

Covid-19 Disease Outbreak Outlook

Arizona State and Pima County

Updated February 26, 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>.

For the week ending February 21st, at least 9649 Covid-19 cases were diagnosed in Arizona (Figure 1). This is the lowest weekly tally since November 1st. It represents a 16% decrease from last week's initial tally of 11530 cases and marks the sixth straight week of decline. The prior week's tally was upwardly revised by 2% (261 cases) to 11791 cases this week. The outbreak is evenly distributed by age (Figure 2 following page). In terms of cases, the magnitude and length of this winter outbreak was approximately twice that of the summer outbreak making it about four times larger overall.

Arizona has now clearly transitioned from a period of crisis to one of elevated risk. With continuing, albeit slower, improvements being forecast for the coming weeks, hospital capacity will remain adequate to meet Arizona's most critical needs for the foreseeable future. However, it will be several months before the backlog of non-Covid care is fully addressed.

While residents and businesses should continue to follow the recommended public health mitigation efforts, normalization of lower risk activities will soon become reasonable as case rates fall below 100 new diagnoses per 100,000 residents per week. New cases are now being diagnosed at a rate of 135 per 100K per week. **For reference, September 8th marked the fall nadir between the summer and winter outbreaks at 38 per 100K per week.** Arizonans who are at risk of developing severe disease (e.g., age or comorbid conditions) should remain sheltered as much as feasible until fully vaccinated.

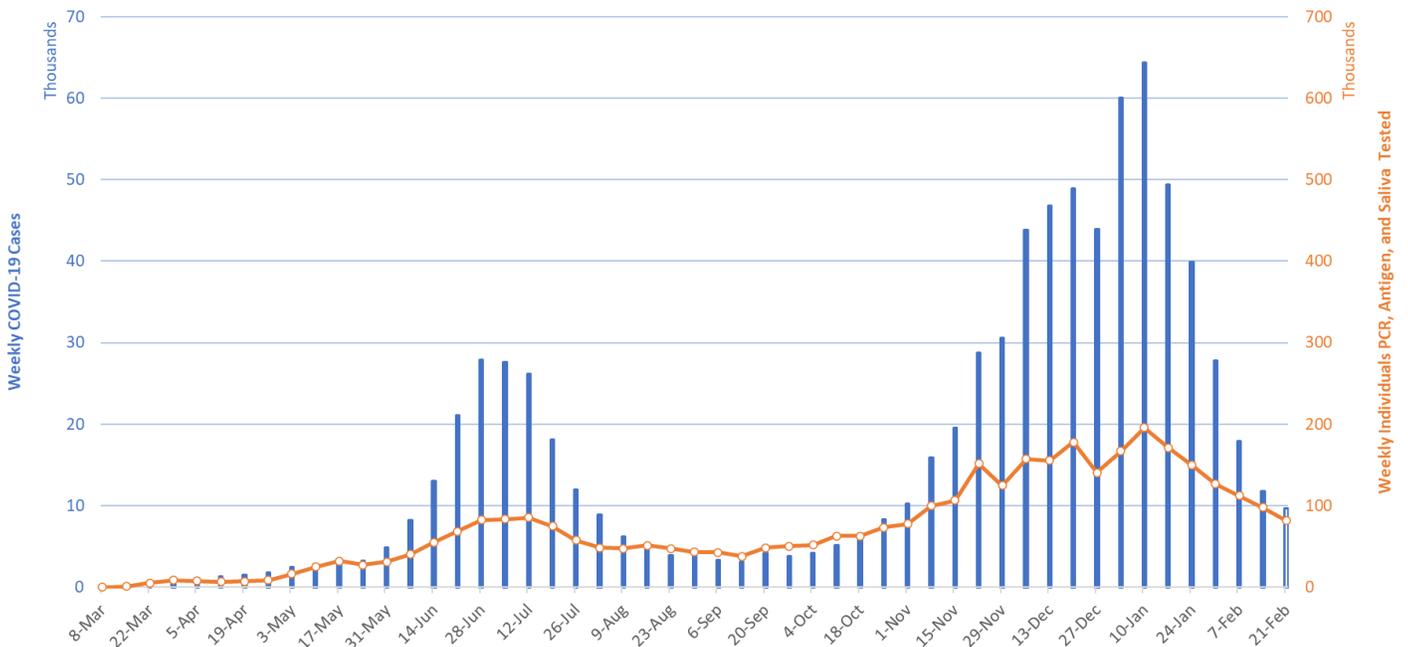


Figure 1. Newly Diagnosed Covid-19 Cases in Arizona and Number of Individuals Undergoing Covid-19 Diagnostic Testing March 1 through February 21, 2021.

Note: Data for this report was updated Friday, February 26 allowing 4 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.

