

Covid-19 Disease Outbreak Outlook

Arizona State and Pima County

Updated February 5, 2021

Disclaimer: This information represents my personal views and not those of The University of Arizona, the Zuckerman College of Public Health, or any other government entity. Any opinions, forecasts, or recommendations should be considered in conjunction with other corroborating and conflicting data. Updates can be accessed at <https://publichealth.arizona.edu/news/2020/covid-19-forecast-model>.

****NOTICE** While conditions are improving, Arizona remains in a public health crisis where access to critical care services is limited due to shortages of space, personnel, and critical supplies. These conditions will persist into early February before easing. Additional mitigation efforts could further slow viral transmission, more quickly reduce hospital burden, and allow additional time to vaccinate those at greatest risk.**

For the week ending January 31st, at least 27028 Covid-19 cases were diagnosed in Arizona (Figure 1). This represents a 31% decrease from last week’s initial tally of 38921new cases and the third straight week of decline. The prior week’s tally has since been upwardly revised by 2% (600 cases) to 39521 cases.

The number of Arizonans tested for Covid-19 declined once again the week ending January 31st. Test positivity also declined, dropping from a peak of 35% the week ending January 3rd to 25% the week ending January 31st. This lends additional evidence that viral transmission is slowing and that the decline in testing is due to slackening demand. Nevertheless, testing capacity remains inadequate. The outbreak is broadly entrenched, but declines are greatest among those 15 – 64 years (Figure 2 following page).

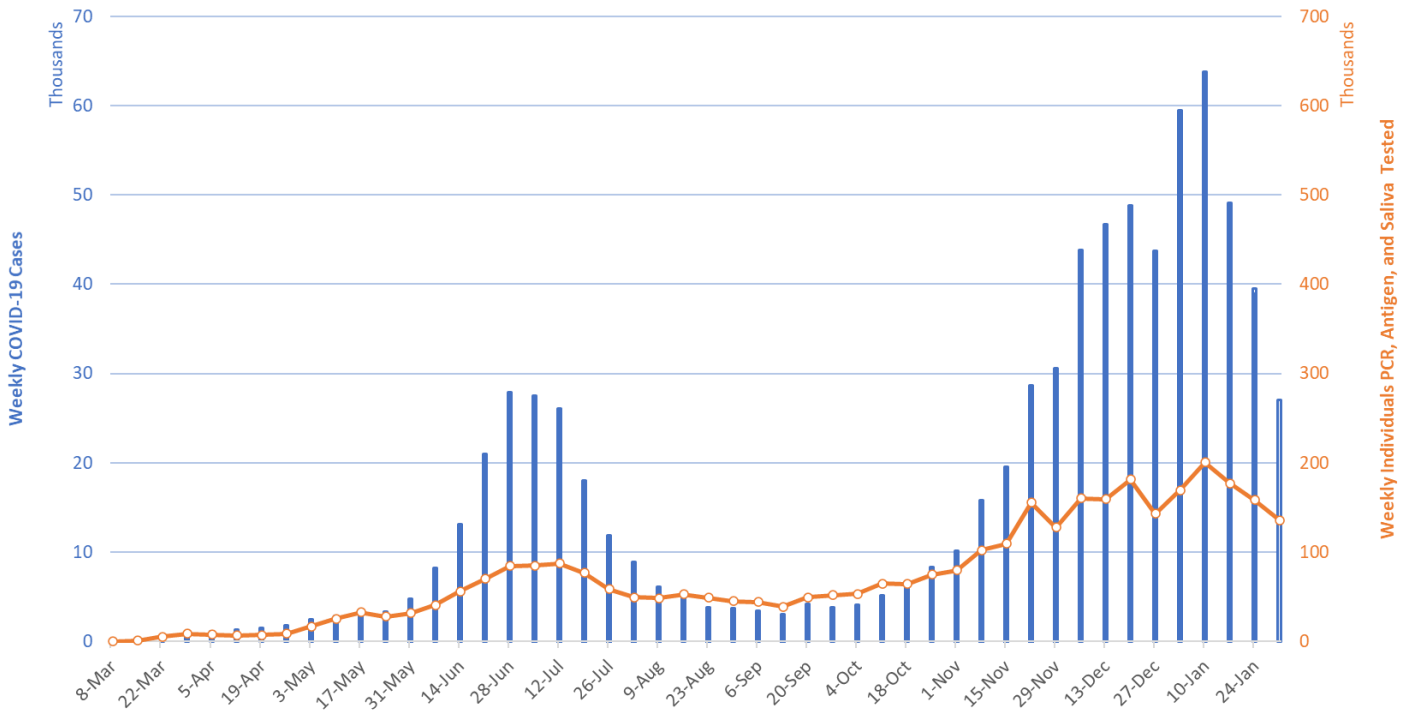


Figure 1. Newly Diagnosed Covid-19 Cases in Arizona and Number of Individuals Undergoing Covid-19 Diagnostic Testing March 1 through January 31, 2021.

Note: Data for this report was updated Thursday, February 4 allowing 3 full days to adjudicate cases and keep week-over-week backfill <10%. This allows more interpretable comparisons and graphics. All comparisons are week-over-week changes. Future updates will be released on Saturdays.

