

Covid-19 Disease Outbreak Outlook

Arizona State and Pima County

Updated March 12, 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 March 7th, at least 5721 Covid-19 cases were diagnosed in Arizona (Figure 1). This represents a 17% decrease from last week's initial tally of 6872 cases and marks the eighth straight week of decline. The prior week's tally was upwardly revised by <1% (8 cases) to 6880 cases this week. The outbreak remains evenly distributed by age (Figure 2 following page).

Arizona is now securely in a period of substantial (versus high) risk with continuing, albeit smaller, improvements in case counts expected over the coming weeks. Hospital capacity remains adequate to meet Arizona's foreseeable needs; however, the backlog of non-Covid care has yet to be fully addressed as evidenced by unseasonably high hospital occupancy.

While residents and businesses should continue to follow public health mitigation recommendations, normalization of lower risk activities is reasonable as case rates have fallen below 100 new diagnoses per 100,000 residents per week. New cases are now being diagnosed at a rate of 79 per 100K residents 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.

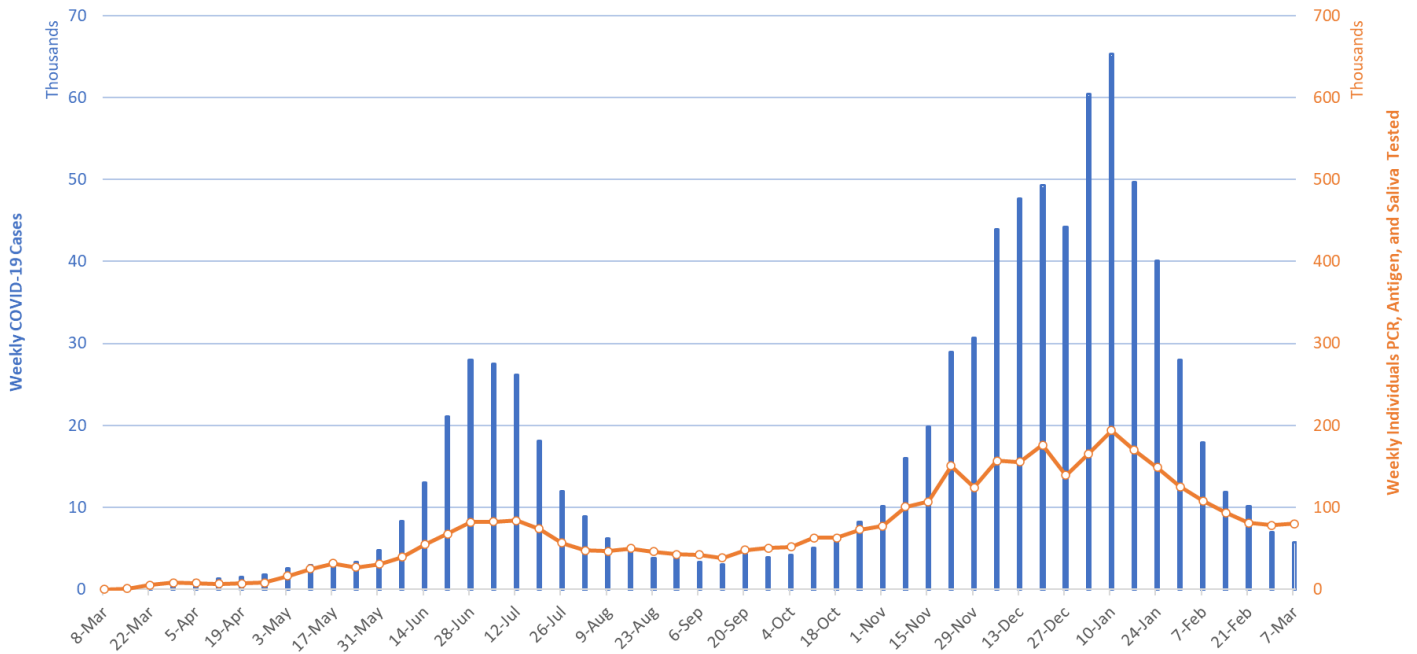


Figure 1. Newly Diagnosed Covid-19 Cases in Arizona and Number of Individuals Undergoing Covid-19 Diagnostic Testing March 1, 2020 through March 7, 2021.

Note: Data for this report was updated Friday, March 12 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.