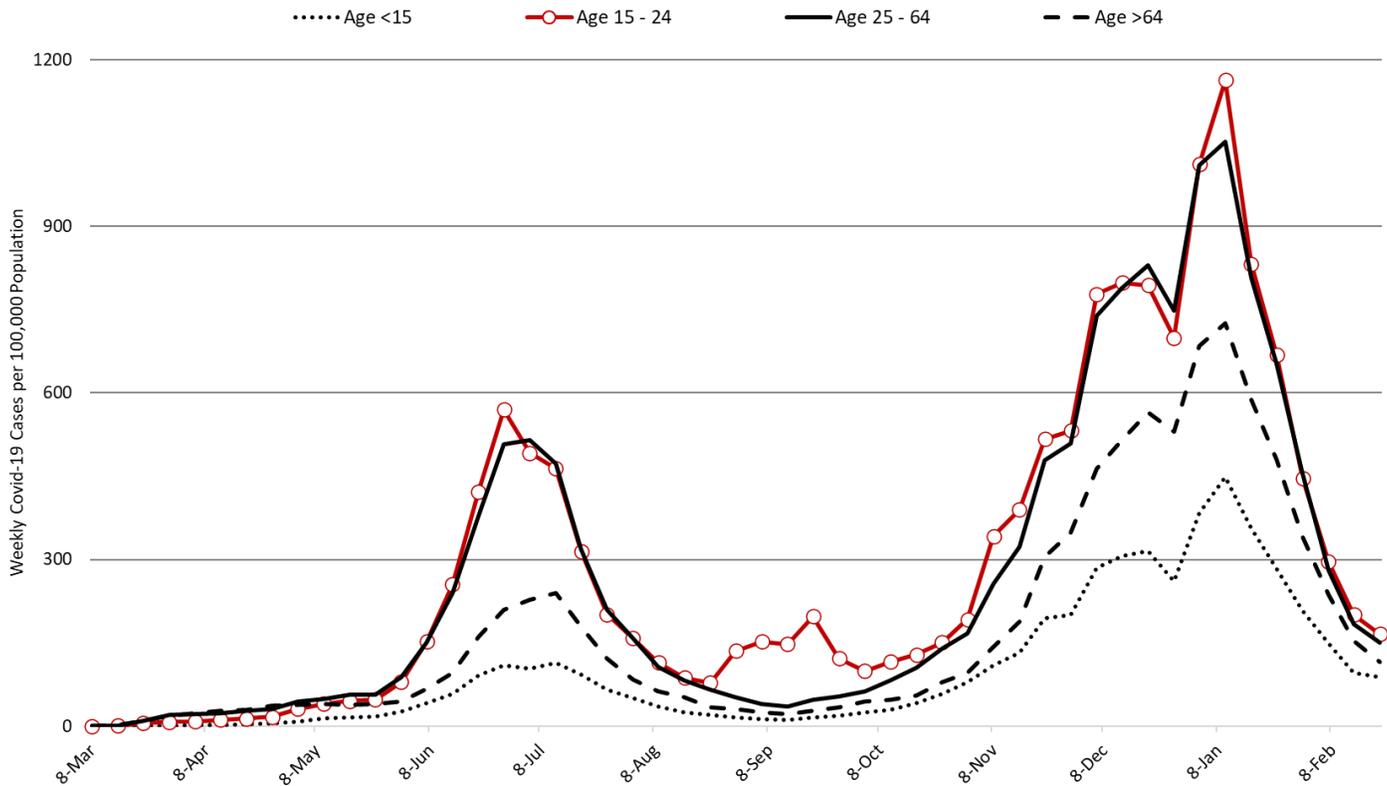


Figure 2. Newly Diagnosed Covid-19 Cases in Arizona by Age Group March 1 through February 21, 2021.

Unexpectedly, test positivity among those undergoing traditional nasopharyngeal PCR testing remained largely unchanged, 14% the week ending February 14th and 15% the week ending February 21st (Figure 3). Positivity still reflects inadequate testing relative to optimal public health practice as it should be <10%.