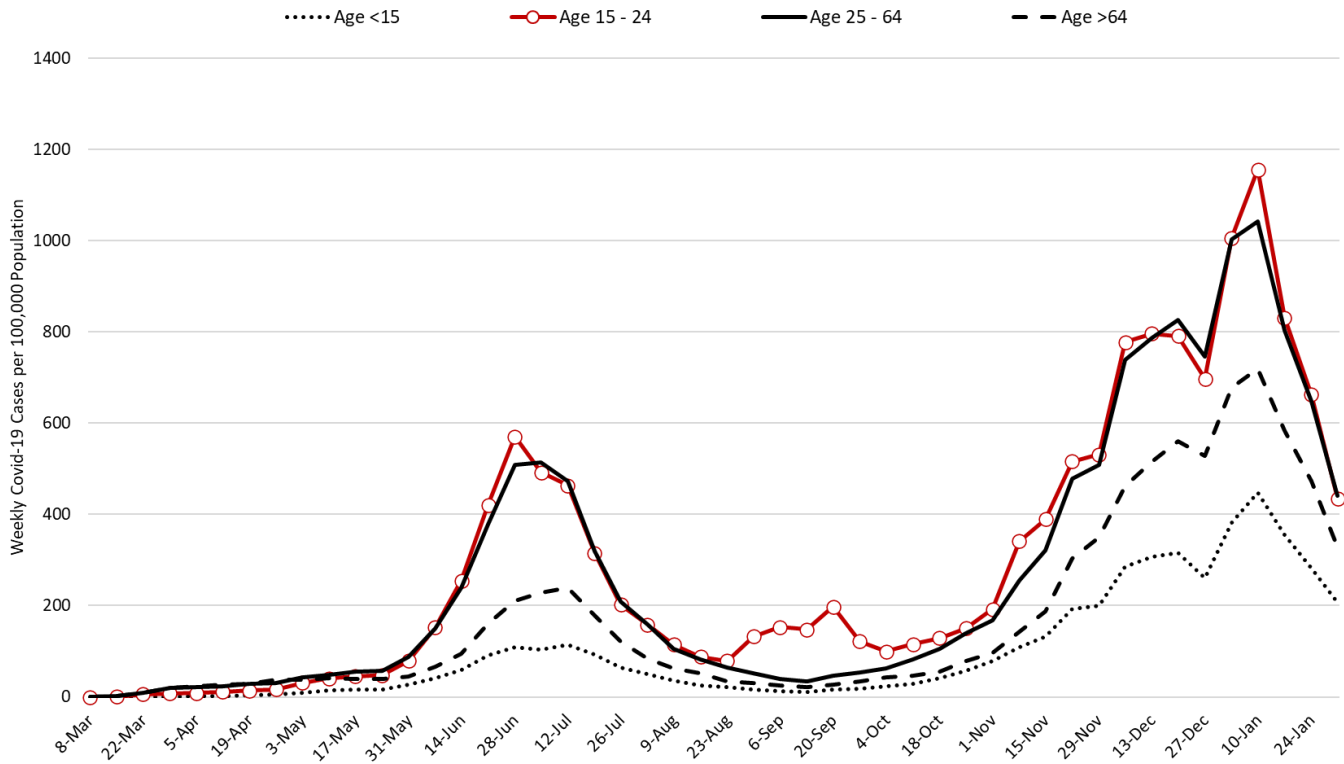


Figure 2. Newly Diagnosed Covid-19 Cases in Arizona by Age Group March 1 through January 31, 2021.

Test positivity among those undergoing traditional nasopharyngeal PCR testing decreased from 29% the week ending January 24th to 25% the week ending January 31st (Figure 3). The continued decline in positivity indicates that viral transmission is in fact slowing. Nevertheless, 25% test positivity reflects inadequate testing capacity relative to optimal public health practice as it should be less than 5 – 10%.