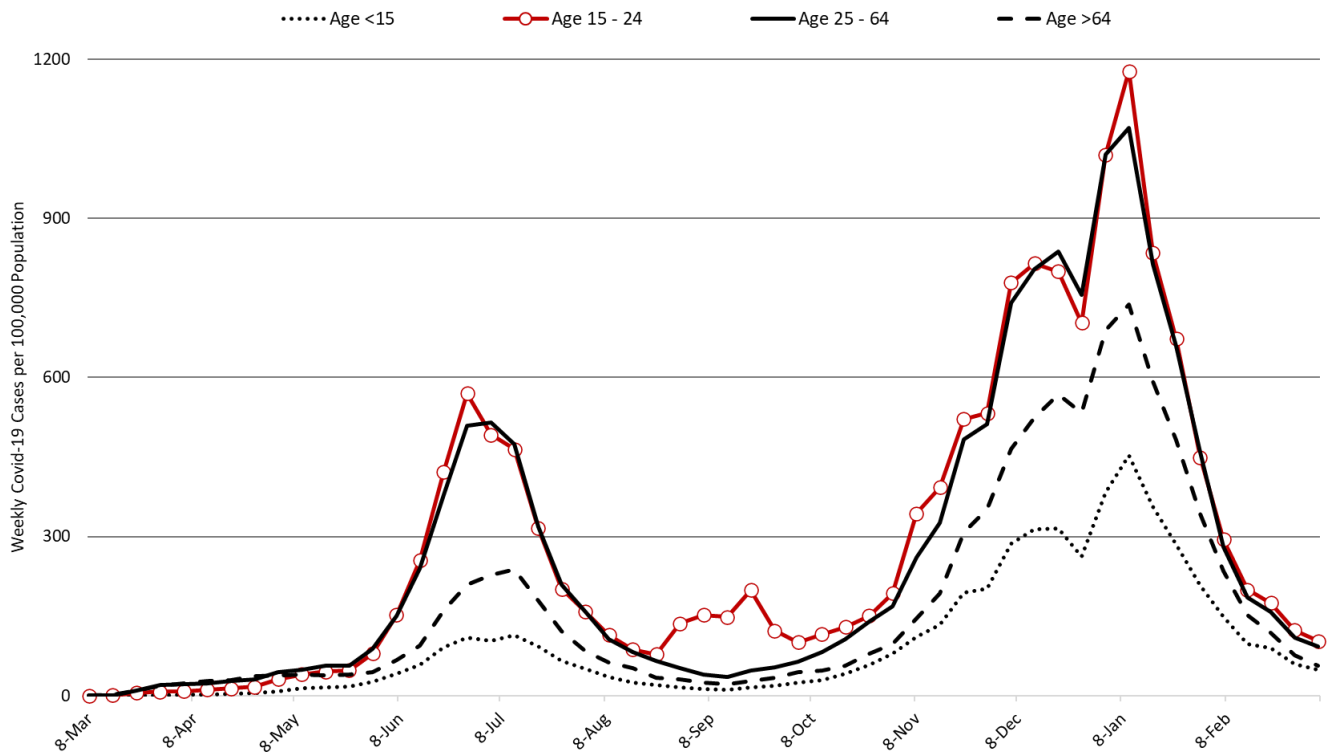


Figure 2. Newly Diagnosed Covid-19 Cases in Arizona by Age Group March 1, 2020 through March 7, 2021.

Test positivity among those undergoing traditional nasopharyngeal PCR testing continues to decline, declining from 10% the week ending February 28th to 9% the week ending March 7th (Figure 3). Positivity is now within the recommended 5 – 10% for optimal public health practice.

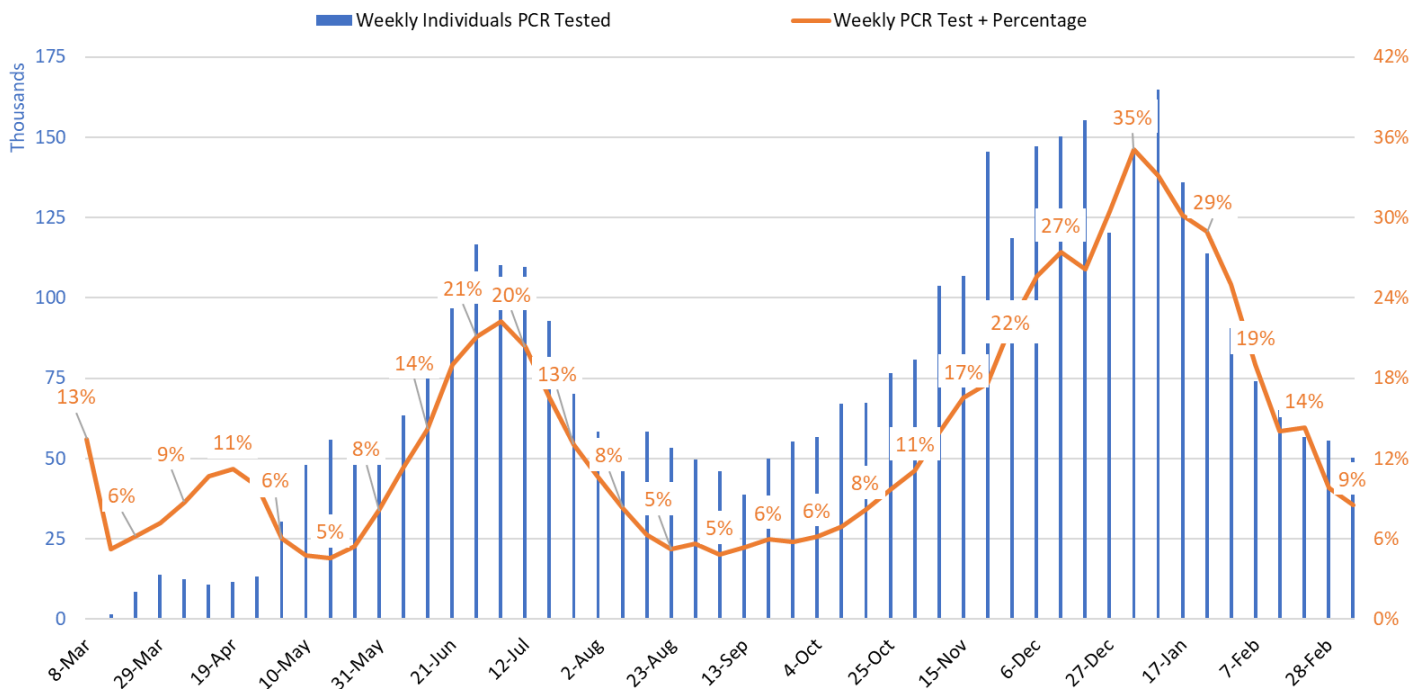


Figure 3. Weekly Number Patients Undergoing Traditional Nasopharyngeal PCR Testing and Associated Percent Positivity March 1, 2020 – March 7, 2021.