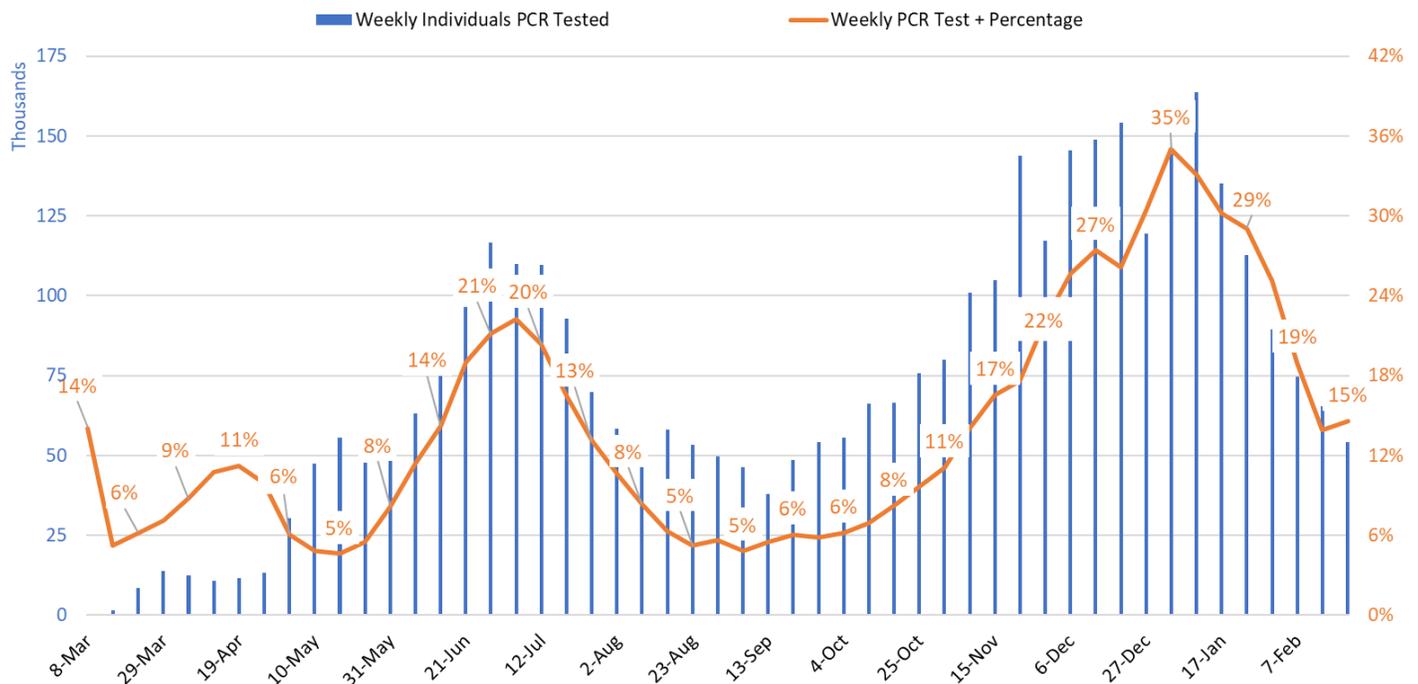


Figure 3. Weekly Number Patients Undergoing Traditional Nasopharyngeal PCR Testing and Associated Percent Positivity March 1 – February 21, 2021.

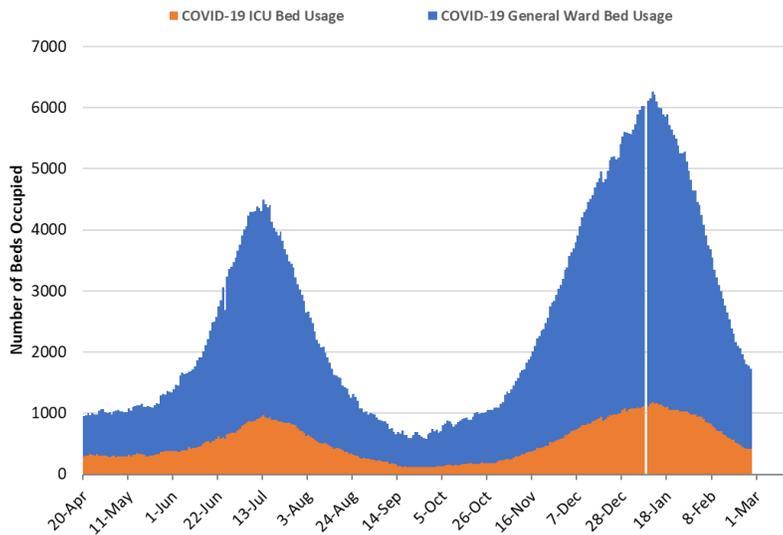


Figure 4. Arizona Daily Covid-19 General Ward and ICU Census April 20 – February 26, 2021.

As of February 26th, 1317 (15%) of Arizona’s 8597 general ward beds were occupied by Covid-19 patients, a 20% decrease from the previous week’s 1650 occupied beds (Figure 4 and Figure 5 Panel A). Another 1002 (12%) beds remained available for use. The number of available beds is lower than the previous week’s 1039 beds.

Covid-19 occupancy has dropped by 74% from its January 11th peak of 5082 ward patients. While this is good news hospitals remain far above seasonal occupancy.

As of February 26th, 415 (24%) of Arizona’s 1749 ICU beds were occupied with Covid-19 patients, a 20% decrease from the prior week’s count of 517 patients (Figure 4 and Figure 5 Panel B). An additional 246

(14%) ICU beds remained available for use. This is similar to the prior week’s 247 available beds. ICU occupancy has fallen 65% from its January 11th peak of 1183 occupied beds.

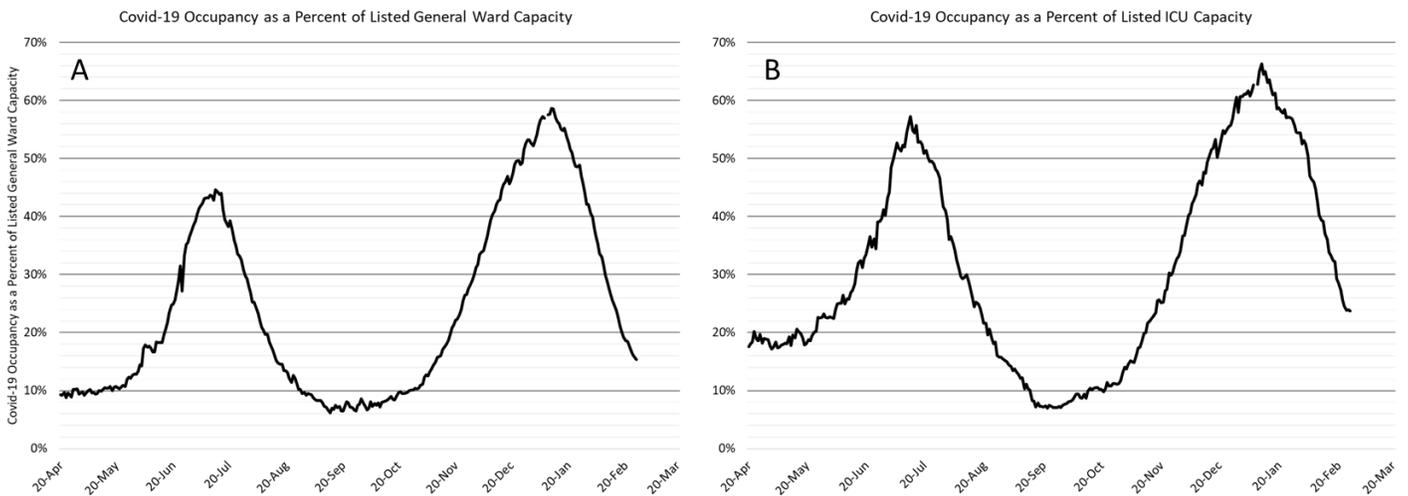


Figure 5. Covid-19 Occupancy as a Percent of Listed General Ward (A, left) and ICU (B, right) Capacity in Arizona April 20 – February 26, 2021.

