

Covid-19 Disease Outbreak Outlook

Arizona State and Pima County

Updated October 16, 2020

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For the week ending October 11th, 4841 new Covid-19 cases were diagnosed in Arizona (Figure 1). This represents a 21% increase from last week's revised tally of 3990 cases. Because delays in test reporting remain minimal, last week's initial tally of 3853 new cases was only upwardly revised this week by 4% (137 cases).

Covid-19 trends among those 15 – 24 years are now mirroring those of other age groups. Specifically, new diagnoses are now increasing among all age groups. From last week to this week, there were 67 more cases among those <15 years, 124 more among those 15 – 24 years, 607 more among those 25 – 64 years, and 53 more among those ≥65 years (Figure 2 following page).

Broadly rising case counts warrant reappraisal of government policies and individuals' adherence with face masks, physical distancing, and hand hygiene practices. Current transmission levels are comparable to those of the last week of May when 4787 cases were diagnosed. Four weeks later, Arizona's reached its peak during the last week of June when 27812 cases were diagnosed. Once momentum builds, case counts can rapidly increase.

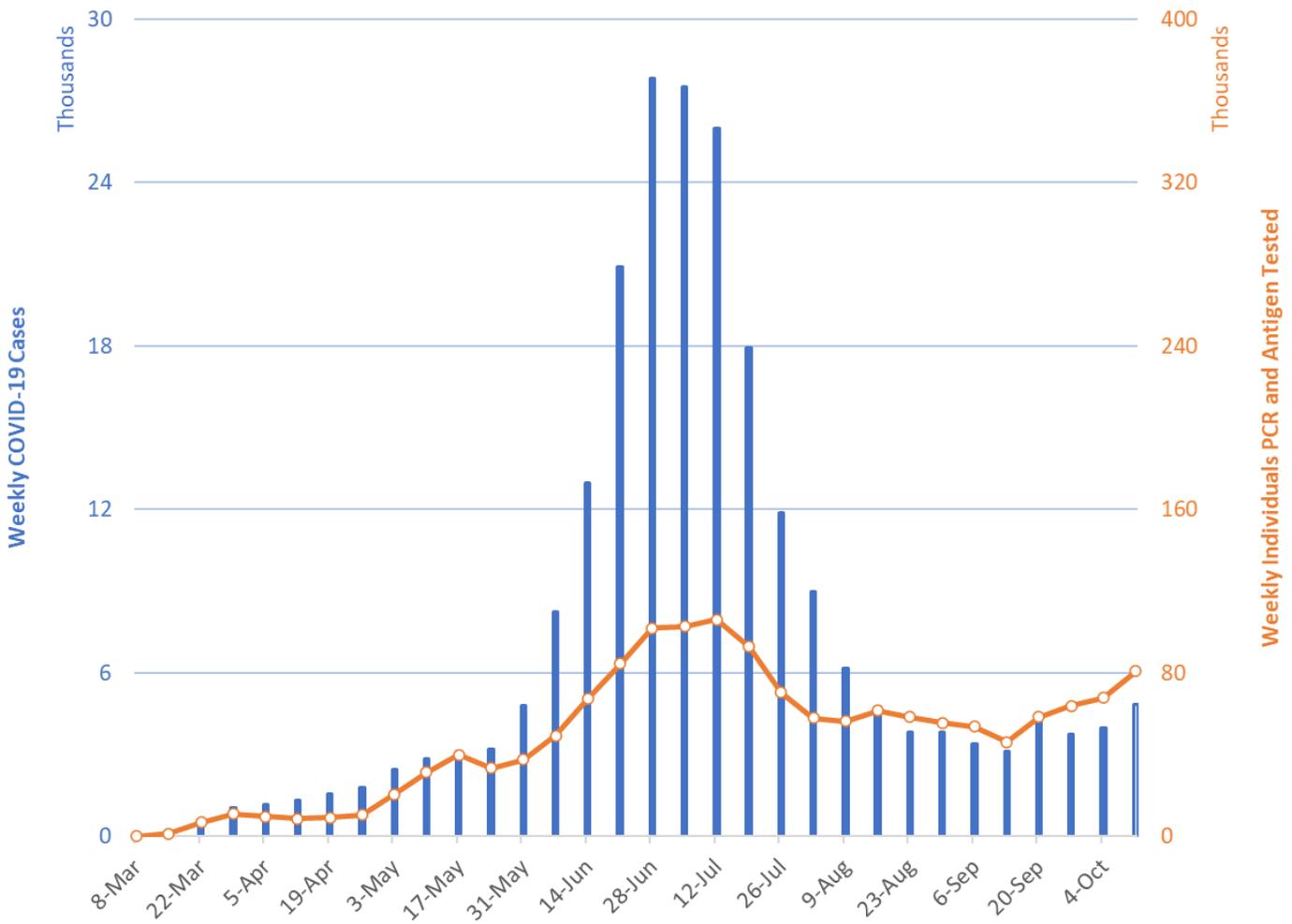


Figure 1. Newly Diagnosed Covid-19 Cases in Arizona and Number of Individuals Undergoing PCR and Antigen Testing March 1 through October 11.