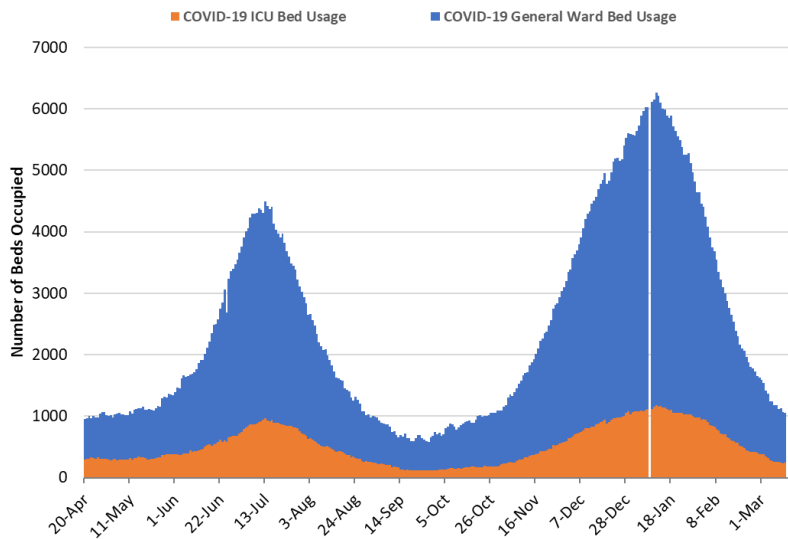


Figure 4. Arizona Daily Covid-19 General Ward and ICU Census April 20, 2020 – March 12, 2021.

As of March 12th, 814 (10%) of Arizona’s 8557 general ward beds were occupied by Covid-19 patients, a 16% decrease from the previous week’s 966 occupied beds (Figure 4 and Figure 5 Panel A). Another 1011 (12%) beds remained available for use. The number of available beds is higher than the previous week’s 952 beds.

Covid-19 occupancy has dropped by 84% from its January 11th peak of 5082 ward patients. Nevertheless, hospitals remain above seasonal occupancy.

As of March 12th, 238 (14%) of Arizona’s 1750 ICU beds were occupied with Covid-19 patients, a 15% decrease from the prior week’s count of 280 patients (Figure 4 and Figure 5 Panel B). An additional 262 (15%) ICU beds remained available for use. This is

similar to the prior week’s 263 available beds. ICU occupancy has fallen 80% from its January 11th peak of 1183 occupied beds.

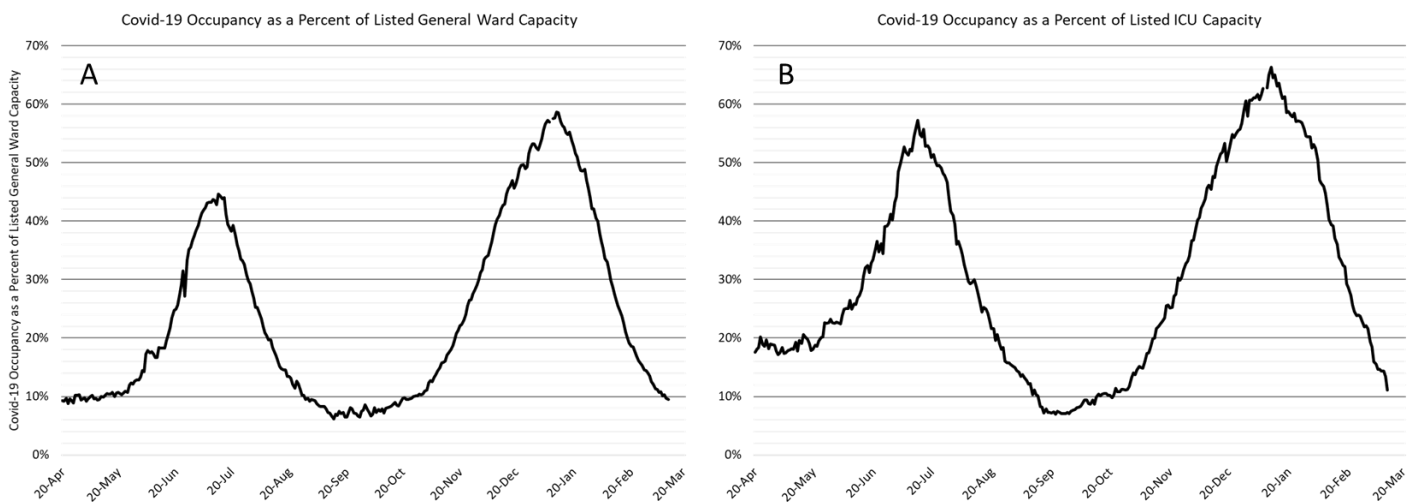


Figure 5. Covid-19 Occupancy as a Percent of Listed General Ward (A, left) and ICU (B, right) Capacity in Arizona April 20, 2020 – March 12, 2021.

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. The backlog of postponed care will take several more months to resolve. As capacity constraints are lessened, care practices should return to those prior to the outbreak ensuring all patients will receive optimal care. Hospitals will remain crowded through early April before returning to pre-outbreak levels assuming continued reductions in viral transmission.