While Arizona hospitals’ safety margins remain low, they are slowly improving (Figure 6, following page). Medically necessary procedures are now being scheduled in a more typical manner. 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 the end of March – early April before returning to pre-outbreak levels assuming continued reductions in viral transmission.

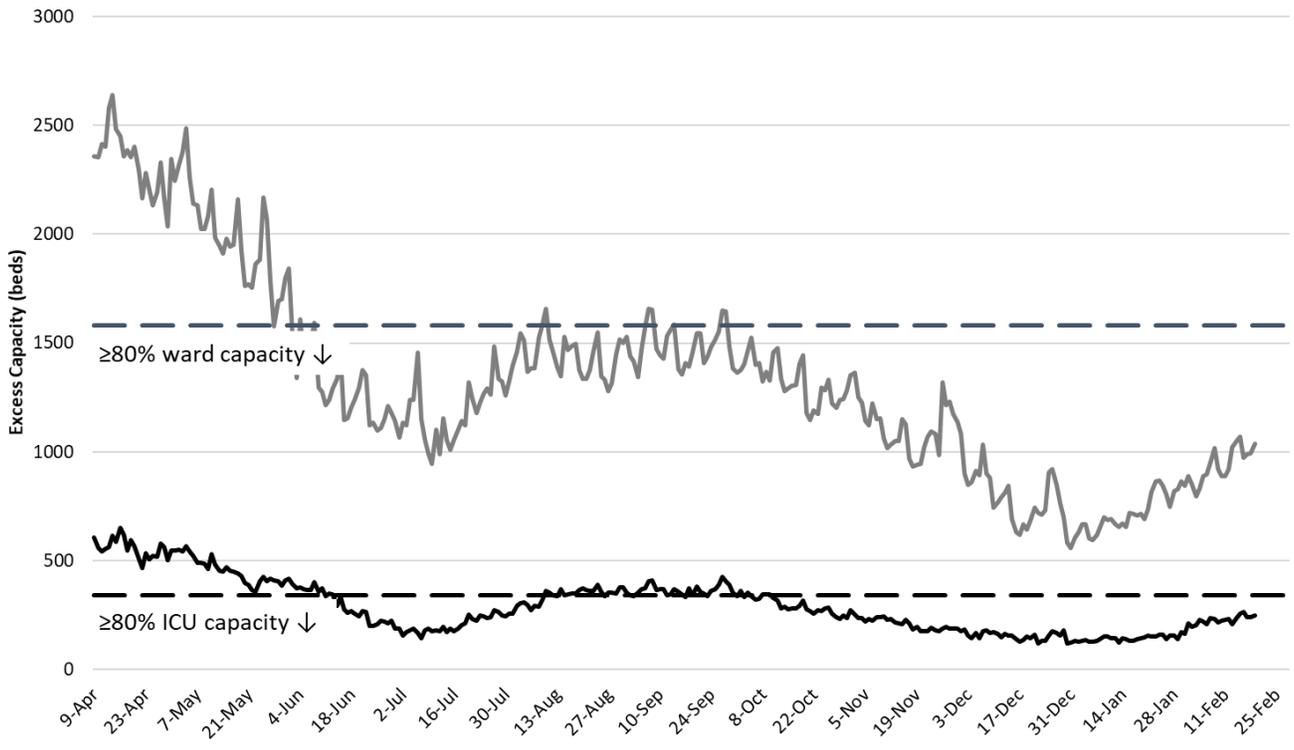


Figure 6. Observed Excess Non-Surge General Ward and ICU Capacity April 20 – February 26, 2021.

The week ending January 17th remains Arizona’s deadliest with 1021 deaths (Figure 7). The week of January 17th should represent a peak with subsequent improvement in the coming weeks. Nevertheless, Covid-19 deaths are expected to remain high for the next 2 - 4 weeks, falling below 200 per week by the end of March.