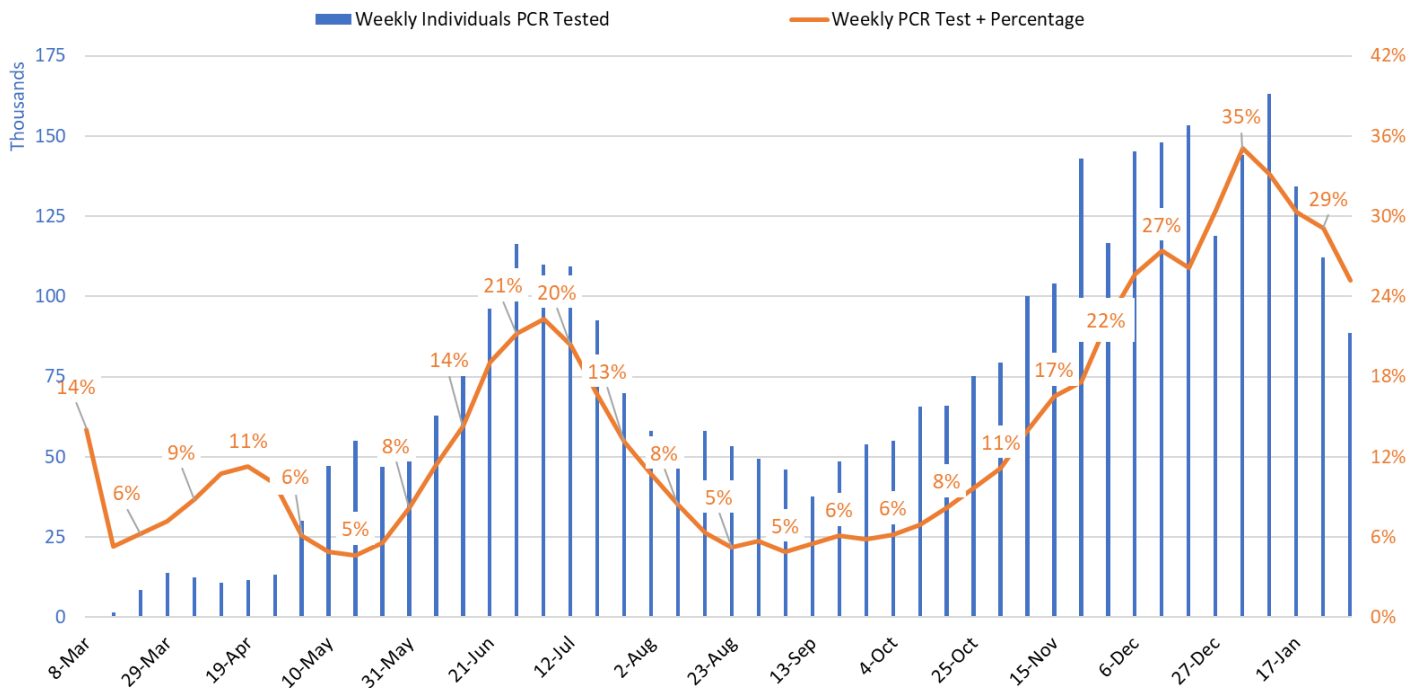


Figure 3. Weekly Number Patients Undergoing Traditional Nasopharyngeal PCR Testing and Associated Percent Positivity March 1 – January 31, 2021.

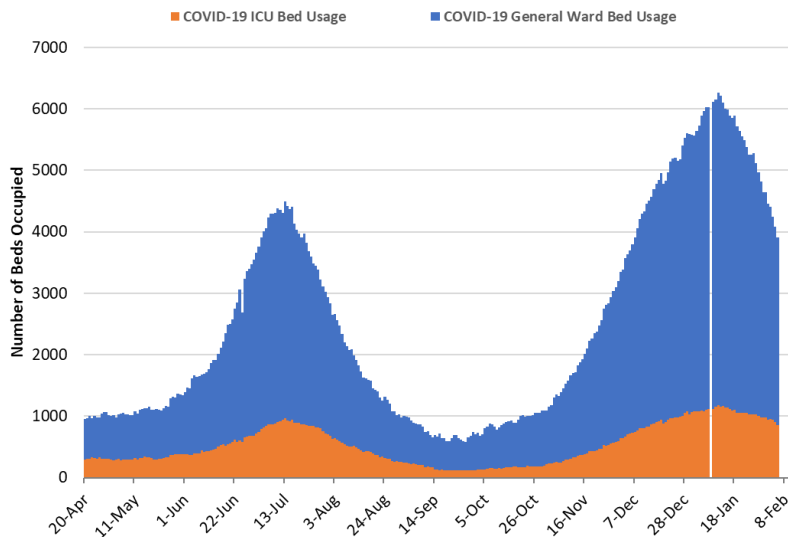


Figure 4. Arizona Daily Covid-19 General Ward and ICU Census April 20 – February 5, 2021.

(12%) ICU beds remain available. This is substantially increased from the prior week's 141 beds. ICU occupancy has fallen 28% from their January 11th peak of 1183 occupied beds.

As of February 5th, 3060 (35%) of Arizona's 8668 general ward beds were occupied by Covid-19 patients, a 20% decrease from the previous week's 3828 occupied beds (Figure 4 and Figure 5 Panel A). Another 890 (10%) beds remained available for use. The number of available beds is higher than the previous week's 828 beds.

Covid-19 hospitalizations have dropped by 40% from their January 11th peak of 5082 ward patients. While this is good news hospitals remain near occupancy limits.

As of February 5th, 849 (47%) of Arizona's 1807 ICU beds were occupied with Covid-19 patients, a 14% decrease from the prior week's count of 984 patients (Figure 4 and Figure 5 Panel B). An additional 221

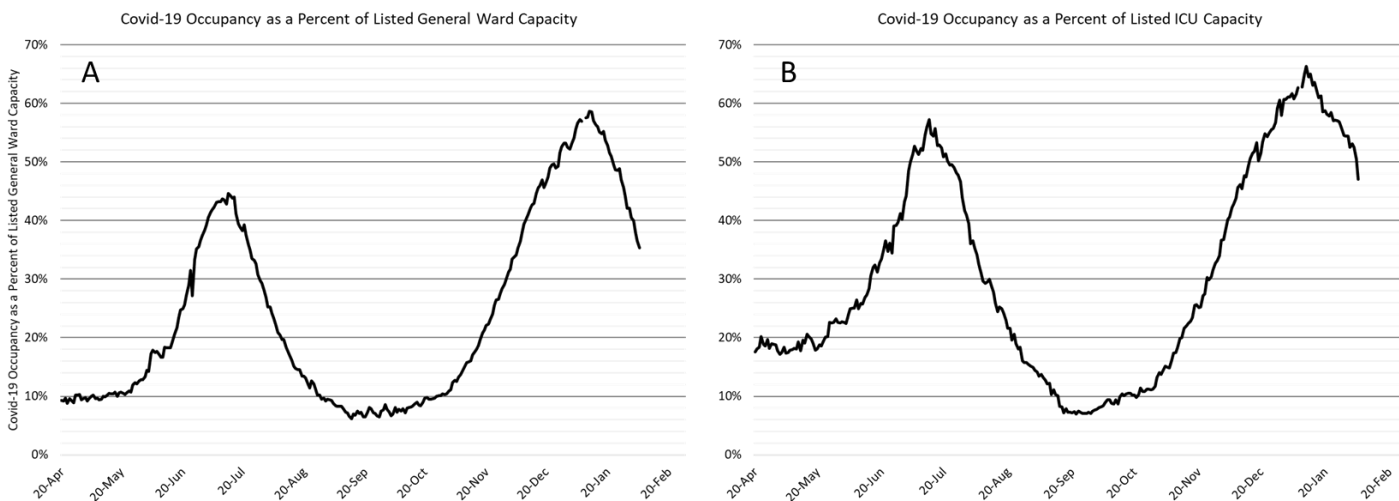


Figure 5. Covid-19 Occupancy as a Percent of Listed General Ward (A, left) and ICU (B, right) Capacity in Arizona April 20 – February 5, 2021.