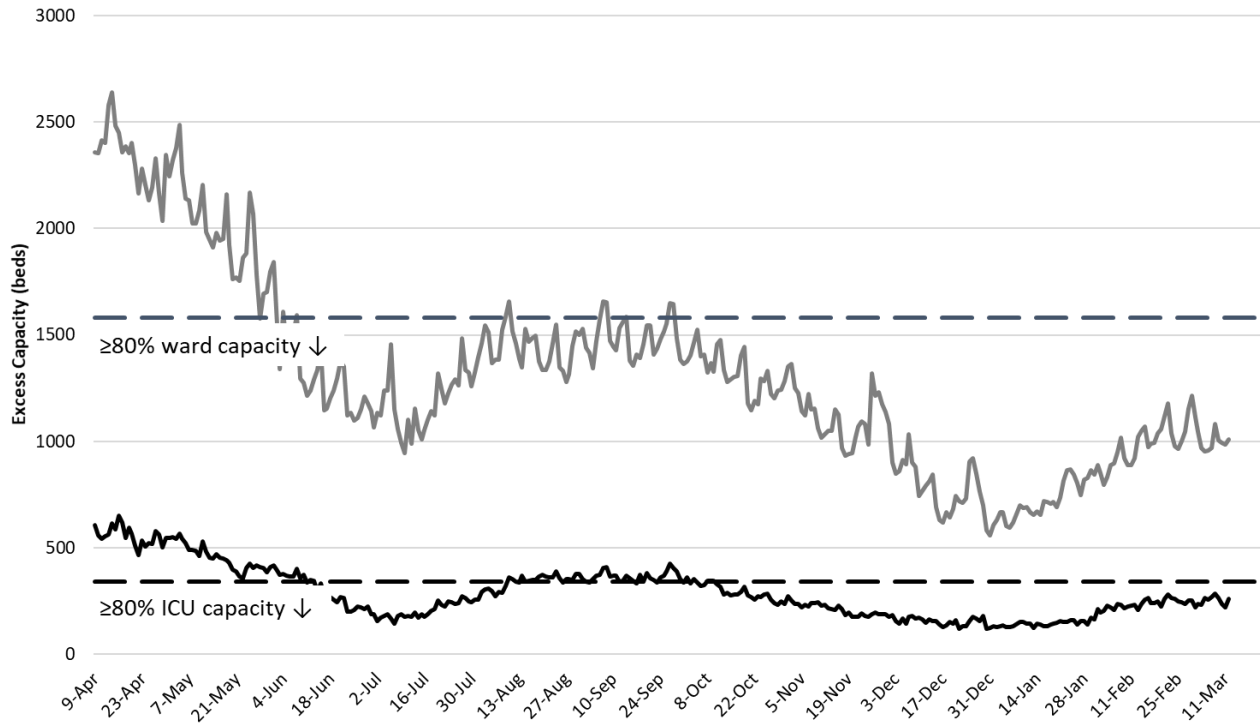


Figure 6. Observed Excess Non-Surge General Ward and ICU Capacity April 20, 2020 – March 12, 2021.

The week ending January 17th remains Arizona’s deadliest with 1032 deaths (Figure 7). The week of January 17th represents peak mortality with subsequent improvements for the foreseeable future. Covid-19 deaths are expected to remain high for the next 1 - 2 weeks, falling below 200 per week by the end of March.

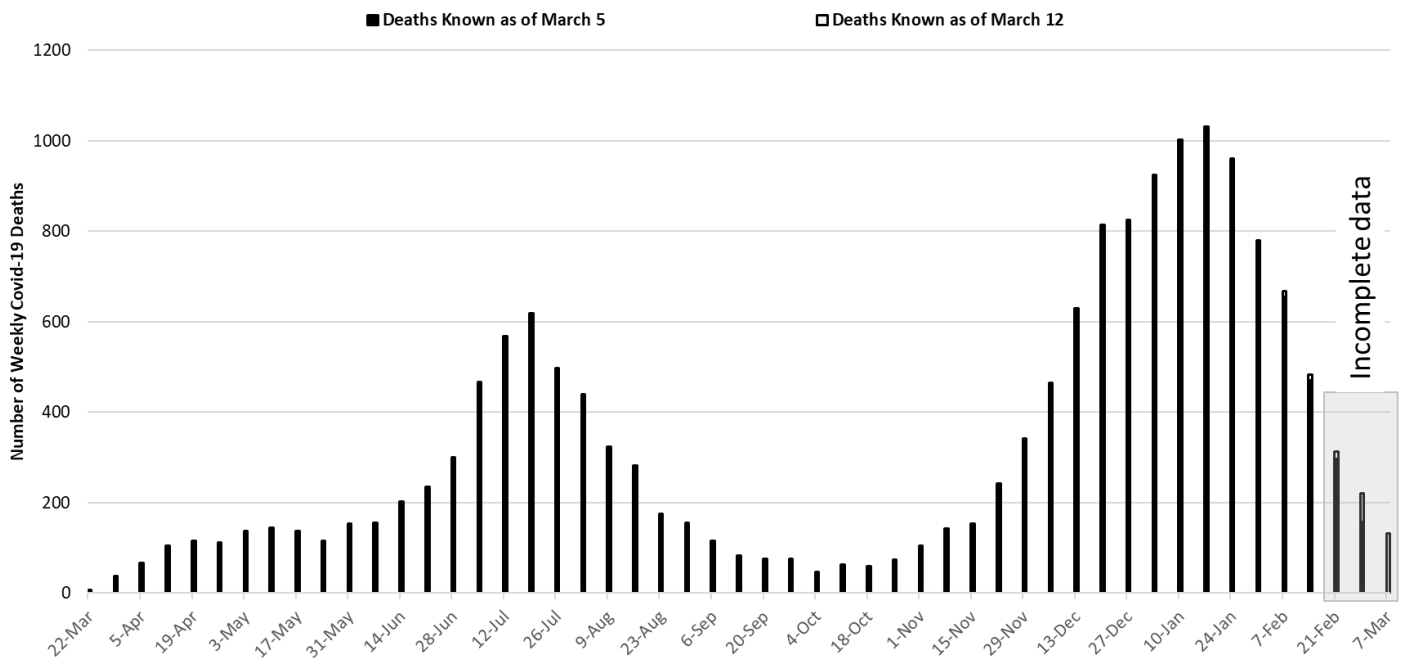


Figure 7. Weekly Arizona Covid-19 Deaths March 1, 2020 – March 7, 2021.

Pima County Outlook

For the week ending March 7th, 684 Pima County residents were diagnosed with Covid-19, a 17% decrease from the 826 cases initially reported last week (Figure 8). Last week's initial tally was downwardly revised by 5% (41 cases) to 785 cases. New cases are being diagnosed at a rate of 65 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).

