | 114, 115 |
| ISD | Immunization Services Division | 56 |
| IZNV | Immunize Nevada | 58, 71-73, 77, 82, 83, 98 |
| J&J | Johnson & Johnson (Janssen) | 83 |
| JIC | Joint Information Center | 79 |
| KFF | Kaiser Family Foundation | 16 |
| LAUS | Local Area Unemployment Statistics | 13-15 |
| LGBTQ+ | Lesbian, gay, bisexual, transgender, queer/questioning, and more | 74 |
| LHA | Local Health Authority | 10, 55, 58, 65, 69, 70, 72, 101, 107, 110, 113 |
| LHD | Local Health District | 61 |
| LOS | Length of stay | 49, 53, 54 |
| LTC | Long-term care | 64, 65, 80 |
| LTCF | Long-term care facility | 68, 75, 78-80 |
| MAT | Medical Advisory Team | 76 |
| MCAH | Materal, Child, and Adolescent Health | 86 |
| MCO | Managed Care Organization | 18, 25 |
| MenACWY | Meningococcal | 3, 115, 122, 123, 128-132 |
| MMR | Measles, mumps and rubella | 114, 115, 117 |
| MMWR | Morbidity and Mortaility Weekly Report | 62, 101, 102 |
| MPH | Master of Public Health | 2 |
| mRNA | Messenger ribonucleic acid | 83-85, 87 |
| MS | Master of Science | 2 |
| MVU | Mobile vaccine unit | 135 |
| N/A | Not applicable | 12 |
| NAC | Nevada Administrative Codes | 57 |
| NC | North Carolina | 24, 101, 116 |
| NCIRD | National Centers for Infections and Respiratory Disease | 56, 58, 62 |
| NCU | Nevada Check Up | 18 |
| NGCDD | Nevada Governor's Counselor on Developmental Disibilities | 67, 71 |
| NHP | Nevada Highway Patrol | 68 |
| NILE | Nevada Immunization Learning Exchange | 72 |
| NIS | National Immunization Survey | 3, 61, 95 |
| NIS-ACM | National Immunization Survey-Adult COVID Module | 3, 95, 96 |

| Abbreviated | Full | Pages |
|---|---|---|
| NMHEC | Nevada Minority Health and Equity Coalition | 71, 74 |
| NOMHE | Nevada Office of Minority Health and Equity | 35, 67, 68, 79 |
| NRS | Nevada Revised Statutes | 57 |
| NSHE | Nevada System of Higher Education | 78 |
| NSIP | Nevada State Immunization Program | 2, 3, 5, 17, 55, 56, 58-68, 75-84, 86, 93, 95, 98, 99, 116, 133 |
| NV | Nevada | 20, 25, 32-36, 42, 44-46, 57, 60, 62, 63, 66, 67, 73, 75, 78, 83-85, 87, 88, 90, 91, 95, 96, 106, 112, 116-132 |
| NVEC | Nevada Vaccine Equity Coalition | 71 |
| OB/GYN | Obstetrics and gynecology | 64 |
| Obs | Observation | 104, 105 |
| OMB | Office of Management and Budget | 58 |
| OOA | Office of Analytics | 2, 70 |
| OP | Outpatient | 104, 105 |
| OPHIE | Office of Public Health Investigations and Epidemiology | 2, 10, 68, 70, 101 |
| OWS | Operation Warp Speed | 64, 76, 82 |
| PCP | Primary care provider | 17 |
| PCR | Polymerase chain reaction | 23 |
| PCV13/PCV | Pneumococcal conjugate | 114-116 |
| PHBPP | Perinatal Hepatitis B Prevention Program | 61 |
| PhD | Doctor of Philosophy | 2 |
| PHP | Public health preparedness | 77, 79, 81, 82 |
| POD | Point of Distribution | 65, 67, 69, 75, 78, 79, 81, 83, 84 |
| PPE | Personal Protective Equipment | 66 |
| QR Code | Quick Response Code | 67 |
| RHS | Rural Health Services | 70, 101, 107 |
| RTC | Regional Transportation Commission | 68 |
| SARS-CoV-2 | Severe acute respiratory syndrome coronavirus 2 | 22, 23, 76 |
| SAS | Statistical Analysis System | 24, 101, 116 |
| SNHD | Southern Nevada Health District | 68-70, 101, 107 |
| SPCSA | State Public Charter School Authority | 12 |
| SVI | Social vulnerability index | 71, 74 |
| SY1718 (SY17-18) | School year 2017-2018 | 12 |

# Abbreviations

| Abbreviated | Full | Pages |
|---|---|---|
| SY1819 (SY18-19) | School year 2018-2019 | 12 |
| SY1920 (SY19-20) | School year 2019-2020 | 12 |
| SY2021 (SY20-21) | School year 2020-2021 | 12 |
| Tdap | Tetanus, diptheria and acellular pertussis | 64, 115, 122, 123, 132 |
| U.S. | United States | 3, 5, 6, 11, 13, 14, 16, 19-22, 36, 40, 46, 50, 57, 59, 62, 64, 75-77, 80, 82, 84, 86, 87, 95, 96, 108, 110, 114, 132 |
| UCED | University Center for Economic Development | 86 |
| UHF | United Health Foundation | 17 |
| UNLV | University of Nevada, Las Vegas | 2, 46, 48-55 |
| USDA | United States Department of Agriculture | 68 |
| USFS | United States Forest Service | 68 |
| UTD | Up to date | 122, 124- 128, 130, 131, 182-188, 190-194 |
| VA | Veteran's Affairs | 88 |
| VAERS | Vaccine Adverse Events Reporting System | 86 |
| VAR | Varicella (chicken pox) | 114-116 |
| VBM | Variant(s) being monitored | 22 |
| VFC | Vaccines for Children | 58-60, 66, 72, 73 |
| VOC | Variant(s) of concern | 22 |
| VPD | Vaccine preventable disease | 12, 72, 114, 121, 132 |
| VTrckS | Vaccine Tracking System | 66 |
| Vx | Vaccination | 66 |
| WCHD | Washoe County Health District | 69, 70, 101, 107 |
| WHO | World Health Organization | 76 |
| WIC | Women, Infants, and Children | 86 |

# METHODOLOGY

The data used in this report was collected through state and national sources. Details into the data and methodology for each respective analysis can be found at the beginning of each analysis section, and questions about methodology can be directed to data@dhhs.nv.gov

There were limitations to this report. Different numerator and denominator sources were used to create the immunization rates seen in this report. This was done after careful consideration and using guidance found in the AIRA's Analytics Guide for Assessing Vaccination Coverage Using an IIS. This methodology is subject to change in future reports as states and jurisdictions develop improved methodology for reporting immunization rates.

Another limitation was missing data. Unknown categories (including percentage and incidence calculations) within the report are due to missing data on sex, race and ethnicity, and patient jurisdiction. Although missing race and ethnicity data is a concern with the data presented, it is still presented in this report, as it is an important variable to include when discussing vaccination equity.

Crude rates are calculated using population estimates and projections from the Nevada State Demographer. Rates are based on per 100,000 persons.

n (used for race and ethnicity, sex, and county) is the basic measure of vaccination and disease cases/deaths and may not equal the total count (N) due to unknown demographic information (i.e., NULL or missing data).

N (Total count) is the total number of vaccinations, disease cases/deaths in the population.

Population is based on estimates for 2018, 2019, and 2020, as well as projections for 2021 from the Nevada State Demographer.

For more information regarding data technical considerations, please find review the Data Technical Report found on the NSIP Website here.

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