Arizona hospitals' safety margins remains considerably lower than this fall but is improving (Figure 6, following page). Scheduled procedures are being resumed in a limited capacity. Nevertheless, the tremendous backlog of postponed care will take months to resolve. The recent trends in hospitalization numbers and occupancy are encouraging. As capacity constraints are lessened, care practices should return to those prior to the outbreak ensuring all patients will receive optimal care. Nevertheless, hospitals will remain crowded through February before returning to pre-outbreak levels in early spring assuming continued reductions in viral transmission.

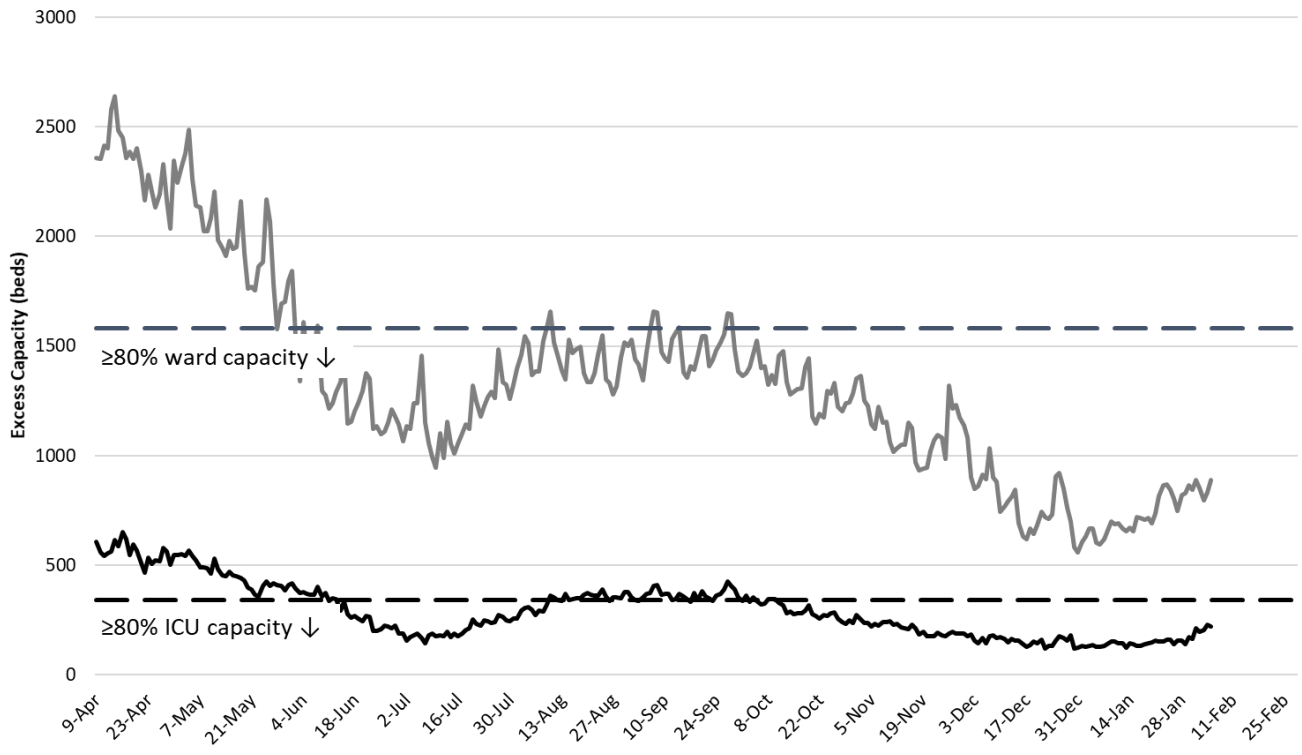


Figure 6. Observed Excess Non-Surge General Ward and ICU Capacity April 20 – February 5, 2021.

The week ending January 17th has seen 913 deaths so far, making it Arizona’s deadliest week (Figure 7). The week of January 17th will likely end up being Arizona’s deadliest week with subsequent improvement from this point forward. Nevertheless, Covid-19 deaths are expected to remain high for the next 4 - 8 weeks.