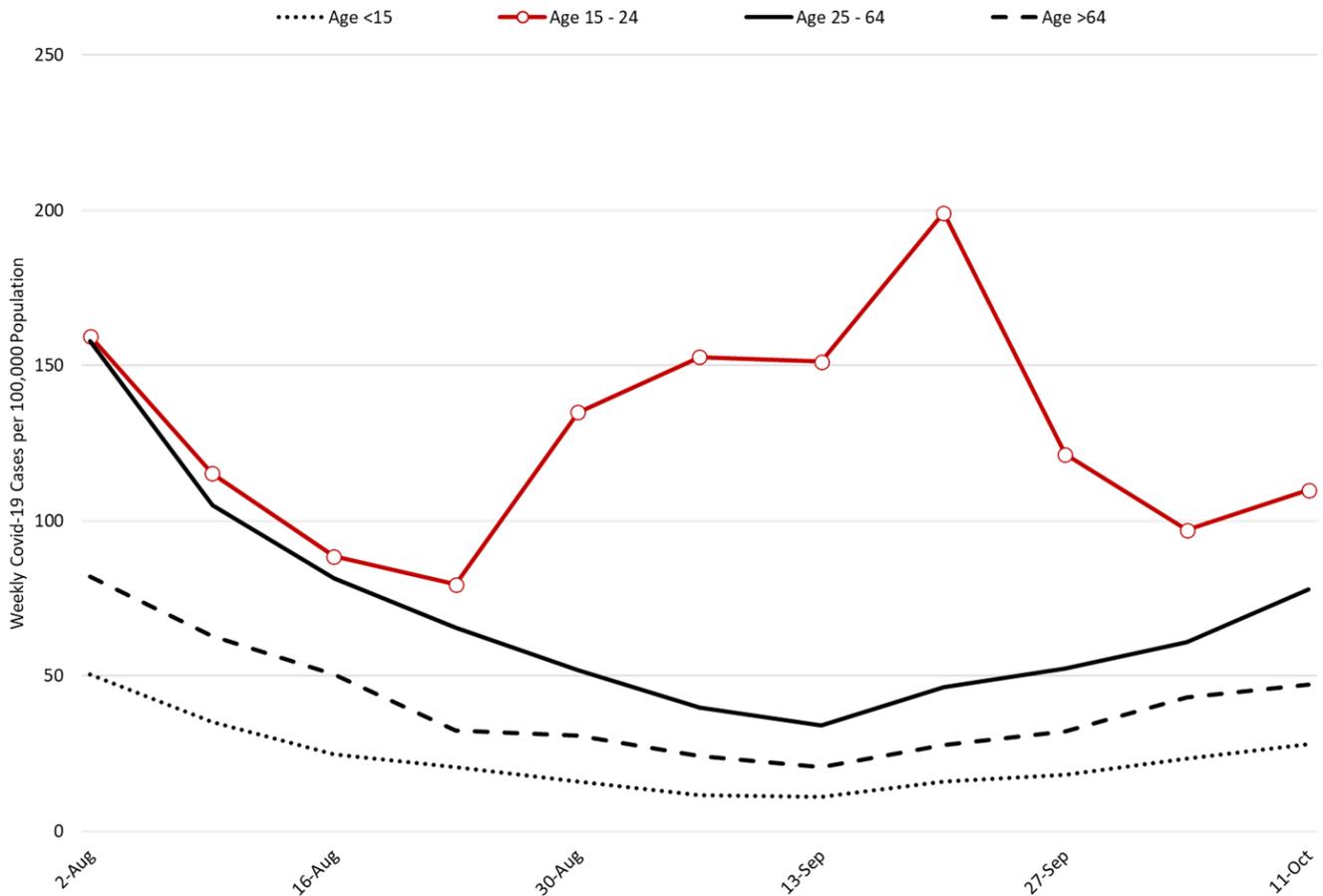


Figure 2. Newly Diagnosed Covid-19 Cases in Arizona by Age Group July 27 through October 11.

Test positivity among those undergoing PCR testing, including saliva testing, has fluctuated between 5 – 6% for the past 9 weeks (Figure 3). Since a nadir of 4.8% was reached the week ending September 6th, positivity has been slowly increasing. This week it was 6.5%. Test positivity is increasing in conjunction with case counts as one might expect.

