

Covid-19 Disease Outbreak Outlook

Arizona State and Pima County

Updated August 28, 2020

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 August 23rd, 3222 new Covid-19 cases were diagnosed in Arizona (Figure 1). Given that >90% of PCR results are being reported within 48 hours, this count should remain stable over time. For example, last week's tally was upwardly revised by <1% (4503 to 4509 cases). While viral transmission continues to wane, absolute transmission levels remain as high as they were the week ending May 24 (3216 versus 3222 cases); therefore, continued vigilance is warranted.

The percent of patients testing PCR positive has declined from a peak of 23% the week ending July 25th to 5% the week ending August 23rd (Figure 2 following page). A declining test positive percentage in the face of stable testing frequency supports continued decline in viral transmission. Furthermore, this test positive percentage is near the recommended level to support adequate diagnostic and surveillance activities. While adequate capacity is necessary for optimal testing, it is not sufficient if state and local agencies are not conducting surveillance testing. The percent of patients testing positive on the antibody (serology) test has remained stable for the past 6 weeks at roughly 12%.

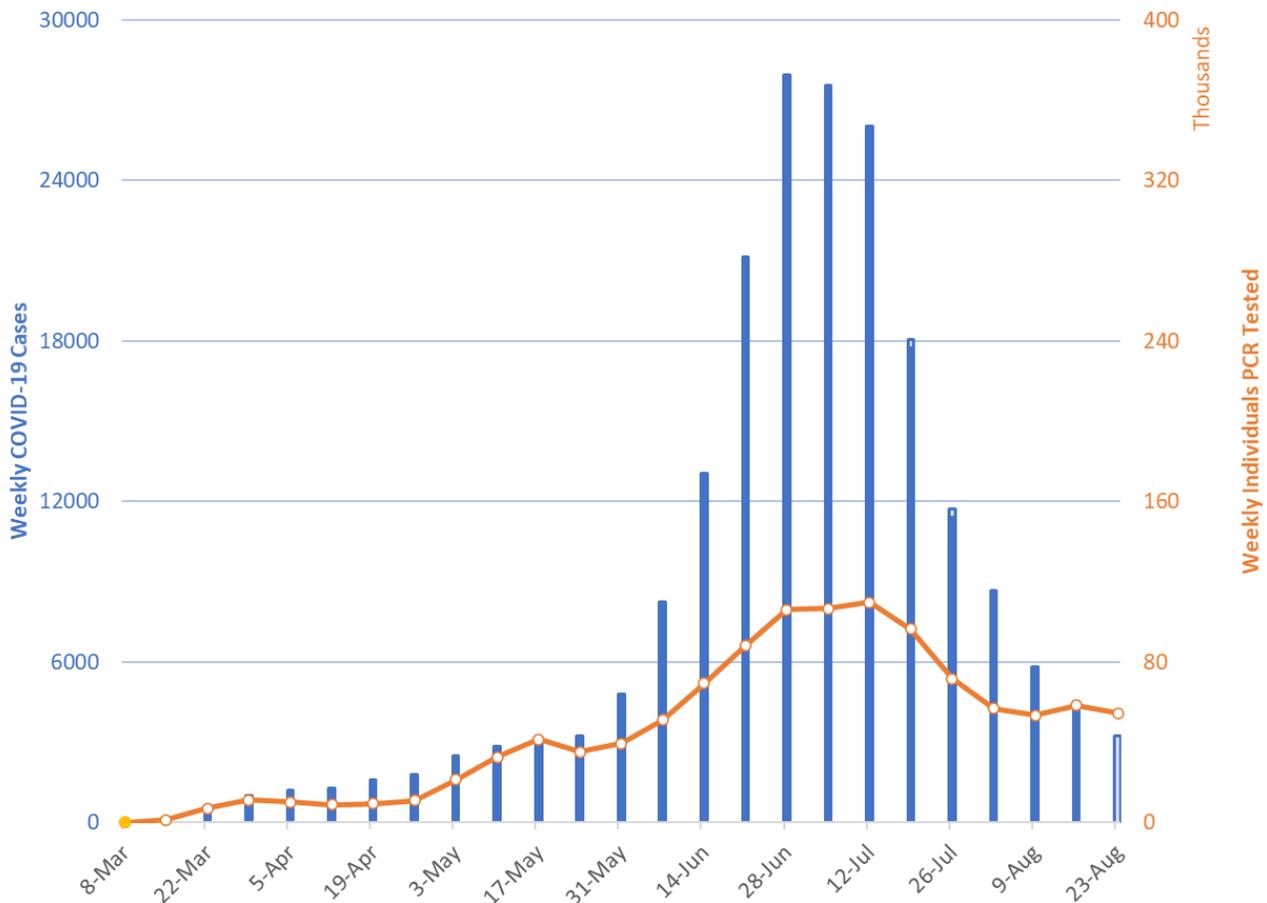


Figure 1. Newly Diagnosed Covid-19 Cases in Arizona and Number of Individuals Undergoing PCR Testing March 1 through August 23.

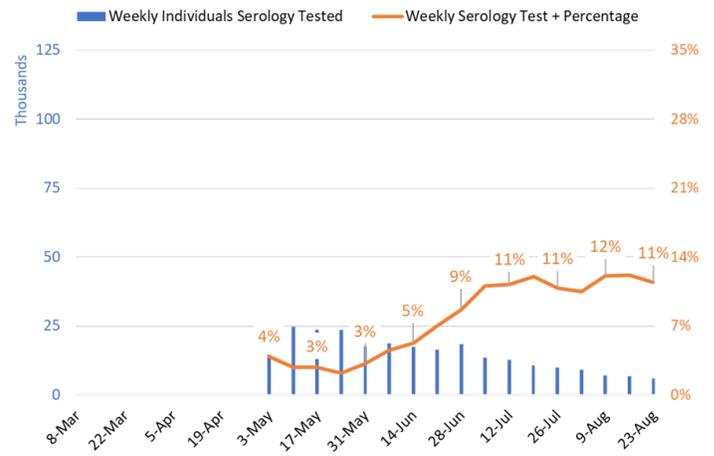
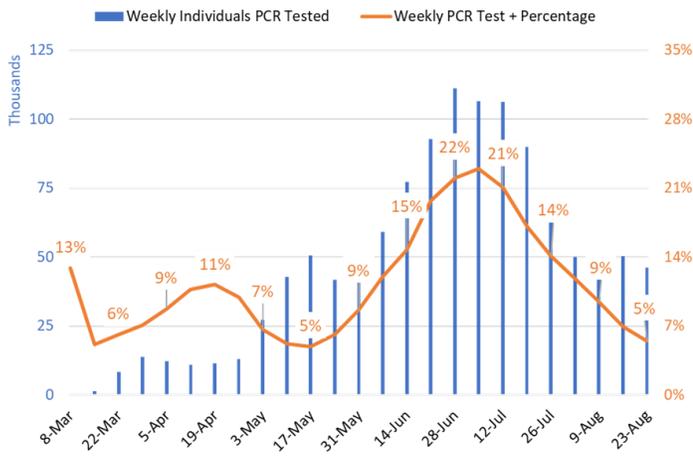


Figure 2. Weekly Number Patients Tested and Percent of Individuals with Positive Covid-19 PCR and Serology Results March 1 - August 23.

As of August 28, Covid-19 hospitalizations have returned to levels of the May 22nd plateau, 1074 versus 1093 occupied beds (Figure 3). Since last week, Covid-19 hospitalizations have decreased 18% from 1409 to 1074 occupied beds. Hospital occupancy should continue to decline.

As of August 28th, 812 (10%) of Arizona's 7945 general ward beds were occupied by patients with suspected or confirmed Covid-19 infection, a 22% decline from last week. An additional 1315 (17%) beds remain available which is slightly lower than last week's 1337 beds.

Similarly, 262 (16%) of Arizona's 1668 ICU beds were occupied for Covid-19 care, a 28% decrease from last week. An additional 351 beds (20%) beds remain available which is slightly lower than last week's 363 beds.