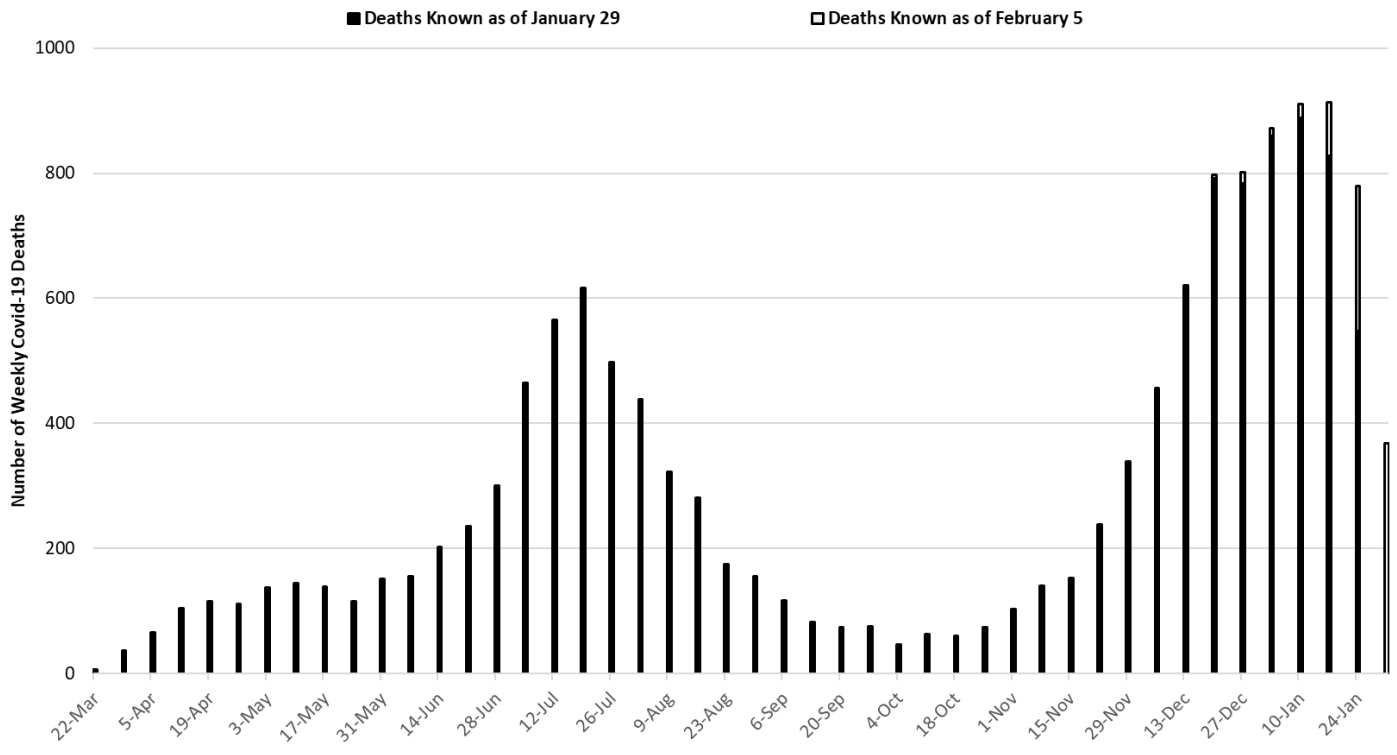


Figure 7. Weekly Arizona Covid-19 Deaths March 1 – January 31, 2021.

Pima County Outlook

For the week ending January 17th, 3620 Pima County residents were diagnosed with Covid-19 (Figure 10). This represents a 27% decrease from the 4969 cases initially reported last week. Test capacity and/or uptake also declined from last week. Last week's initial tally of 4969 cases was upwardly revised by 2% (80 cases) this week. Trends are similar across various age groups (Figure 11).

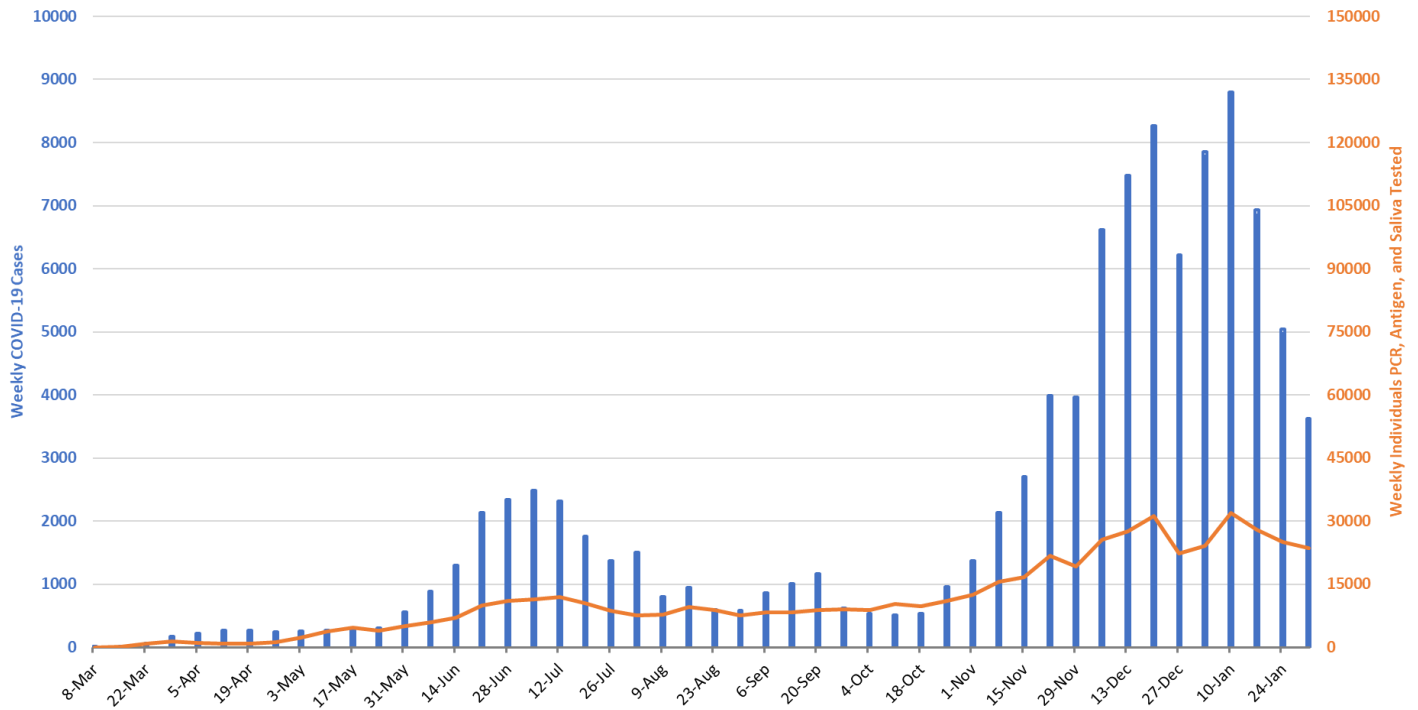


Figure 10. Covid-19 Cases and Individuals Undergoing Diagnostic Testing in Pima County Mar 1 – Jan 31.