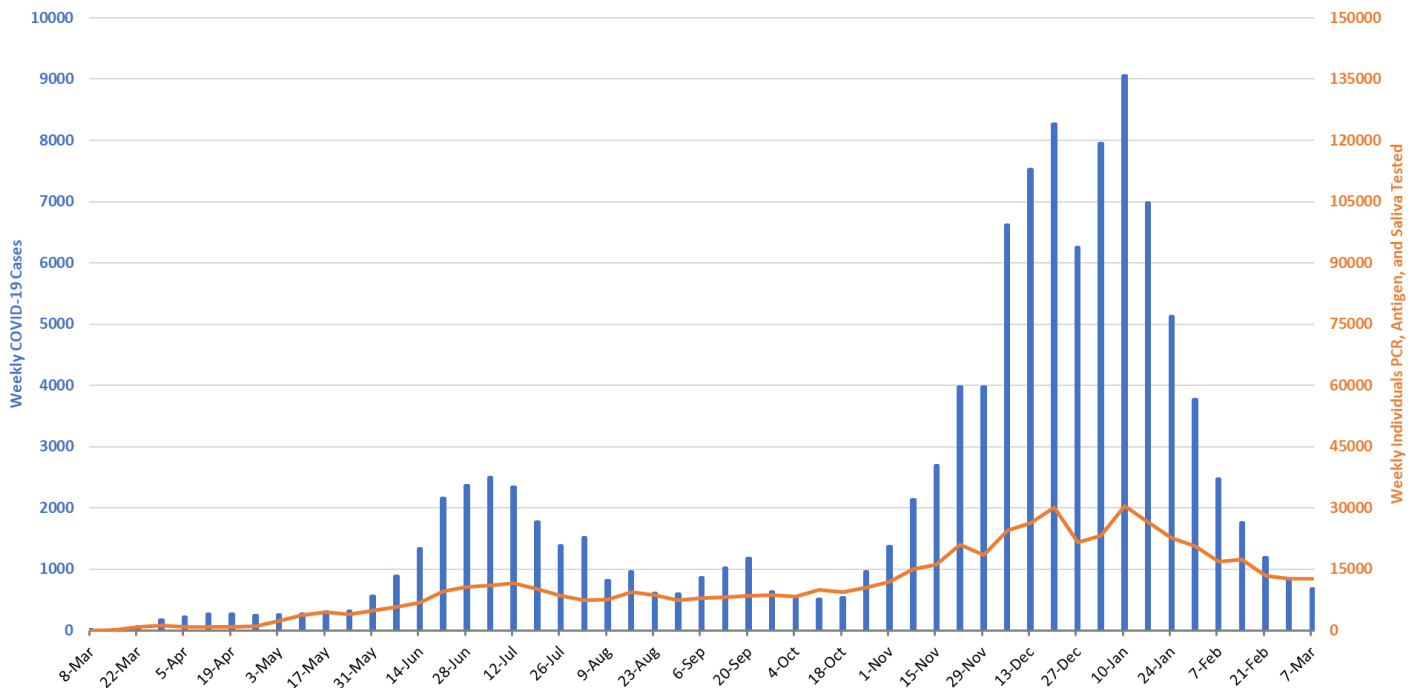


Figure 8. Covid-19 Cases and Individuals Undergoing Diagnostic Testing in Pima County March 1, 2020 – March 7, 2021

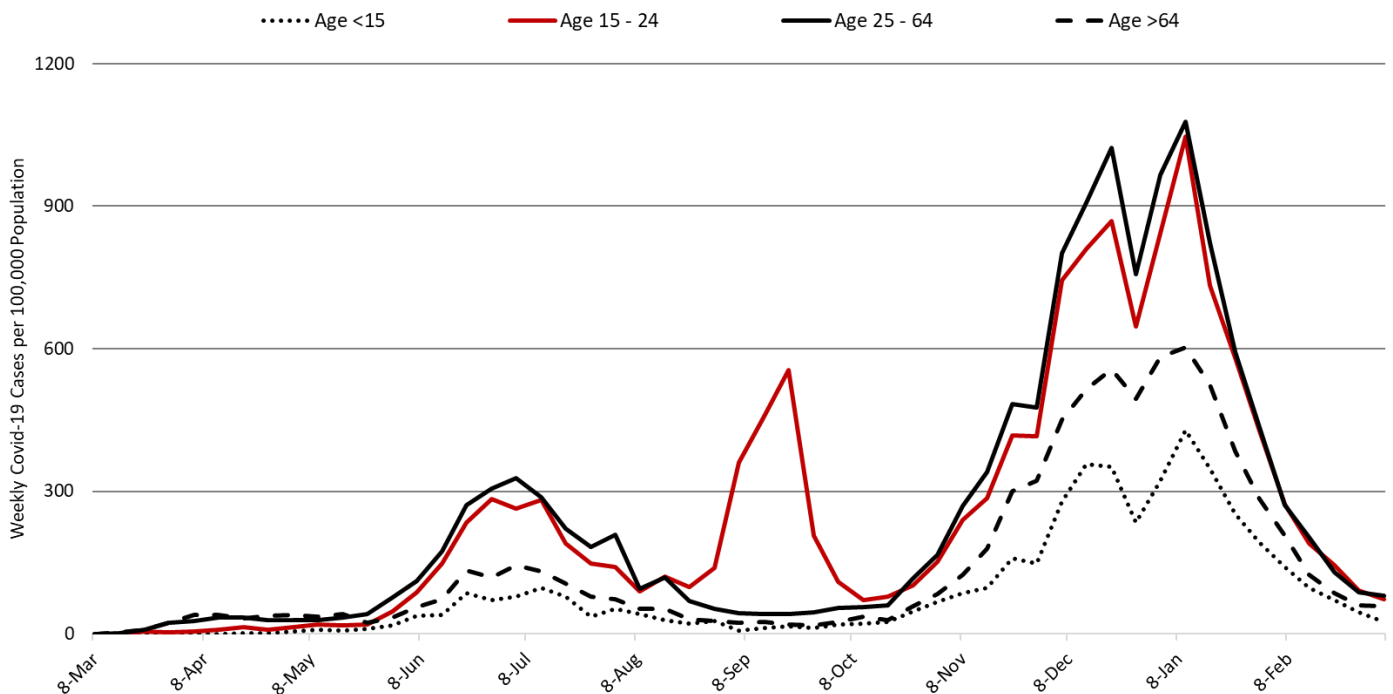


Figure 9. Covid-19 Cases by Age Group in Pima County from March 1, 2020 – March 7, 2021.