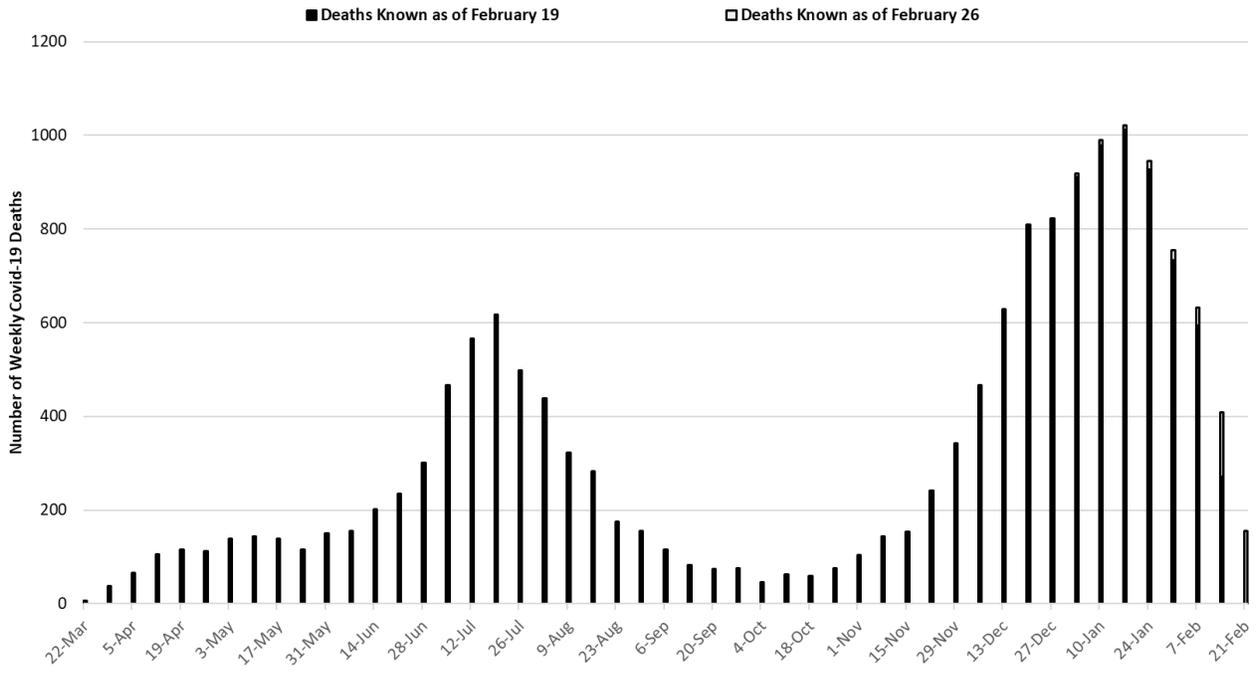


Figure 7. Weekly Arizona Covid-19 Deaths March 1 – February 21, 2021.

Pima County Outlook

For the week ending February 21st, 1093 Pima County residents were diagnosed with Covid-19, a 34% decrease from the 1666 cases initially reported last week (Figure 8). Last week's initial tally of 1666 cases was upwardly revised by 1% (45 cases) to 1711 cases. New cases are being diagnosed at a rate of 104 cases per 100K residents per week. For reference, October 9th marked a nadir between the summer and winter outbreak at 46 cases per 100K residents per week. Trends are similar across the various age groups (Figure 9).

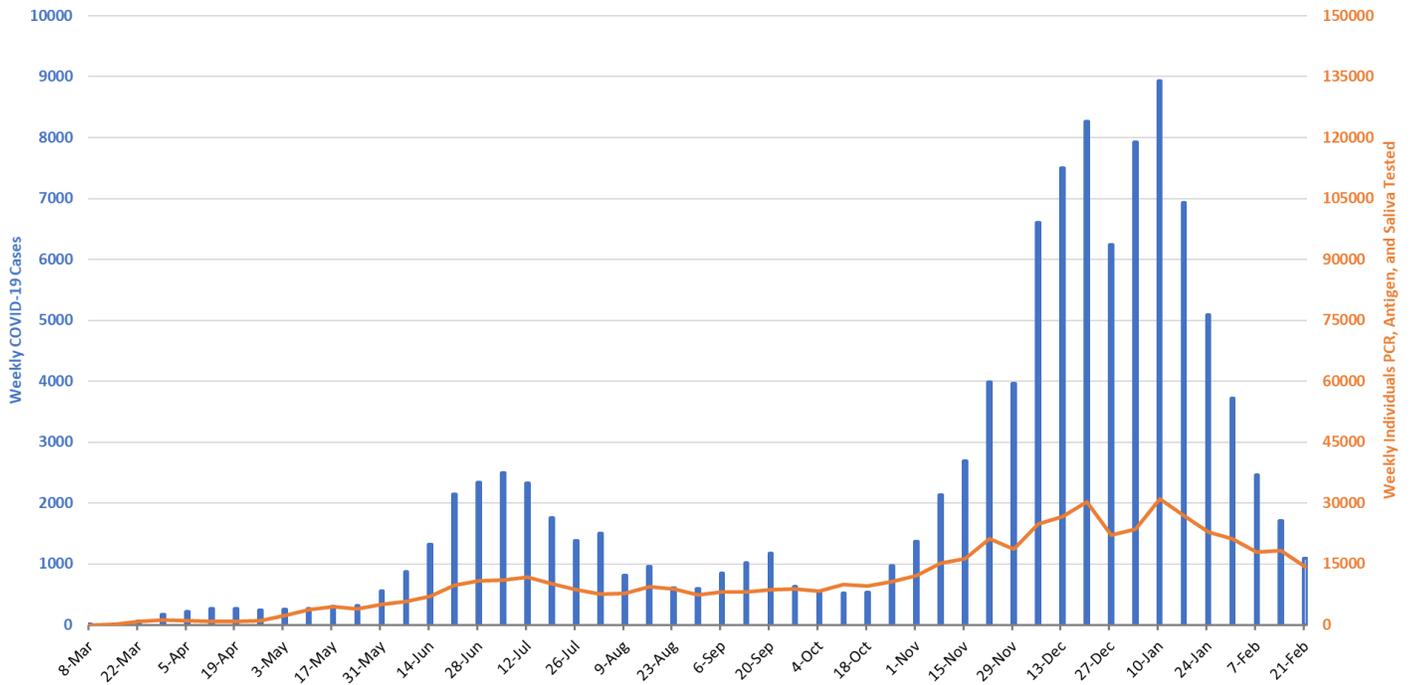


Figure 8. Covid-19 Cases and Individuals Undergoing Diagnostic Testing in Pima County Mar 1 – Feb 21.