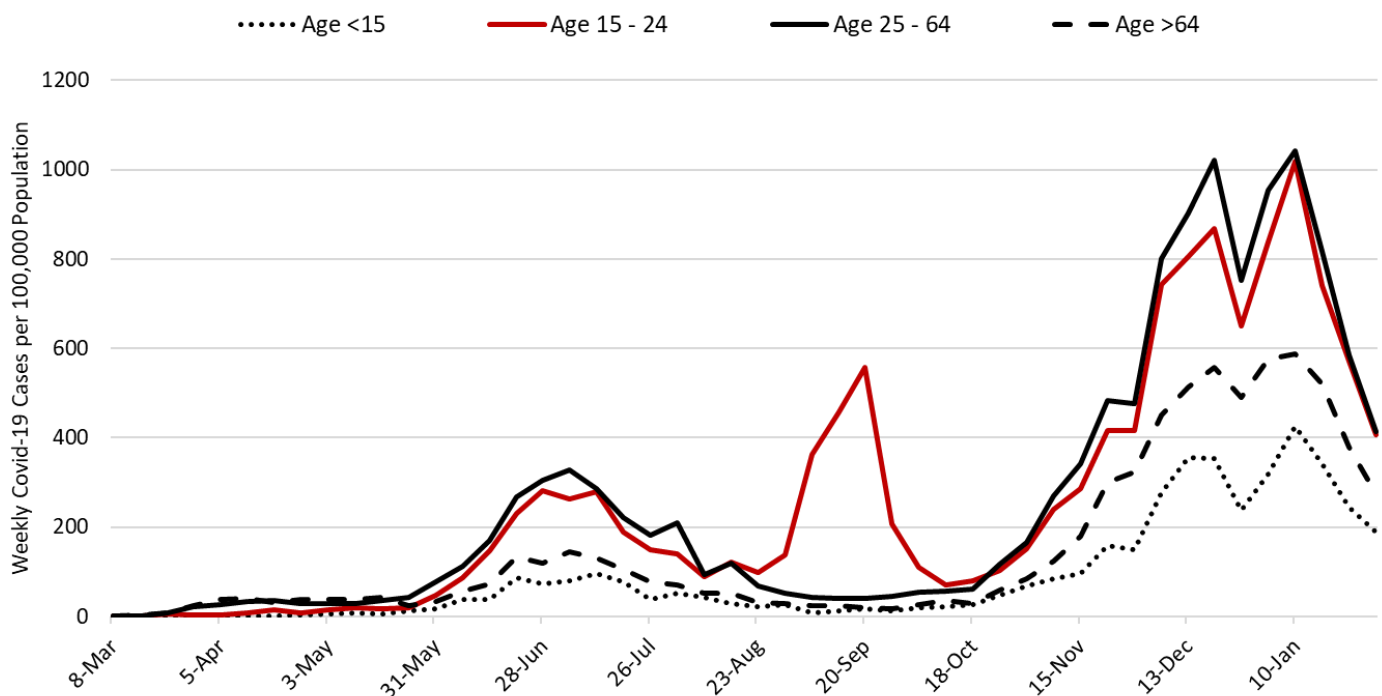


Figure 11. Covid-19 Cases by Age Group in Pima County from March 1 – January 31, 2021.

Summary:

- This week saw another meaningful decline in Covid-19 cases which now cements the recent trends as a real decrease in viral transmission. This decline has been accompanied by reductions in hospital and ICU occupancy. Reductions in mortality should soon follow. While these trends are welcomed, the absolute level of SARS-CoV-2 virus transmission remains exceptionally high, about on par with those of the summer peak.
 - As of January 31st, new cases were being diagnosed at a rate of 412 cases per 100,000 residents per week (Figure 10 below). This rate was declining by 153 cases per 100,000 residents per week. Despite this improvement, Arizona has the 5th highest viral transmission rate according to the [CDC](#). Overall, Arizona remains the 6th hardest hit state.
- All Arizona residents should continue to wear a mask in public, avoid social gatherings, maintain physical distance from non-household contacts, avoid >15 minutes contact in indoor spaces, especially if physical distancing is inadequate and adherence to face masks is low.
- One pressing challenge moving forward will be “holding the line” on our public health mitigation practices in the face of improving conditions. For example, absolute levels of transmission and test positivity remain 3 - 4X higher than recommended for in-person instructional activities (see [Arizona Department of Health Services Benchmarks](#)). Resumption of high-risk activities before absolute levels further subside would be akin to jumping out of your exit-row seat at 10,000 feet when the pilot announces his initial descent into the airport. It matters little whether you jump out on the way up or way down; it’s going to hurt either way. Policymakers would be wise to wait for the captain to turn off the fasten your seat belt sign before.

Benchmarks	Minimal	Moderate	Substantial
Cases	<10 cases/100,000	10 - 100 cases/100,000	>100 cases/100,000
Percent Positivity	<5%	5 - 10%	>10%
COVID-like Illness	<5%	5 - 10%	>10%
Recommended Delivery Model	Traditional	Hybrid	Virtual (w/onsite support services)

- Hospital Covid-19 occupancy is declining in the ward and ICU. However, access to care for Covid-19 and non-Covid patients remains restricted with only limited numbers of medically necessary non-Covid procedures being scheduled.
- The test positivity rate for traditional nasopharyngeal PCR testing declined for the fourth straight week to 25%. Nevertheless, testing capacity is inadequate to the scale of the problem.
- So far, 1.9% of Arizona residents have received at least 2-doses of vaccine while 6.8% have received at least 1-dose. To date, Arizona has administered about 65% of its delivered doses. Arizona vaccination roll-out ranks in the bottom half of US states.