Test positivity for antigen tests being conducted by the University of Arizona and by some long-term care facilities and retail clinics was 2.2% (Figure 4 following page, left panel).

Test positivity for saliva testing being conducted by Arizona State University for students and other groups was 3.8% (Figure 4 following page, right panel).

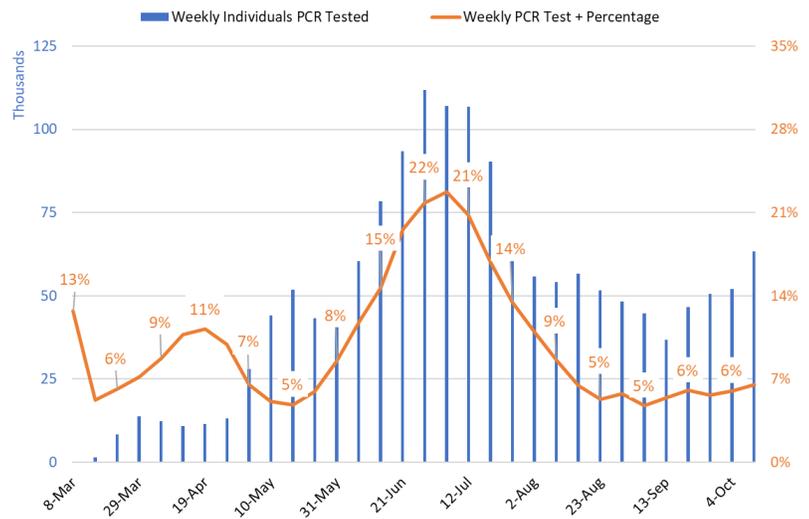


Figure 3. Weekly Number Patients PCR Tested and Percent with Positive Test March 1 – October 11.