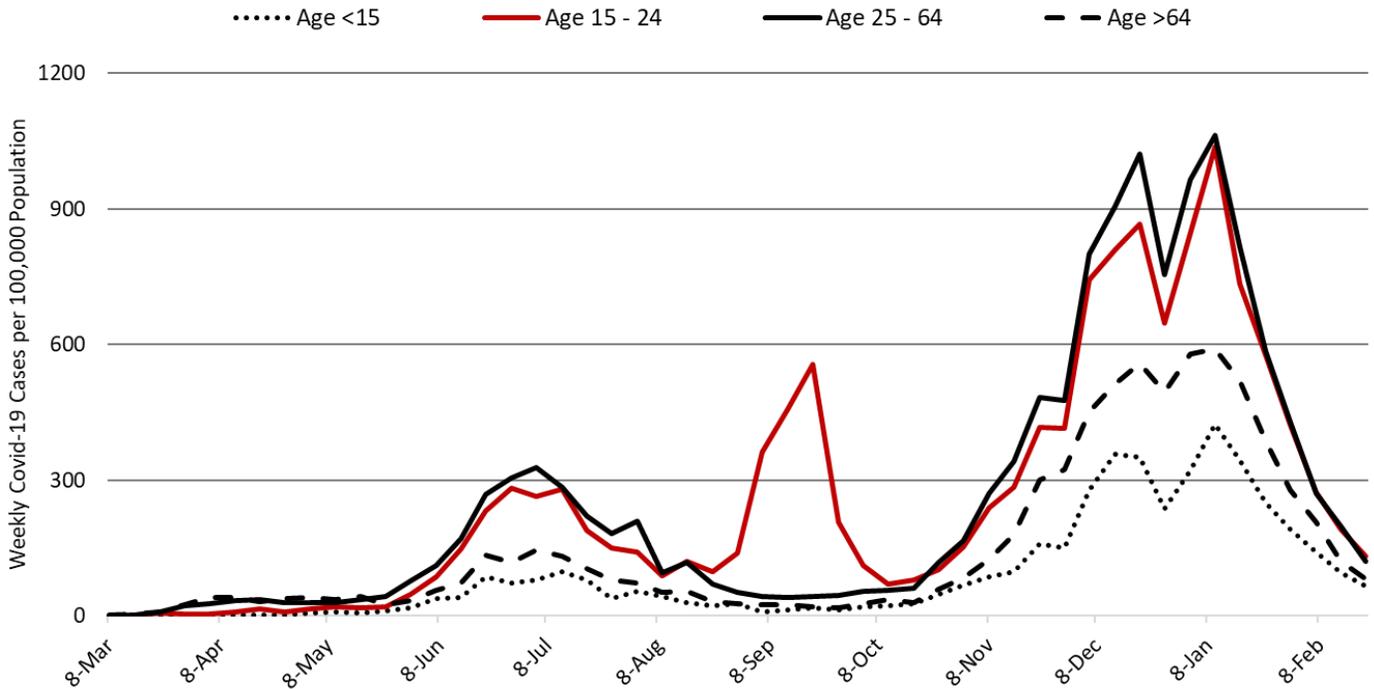


Figure 9. Covid-19 Cases by Age Group in Pima County from March 1 – February 21, 2021.

Summary:

- This week saw a sixth straight week of meaningful declines in Covid-19 cases and hospital occupancy. Nevertheless, absolute levels of SARS-CoV-2 viral transmission remain above the 100 new cases per 100,000 residents per week threshold which approximates elevated risk.
 - As of February 21st, new cases were being diagnosed at a rate of 135 cases per 100,000 residents per week (Figure 10 below). This rate is declining by 30 cases per 100,000 residents per week. The pace at which conditions are improving is slowing. It is possible that we might see improvements cease before April.
 - Despite these improvements, Arizona has the 17th highest viral transmission rate in the US according to the [CDC](#). With regard to cases, Arizona remains the 6th hardest hit state overall.
 - All 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.
 - While residents and businesses should continue to follow the recommended public health mitigation efforts, normalization of lower risk activities will be reasonable once case rates fall below 100 new diagnoses per 100,000 residents per week.
 - The test positivity rate for traditional nasopharyngeal PCR testing was unchanged this week at 15% indicating testing is inadequate to the scale of the problem as positivity should be <10%.