- Arizona is still reporting large number of weekly deaths and this count may considerably underestimate true fatalities (see [Woolf](#), [Woolf](#), or [Weinberger](#)). Many of these deaths were preventable had the state adopted more aggressive public health practices. Arizona’s weekly tally of deaths ranks it 5th in the nation. Overall, we rank 9th since the outbreak began.
 - The Arizona Public Health Association (AzPHA) released a report on [all-cause mortality during the Covid-19 pandemic](#). Briefly, all-cause mortality was 23% higher in 2020 with July and December being outliers with 64% and 61% higher mortality, respectively. This translates into approximately 15,000 excess deaths.
 - AzPHA also released a report examining the [leading causes of deaths in Arizona](#) over time. In brief, the main finding is that Covid-19 ranks as the leading cause of death in Arizona since the pandemic began.
 - AzPHA also released a report that describes the [chronological course of the Covid-19 outbreak in Arizona](#) and the state’s response or lack thereof.

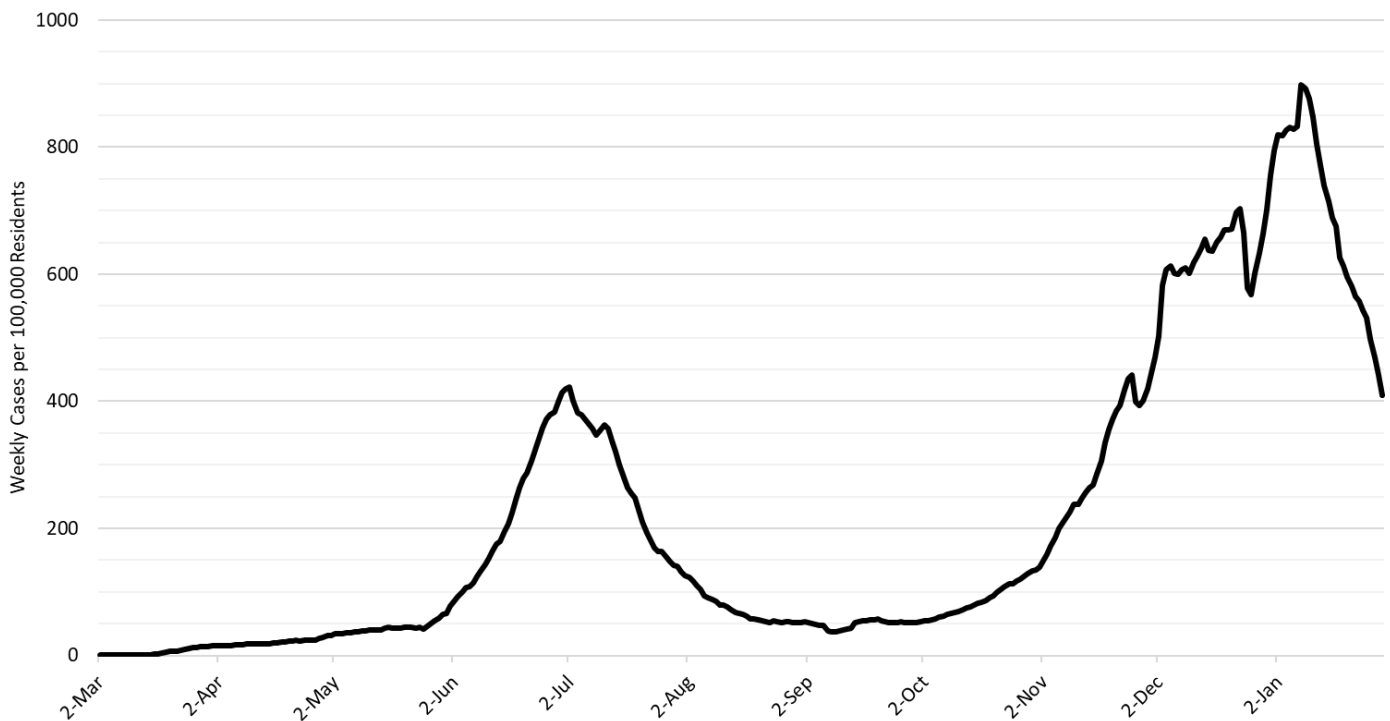


Figure 10. 7-Day Moving Average of Arizona Covid-19 Cases by Date of Test Collection Mar 1 – Jan 31, 2021.

Next update scheduled for February 12th.

County data appear in the Appendix.