Summary:

- This week saw an eighth straight week of meaningful declines in Covid-19 cases and hospital occupancy. In all but Coconino County, absolute levels of SARS-CoV-2 viral transmission have fallen below the 100 new cases per 100,000 residents per week threshold.
 - As of March 7th, new cases were being diagnosed at a rate of 79 cases per 100,000 residents per week (Figure 10 below). This rate is declining by 16 cases per 100,000 residents per week.
 - Arizona has the 13th highest viral transmission rate in the US according to the [CDC](#); however, it remains the 6th hardest hit state overall.
 - All residents should continue to wear a mask in public, avoid large 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 is reasonable in communities where case rates are below 100 new diagnoses per 100,000 residents per week.
 - The test positivity rate for traditional nasopharyngeal PCR testing is now <10% which is within the recommended 5 – 10% range for optimal public health practice.

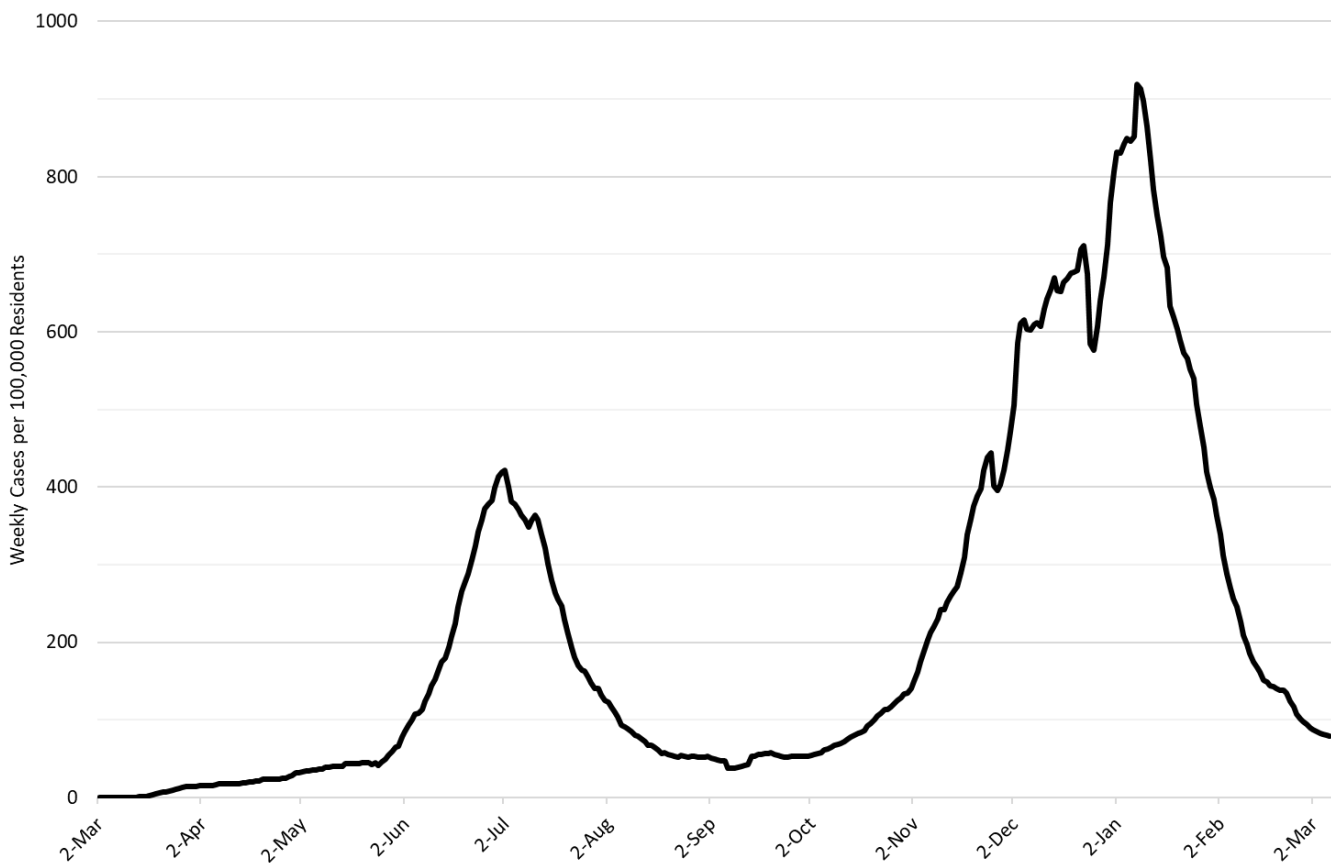


Figure 10. 7-Day Moving Average of Arizona Covid-19 Cases by Date of Test Collection Mar 1, 2020 – March 7, 2021.

- In some communities, absolute levels of transmission and test positivity have reached levels that warrant a return to in-person instruction using a hybrid mode or reduced attendance (see [CDC Recommended Mitigation Strategies for K – 12 Learning Modes](#)). Full in-person instruction is not recommended by the CDC until transmission falls below 50 cases per 100K residents per week.
- Hospital Covid-19 occupancy continues to decline in the ward and ICU. Access to care however, remains somewhat restricted as the backlog of medically necessary non-Covid procedures is addressed.
- Arizona is still reporting a large number of weekly deaths and this count may underestimate true fatalities. The week ending January 17th will be Arizona's deadliest with >1000 deaths. Arizona's weekly tally of deaths ranks it 9th in the nation while its overall rank remains 6th since the outbreak began.
- According to the [CDC](#), 14.6% of Arizona adults have received at least 2-doses of vaccine while another 13.4% have received 1-dose. The ADHS Dashboard is reporting slightly higher levels.