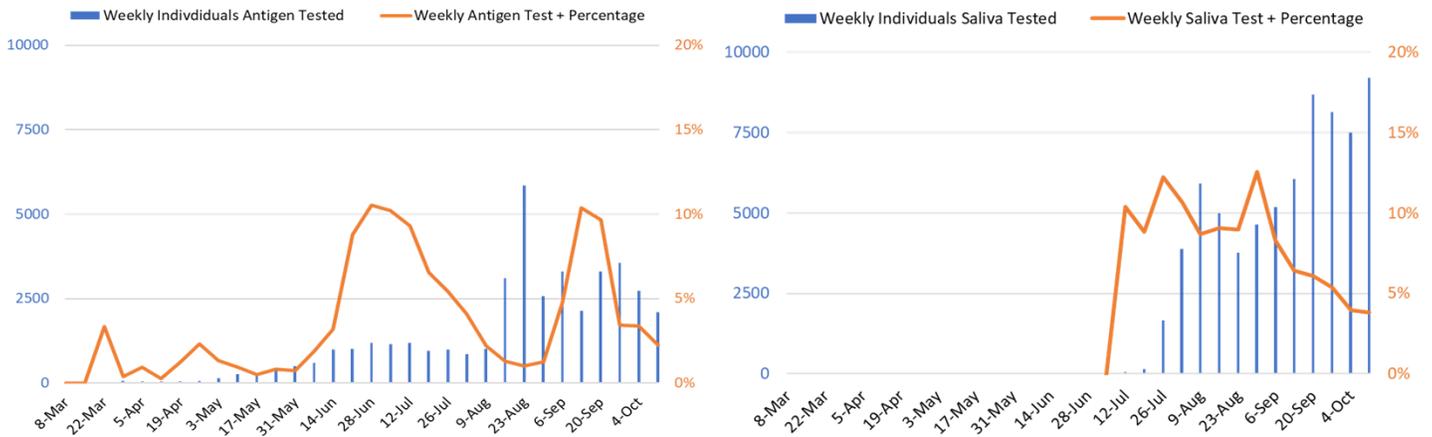


Figure 4. Weekly Number Patients Undergoing Covid-19 Antigen (left) and Saliva (right) Testing and Corresponding Percent Positive Results March 1 – October 11.

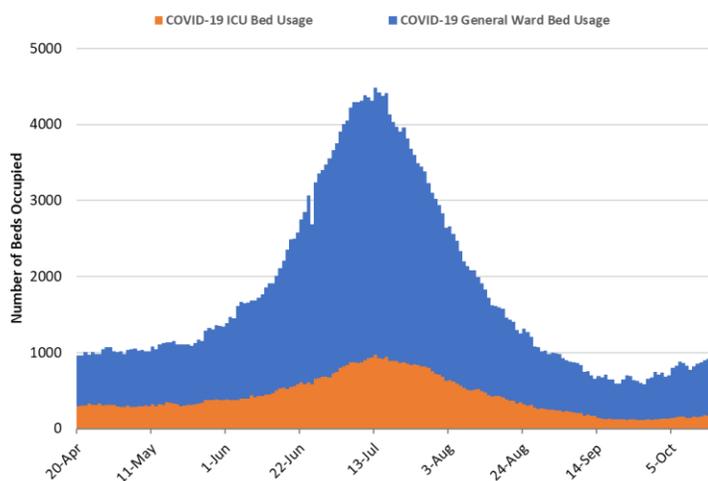


Figure 5. Arizona Daily Covid-19 General Ward and ICU Census April 20 – October 16.

The percentage of general ward beds occupied by patients with confirmed or suspected Covid-19 has increased from a low of 6.2% on September 13th to 9.0% on October 9th (Figure 6). While some of the increase general ward occupancy is attributable to more hospitals reporting, some is due to increasing transmission of Covid-19 among vulnerable groups.

As of October 16th, 174 (10%) of Arizona’s 1667 ICU beds were occupied with Covid-19 patients, a 20% increase from last week. An additional 282 (17%) ICU beds remain available which is lower than last week’s 344 beds. While Arizona hospitals will not exceed their listed capacity in the near future, their safety margin is now slowly eroding (Figure 7).

As of October 16th, 931 hospital beds were occupied by patients with suspected or confirmed Covid-19. This is higher than the 830 beds reported last week (Figure 5). Because this increase coincides with a decrease in general ward capacity, it indicates Covid-19 hospitalizations are truly increasing.

As of October 16th, 757 (9%) of Arizona’s 8387 general ward beds were occupied by Covid-19 patients, an 11% increase from last week’s 685 occupied beds. Total ward capacity simultaneously decreased by 332 beds, 8719 beds to 8387 beds. An additional 1304 (16%) beds remained available for use. This is lower than last week’s 1369 available beds.