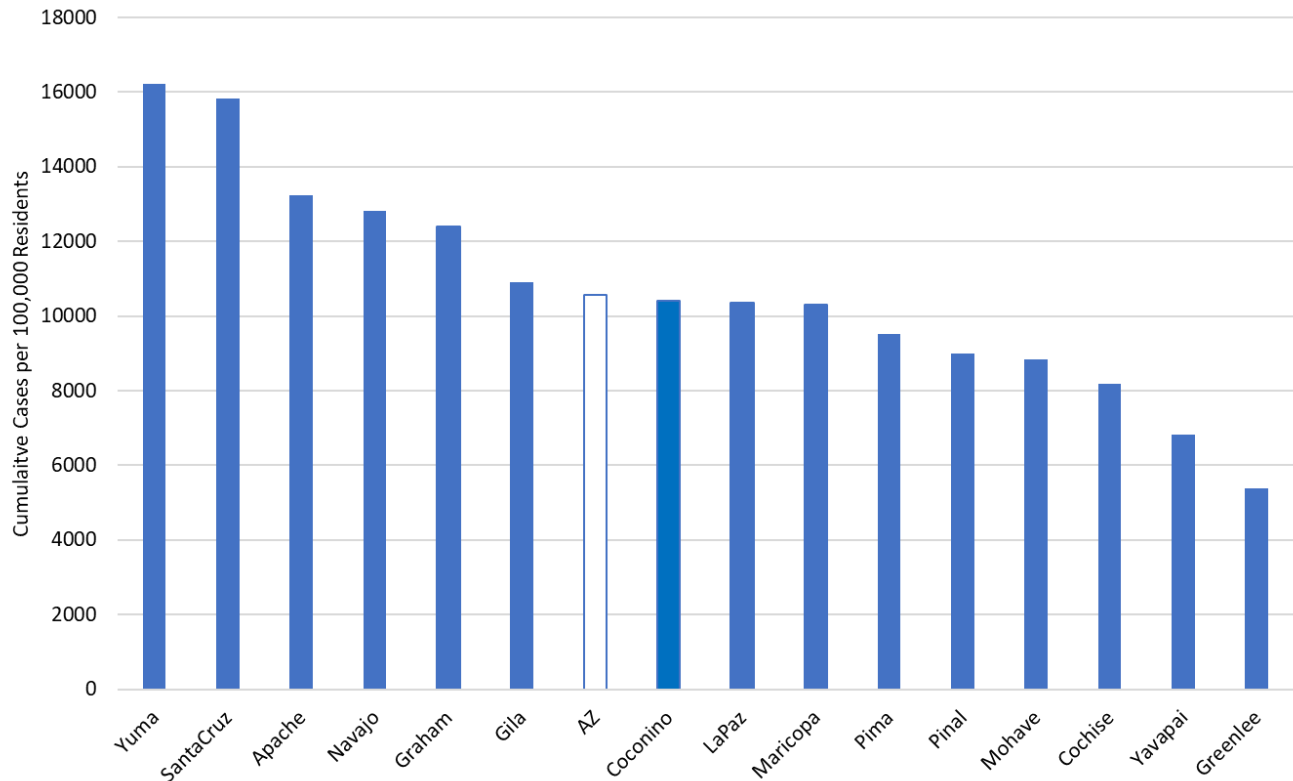


Figure 1A. Cumulative Covid-19 Incidence in Arizona by County March 1 – January 31, 2021.

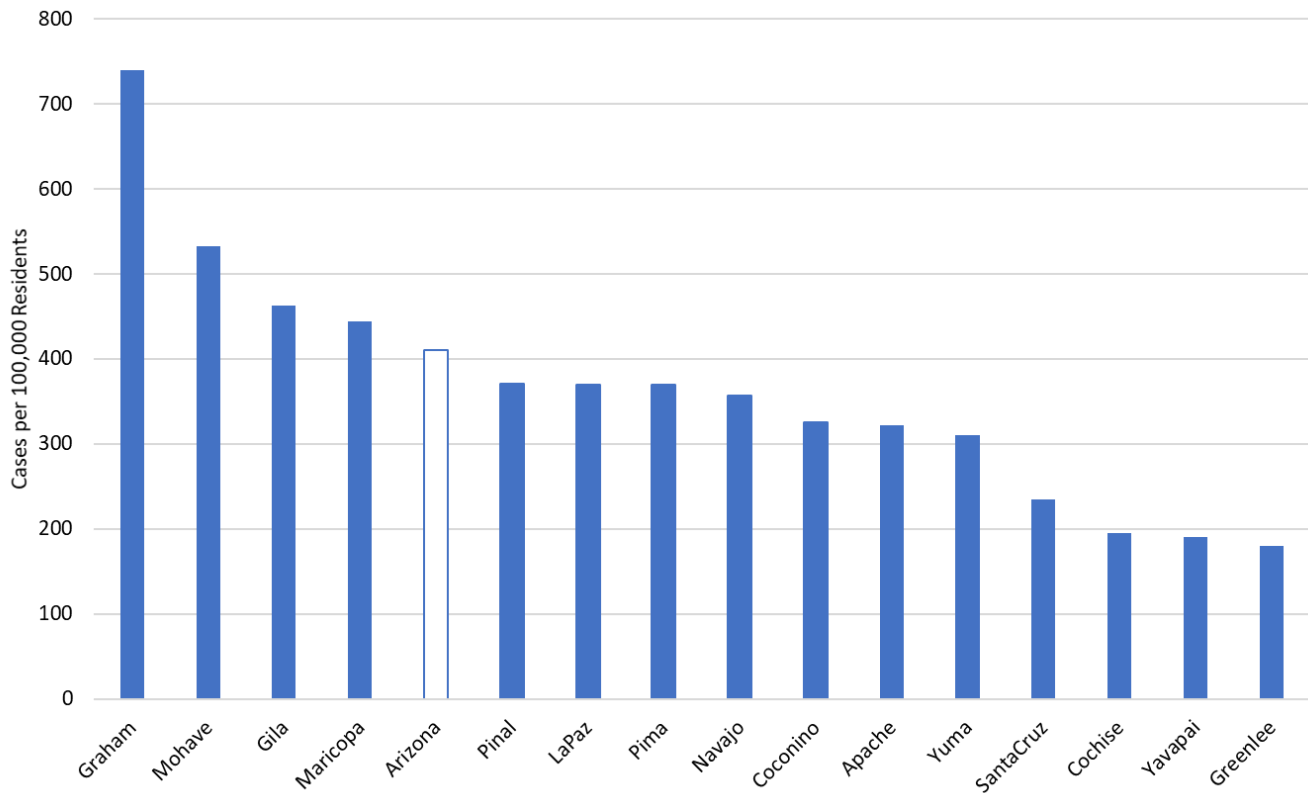


Figure 2A. Covid-19 Weekly Cumulative Incidence in Arizona by County January 24 – January 31, 2021.