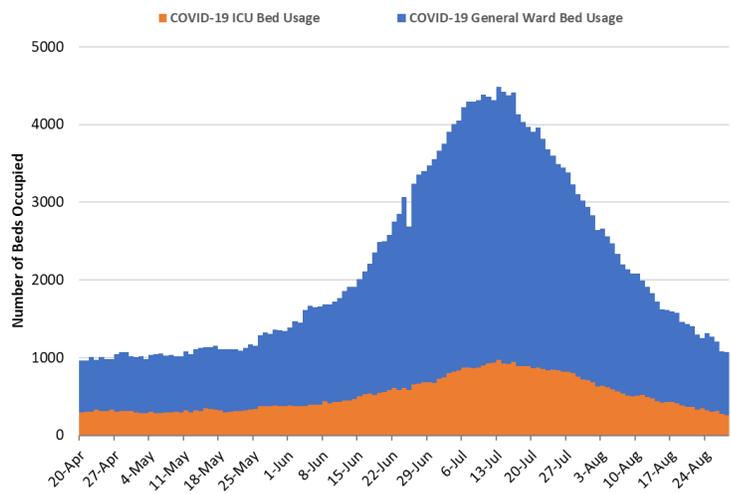


Figure 3. Arizona Daily Covid-19 General Ward and ICU Census April 20 - August 28.

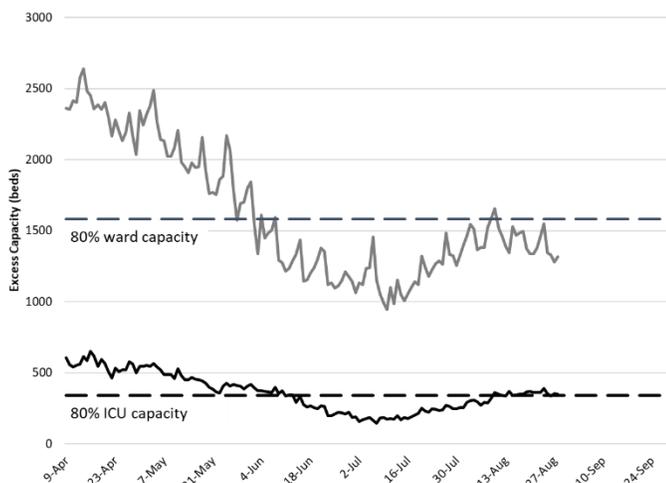


Figure 4. Observed and Projected Excess Non-Surge General Ward and ICU Capacity April 20 - September 31.

Arizona will not exceed its listed capacity of non-surge general ward or ICU beds unless improvements reverse (Figure 4). State-wide total occupancy for general ward beds has remained below the 80% threshold for the past several weeks. This is presumably to reduce the backlog of patients waiting for elective procedures. For example, non-Covid hospitalizations increased 4% last week from 5584 to 5818 beds.

ICU occupancy continues to hover at 80% occupancy, presumably for similar reasons. It will likely take several months before the backlog of care is fully resolved. However, we must also be concerned about the background rate of non-Covid-19 hospitalizations increasing as we move toward the late-fall, early-winter months.

With 569 deaths reported to date, the week ending July 19th remains Arizona's deadliest week (Figure 5). Because deaths are declining it is unlikely that we will see a higher weekly tally for the foreseeable future. This is definitely welcomed news.