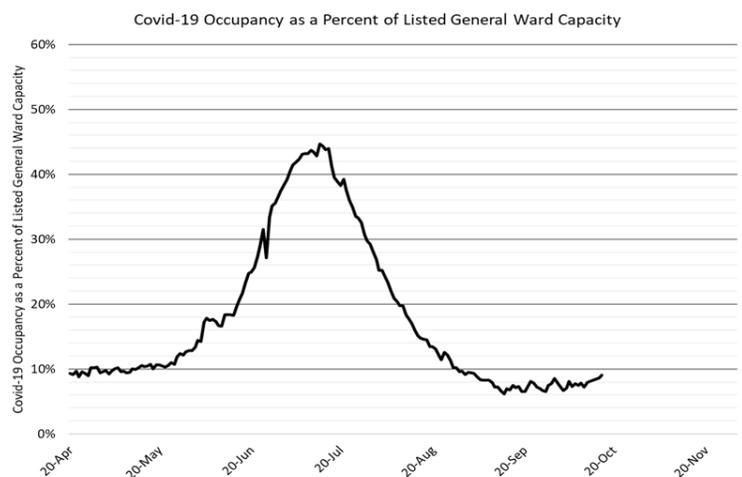


Figure 6. Covid-19 Occupancy as a Percent of Listed General Ward Capacity in Arizona April 20 – October 9.

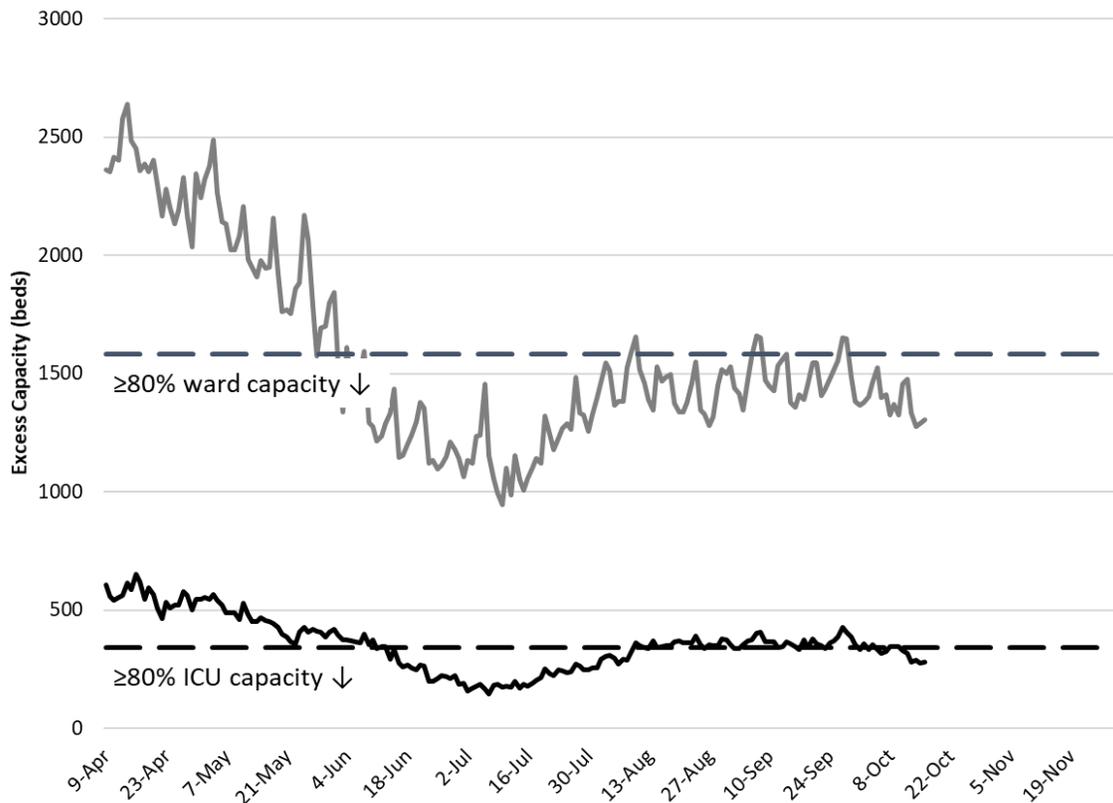


Figure 7. Observed Excess Non-Surge General Ward and ICU Capacity April 20 – October 16.