Next update scheduled for March 19th.

County data appear in the Appendix.

Commentary on Governor Ducey's Return to In Person Instruction Executive Order (2021-4) in Appendix B

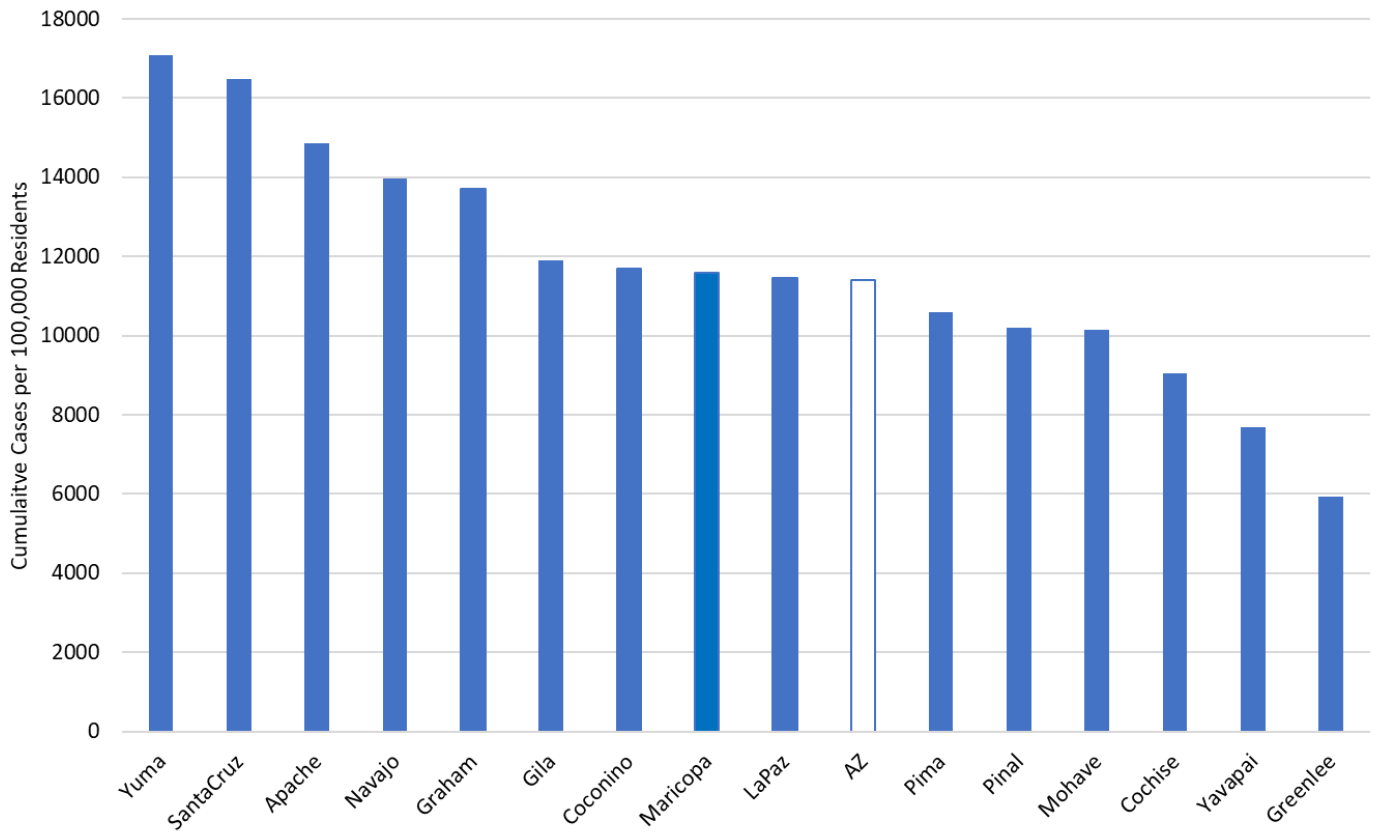


Figure 1A. Cumulative Covid-19 Incidence in Arizona by County March 1, 2020 – March 7, 2021.