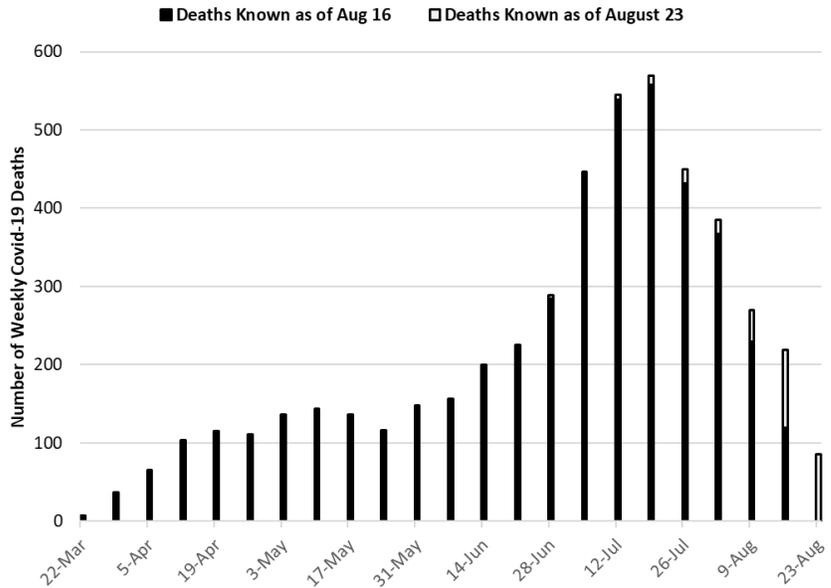


Figure 5. Weekly Arizona Covid-19 Deaths March 1 – August 23 by Date of Death

Pima County Outlook

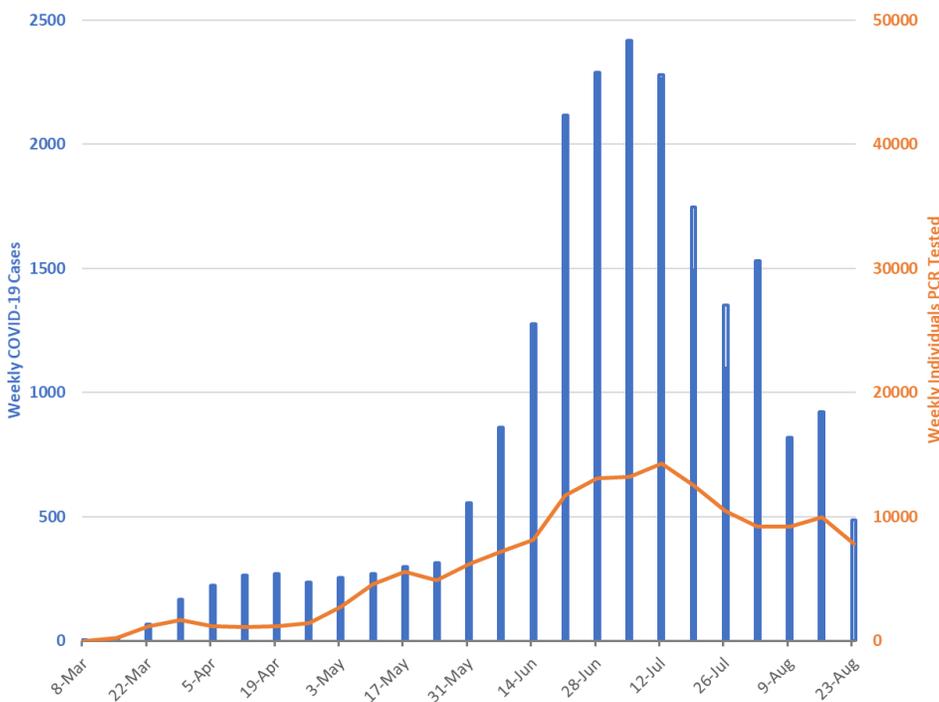


Figure 6. Newly Diagnosed Covid-19 Cases in Pima County and Individuals PCR Tested through August 23.

For the week ending August 23rd, 487 Pima County residents were diagnosed with Covid-19. This is a 47% decline from the 911 cases identified the week ending August 16th (Figure 6).

PCR reporting has improved in Pima County such that $\geq 90\%$ of results are reported within 48 hours; however, the county continues to struggle with unusual reporting trends.

For example, the weeks ending July 19 and 26 saw 250 additional cases backfilled this week. Additionally, the weeks ending August 2 and 16 were unexpectedly high.