With 609 deaths, the week ending July 19th remains Arizona’s deadliest week (Figure 8). Because new case counts are once again beginning to increase, mortality trends are expected to reverse by the end of the month.

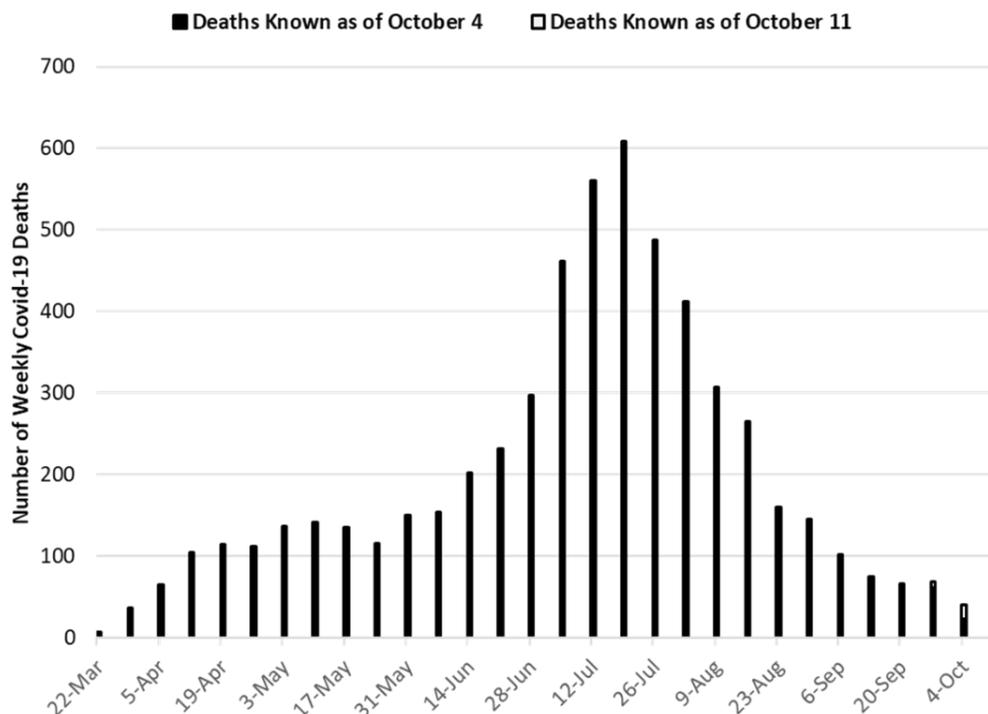


Figure 8. Weekly Known Arizona Covid-19 Deaths March 1 – October 11.

Pima County Outlook

For the week ending October 11th, 498 Pima County residents were diagnosed with Covid-19 (Figure 9). This represents a 7% reduction from the 536 confirmed cases last week. Test reporting remains relatively timely as last week's initial report of 517 new cases was only upwardly revised by 4% (19 cases) this week. The reduction in new cases is exclusively attributable to fewer cases among those 15 – 24 years of age. From last week to this week, there were 66 fewer cases among those 15 – 24 years. Conversely, there were 28 more cases among those of all other age groups.