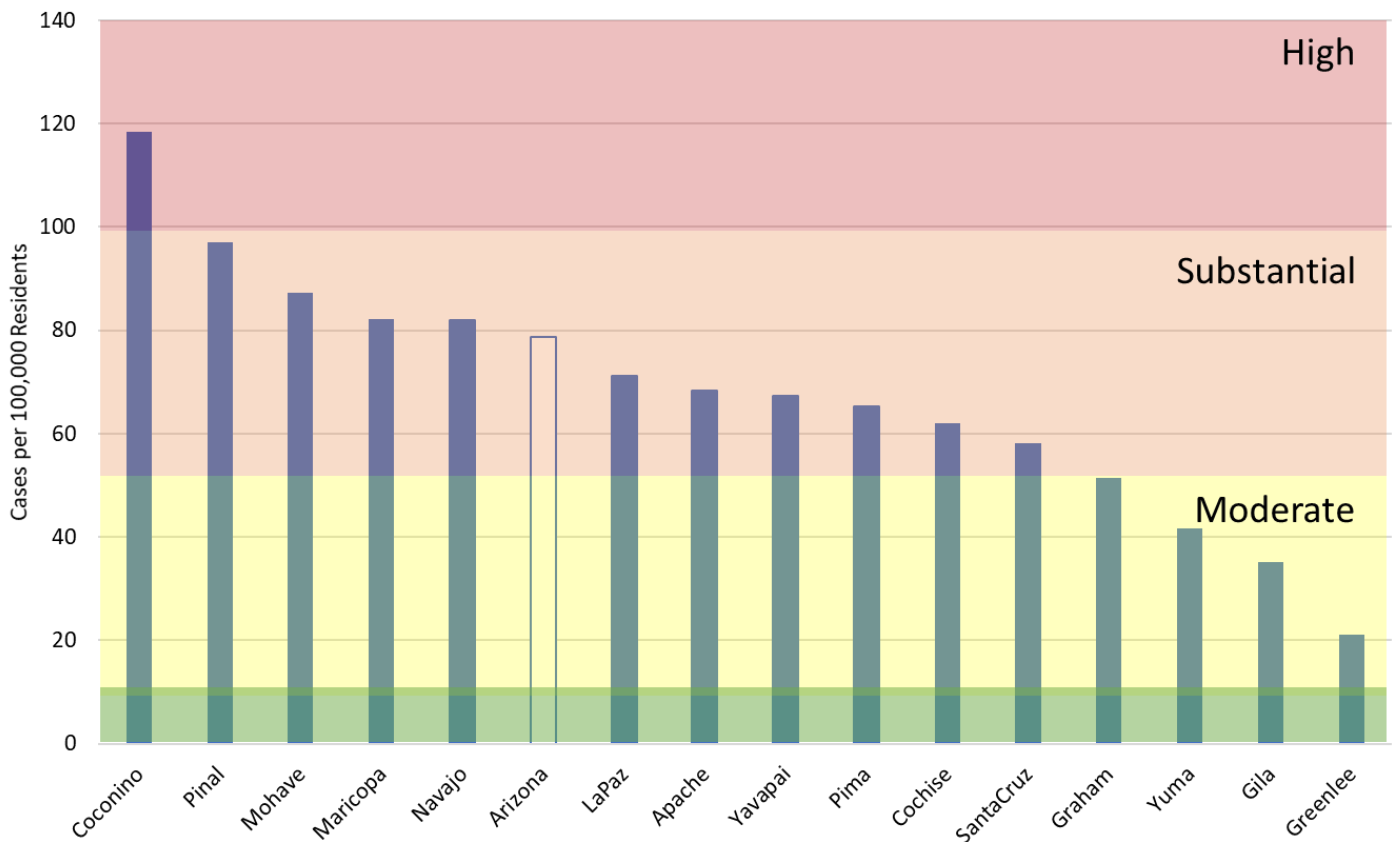


Figure 2A. Covid-19 Weekly Cumulative Incidence in Arizona by County February 28 – March 7, 2021 (Risk bands coincide with CDC recommendations for K – 12 schools’ instructional mode).

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Appendix B. Commentary on Governor Ducey's Executive Order: Open for In Person Learning (2021-4)

- The [CDC](#) defines, and [Governor Ducey](#) acknowledges, 4 risk levels based on community transmission rates: **low**, **moderate**, **substantial**, and **high**. When risk is **low** or **moderate**, both the CDC and Governor Ducey call for K – 12 schools to be open. When risk is **substantial** or **high**, the Governor generally calls for greater in-person instruction than the CDC.
 - Assuming conditions continue to improve, Gov Ducey's [executive order](#) aligns closely with the [current CDC recommendations](#).

	Cases Positivity	CDC		Gov. Ducey	
Low	<10 <5%	K-12 schools open		K – 12 school open with Virtual option for individuals	
Moderate	<49 <7.9%				
Substantial **NOW**	<100 <10%	Elementary Hybrid or ↓ Attend	M / HS Hybrid	Elementary Open	M / HS ↓ Attend
High	≥100 ≥10%		M / HS Virtual		Open → Open Virt → Virt

- If conditions worsen, then his plan poses some greater risk. This is particularly true if cases rates are high enough to warrant the **high** transmission designation, >100 new cases per 100K residents per week or >10% test positivity.
 - Under **substantial** transmission (e.g., current conditions), Govern Ducey would require elementary schools to provide in-person instruction whereas the CDC would recommend hybrid learning modes or in-person instruction with reduced attendance. Governor Ducey would require middle and high schools to offer in-person instruction with reduced attendance whereas the CDC recommends they be in a hybrid learning mode.
 - Under **high** transmission, Governor Ducey would require middle and high schools that are already offering in-person instruction as of March 15th to remain in the in-person instructional mode. Alternatively, the CDC would call for virtual instructional mode if community transmission were rated as **high**.
- Maricopa and Pima County transmission rates both warrant a rating of **substantial** risk at present. While both are trending towards **moderate** risk, Pima County is the likeliest to achieve moderate risk by March 15th.
 - Maricopa County: 82 cases per 100K per week (substantial) / <10% positivity (substantial)
 - Pima County: 65 cases per 100K per week (substantial) / <10% positivity (substantial)

- Four broad considerations for school reopening. **The goal is to weigh the benefits of in-person instruction to the student against the risk opening poses to the broader community:**
 - What are current community transmission rates and what trends are projected?
 - What resources, mitigation practices and infrastructure do schools have to reduce risk?
 - What is the age of students / grade level as younger students seem to pose lower risk than older ones?
 - What is the vaccination status of teachers and at-risk community members?

- When considering school reopening 2 things that seem contradictory are both in fact true:
 - Little transmission occurs between students-students and between students-teachers in classrooms such that classrooms are generally safe environments when mitigation practices are followed.
 - Closing schools has been one of the more effective government interventions to curb community transmission – primarily due to the numerous activities that coincide with classroom instruction not classroom instruction itself.

- Six broad things schools can do to mitigate risk:
 - Enforce mask policies for students, faculty, and staff
 - Maintain recommended physical distancing
 - Ensure adequate ventilation in classrooms
 - Create pods, cohorts, or staggered schedules to reduce mixing
 - Frequently sanitize high touch / high contact environmental objects
 - Develop contact tracing programs for known cases