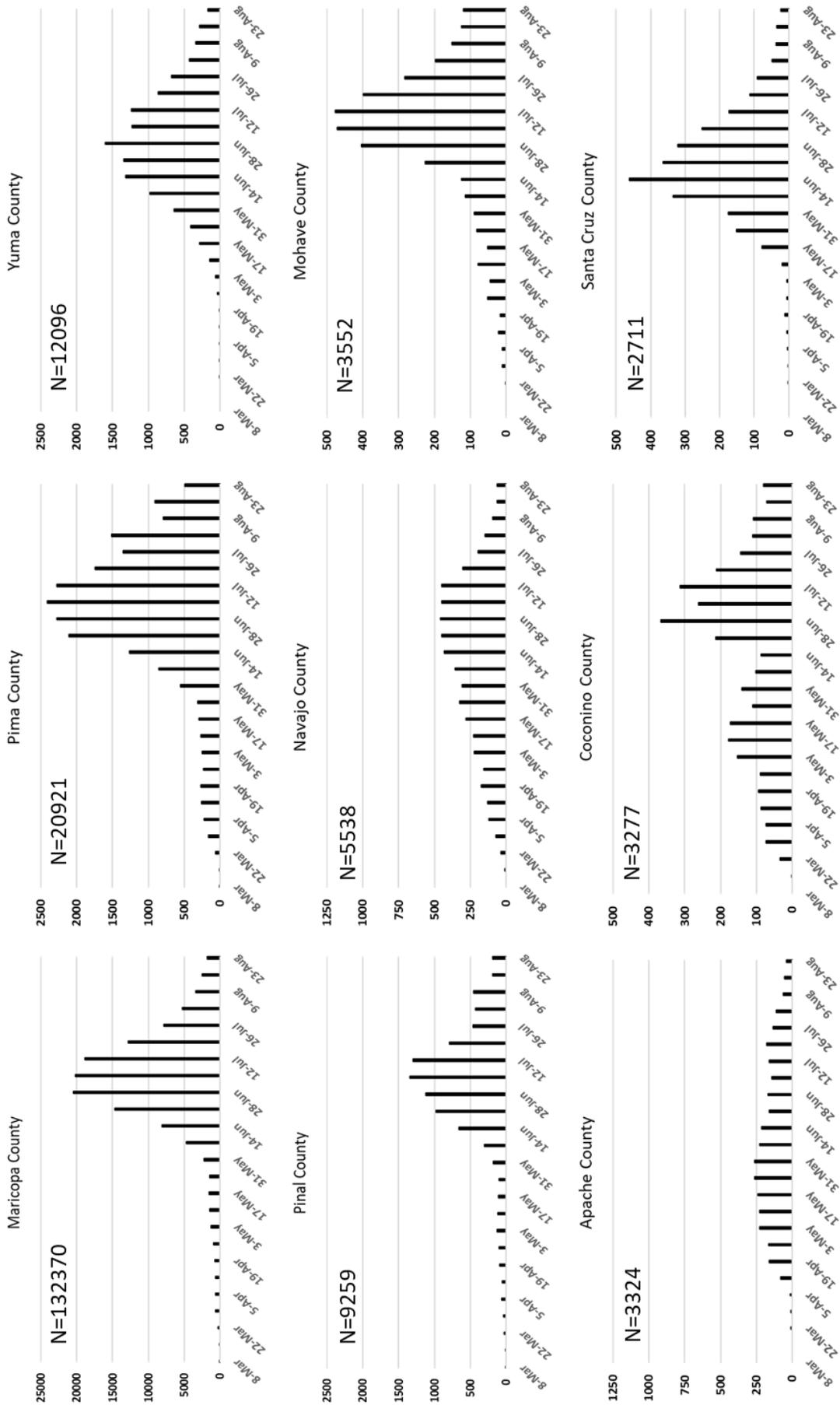
While the overall trend is downward and generally follows that of the state, the pace of Pima County's improvement bears careful scrutiny.

Summary:

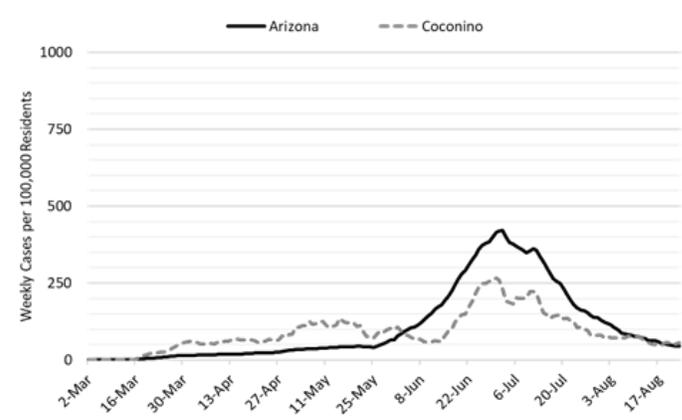
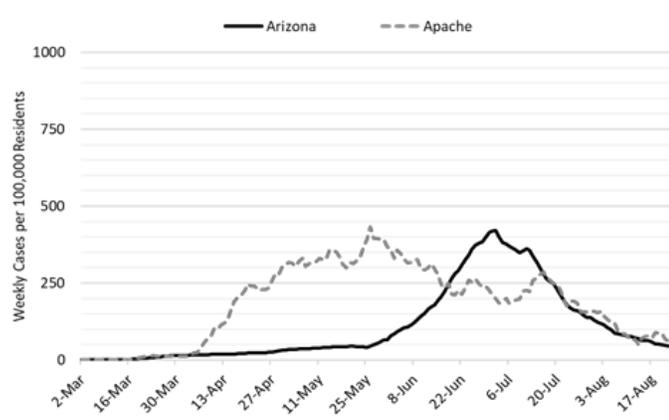
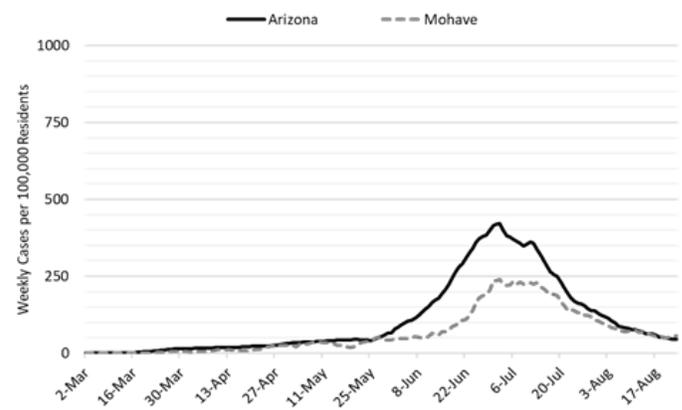
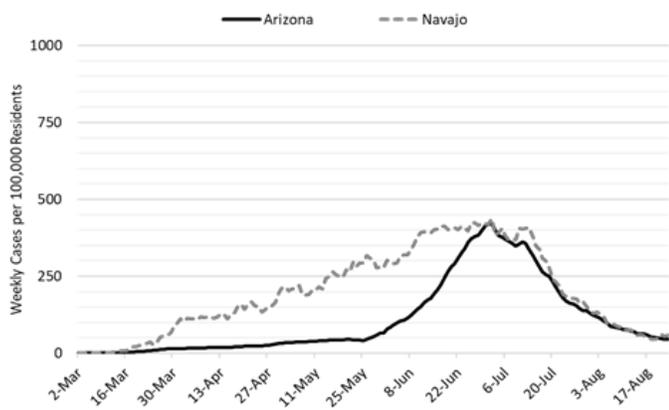
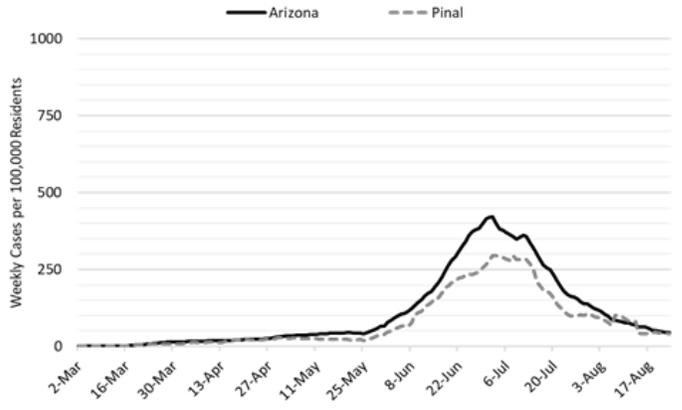
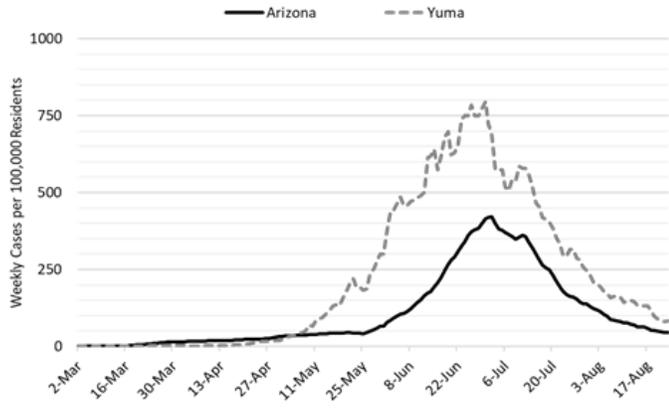
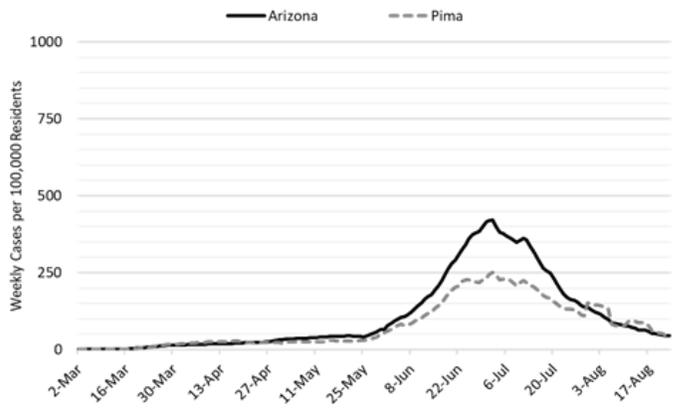
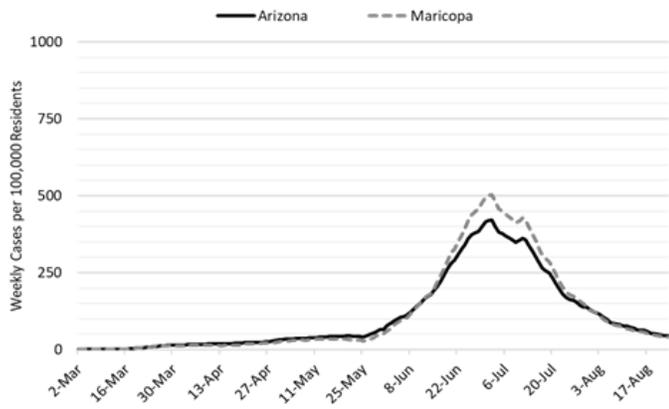
- The pace of viral transmission continues to slow appreciably as indicated by declining case counts, hospital utilization, and deaths.
 - Reporting lag for PCR results has improved such that ≥90% of results are returned within 48 hours making it easier to interpret changes in case counts and to conduct timely case identification, contact tracing, and isolation.
 - Absolute levels of community-driven viral transmission remain comparatively high as evidenced by weekly Covid-19 cases that are on par with those observed at the May 15th re-opening of Arizona's economy.
 - For most locales, mask-wearing ordinances will be needed for the foreseeable future to “claw back” excess hospital capacity, restore some of the lost safety margin, and address the backlog of patients waiting for “elective care.” We can expect to see resumption of some normal business activities in the coming weeks (e.g., schools and businesses) as case counts continue to decline.
- Covid-related hospital utilization continues to decline while excess capacity is no longer being replenished owing to larger amounts of non-Covid care. However, adequate capacity is available for the foreseeable future.
 - From now until January, non-Covid hospitalizations are expected to increase putting additional strain on hospital capacity. In addition, hospitals will continue to experience larger volumes of elective care to reduce the backlog of patients.
- Current Covid-19 test capacity is improving as evidenced by quicker turn-around of PCR test results and a PCR test positive percentage of 5% which is within the recommended 3 – 5% threshold.