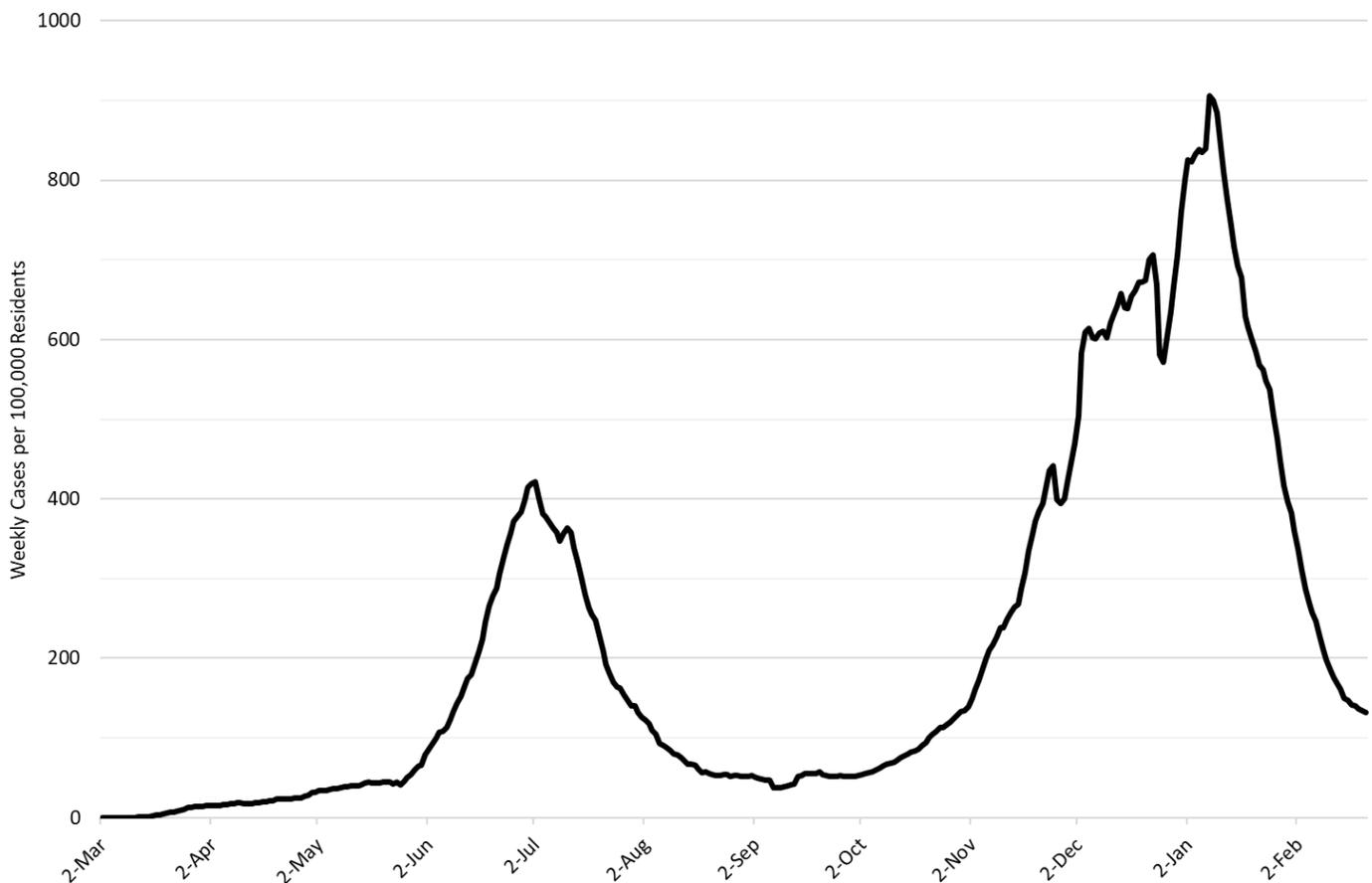


Figure 10. 7-Day Moving Average of Arizona Covid-19 Cases by Date of Test Collection Mar 1 – Feb 21, 2021.

- Moving forward it will be necessary to remain adherent to our public health mitigation practices in the face of improving conditions. For example, absolute levels of transmission and test positivity remain about 1.5X higher than recommended for in-person instructional activities (see [Arizona Department of Health Services Benchmarks](#)).
- Hospital Covid-19 occupancy continues to decline in the ward and ICU. Access to care, while somewhat restricted, is being scheduled at greater frequency. Nevertheless, it will be several months before the backlog of medically necessary non-Covid procedures is addressed.
- According to the [CDC](#), 6.7% of Arizona residents have received at least 2-doses of vaccine while another 9.7% have received 1-dose. The ADHS Dashboard is reporting slightly higher levels. To date, Arizona has administered 84% of its delivered doses.
 - Many have asked about [herd immunity](#) and the risk of a spring outbreak. While I believe this winter's outbreak will be Arizona's largest, a smaller wave is possible this spring. However, a spring wave should it occur will pose a lesser threat as most of those at risk of hospitalization and death will have been vaccinated. For this reason, the short-term outlook remains favorable.
 - NPR released a [well-done simulation/animation](#) that shows the impact of past infections, vaccinations, and increased transmissibility on future cases among remaining susceptibles.
- Arizona is still reporting a large number of weekly deaths and this count may considerably underestimate true fatalities. The week ending January 17th will be Arizona's deadliest with >1000 deaths. Arizona's weekly tally of deaths ranks it 5th in the nation. Overall, we rank 6th since the outbreak began.

Next update scheduled for March 5th.

County data appear in the Appendix.