Next update scheduled for September 4.

County Data (weekly crude and population-adjusted cases counts) appear in Appendix.

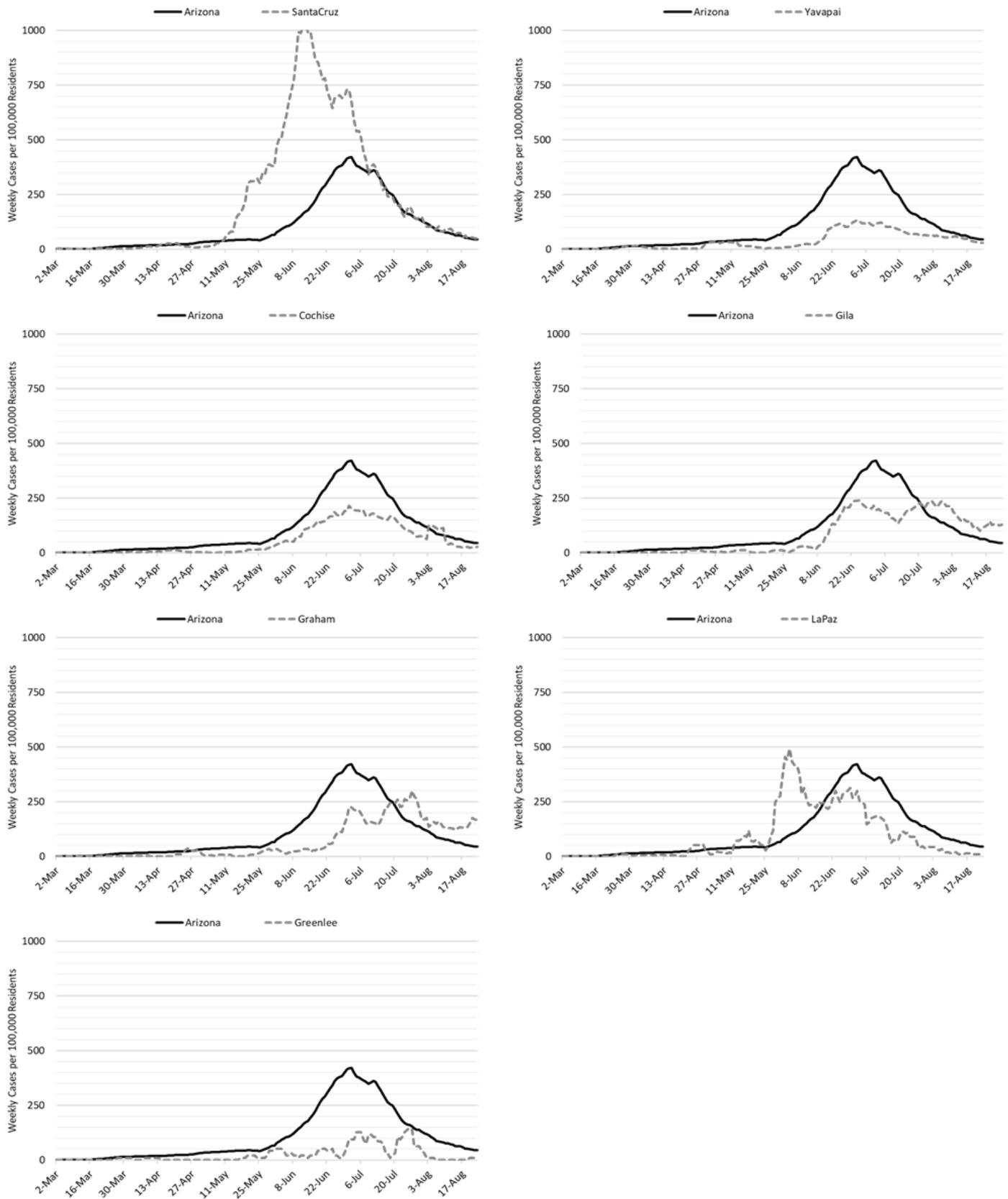


Appendix Figure 1. Weekly Covid-19 Cases by County March 1 – Aug 23.



Appendix Figure 2. Weekly Covid-19 Cases per 100,000 Residents by County March 1 – Aug 23.

Created by: Joe K. Gerald, MD, PhD (Associate Professor, Zuckerman College of Public Health, geraldj@email.arizona.edu) with gratitude to Patrick Wightman, PhD, MPP from the UA Center for Population Health Sciences for assistance with data analysis.



Appendix Figure 2. Weekly Covid-19 Cases per 100,000 Residents by County March 1 – Aug 23.

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