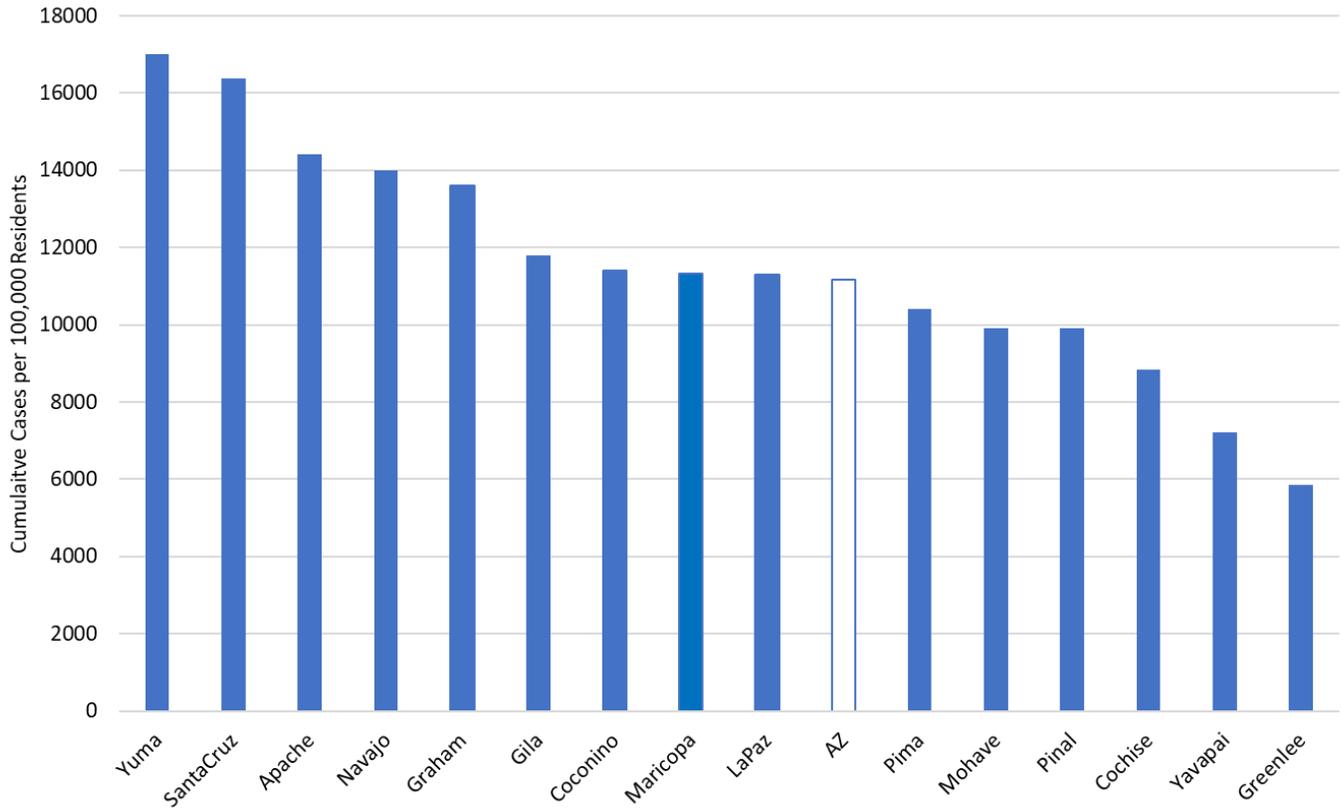


Figure 1A. Cumulative Covid-19 Incidence in Arizona by County March 1 – February 21, 2021.

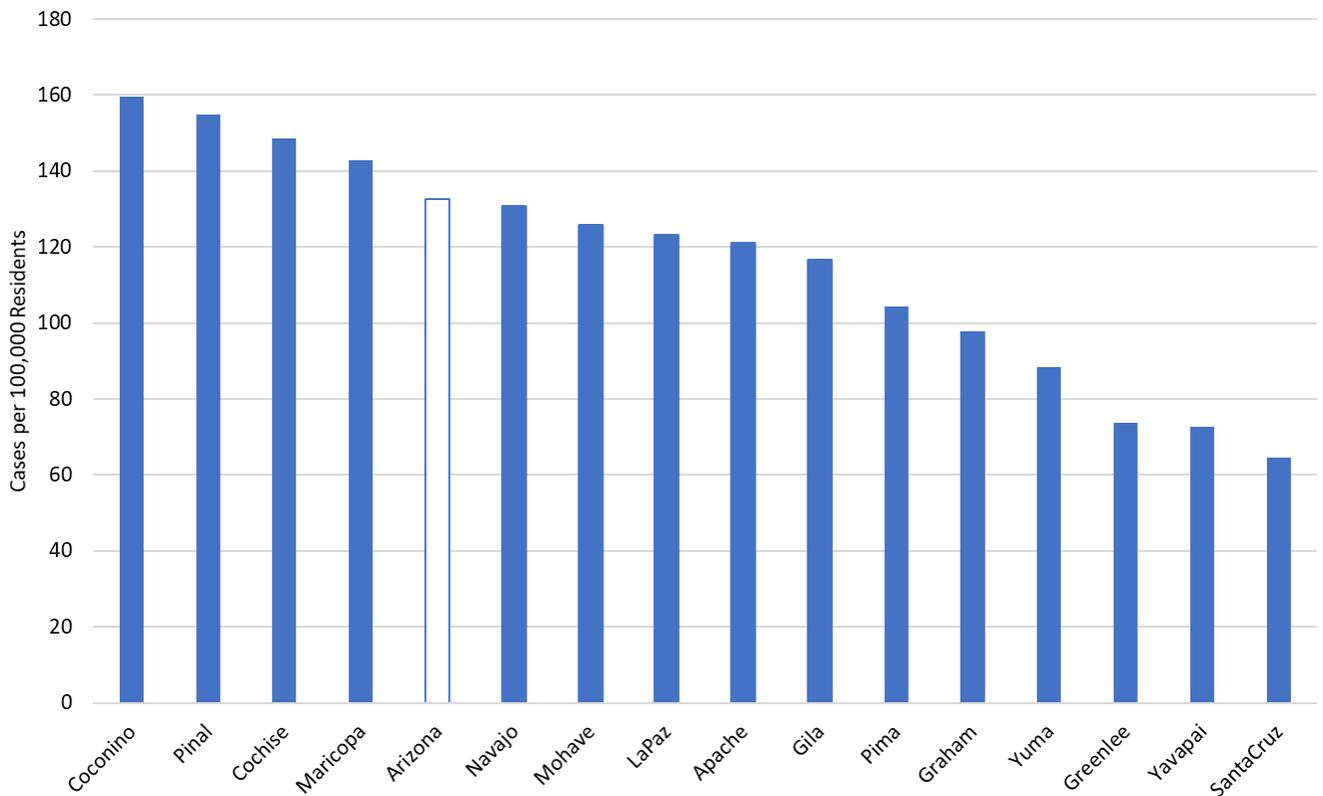


Figure 2A. Covid-19 Weekly Cumulative Incidence in Arizona by County February 14 – February 21, 2021.