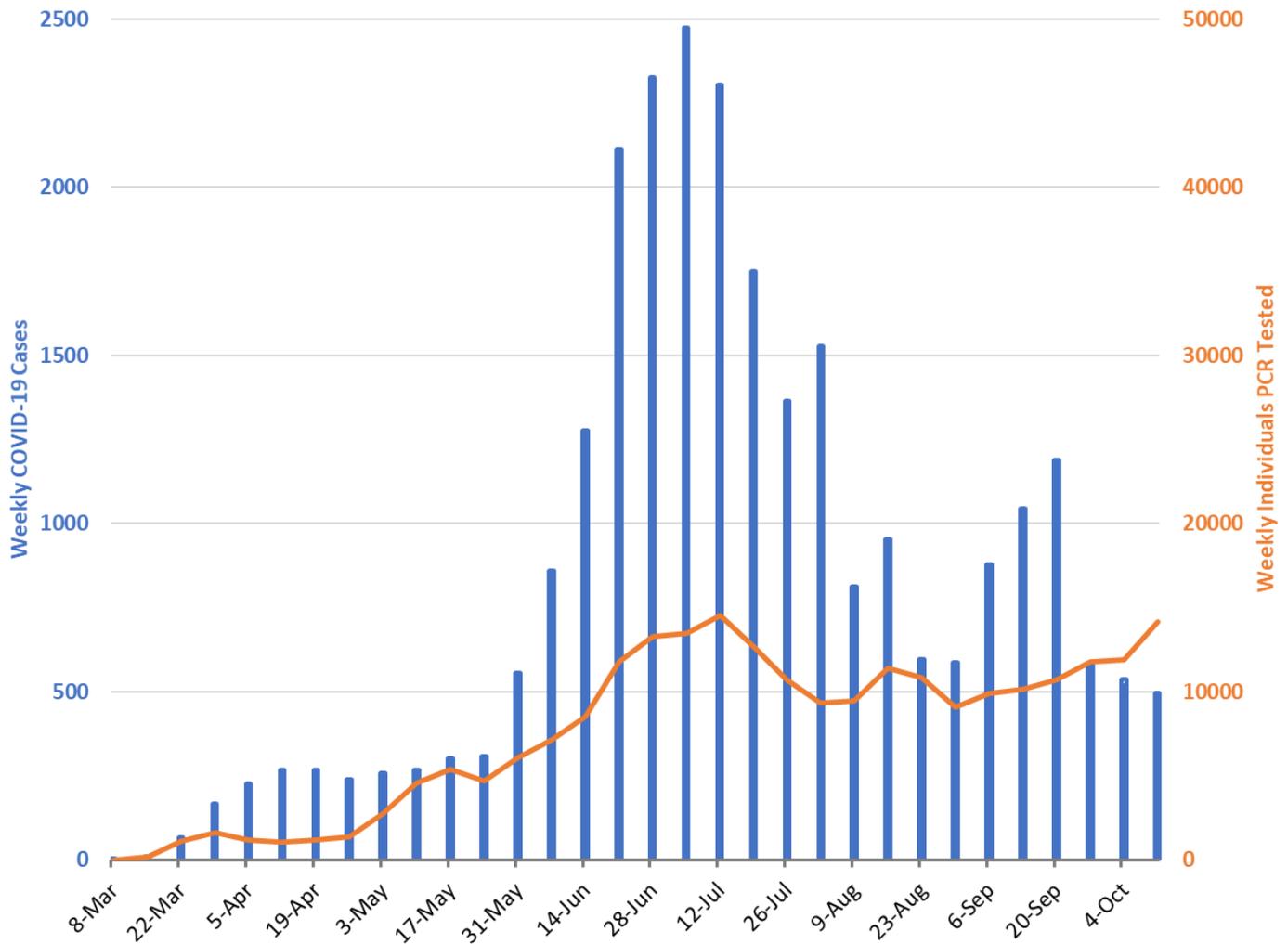


Figure 9. Covid-19 Cases and Individuals PCR and Antigen Tested in Pima County from March 1 - October 11.

University Outlook

Both the [University of Arizona](#) and [Arizona State University](#) report aggregate cases. The University of Arizona has reported 2418 cases since July 31st which is only somewhat higher than the 2384 identified this time last week (Figure 10).

ASU has reported 1980 cases since August 1st which is also somewhat higher than the 1922 cases reported this time last week. The impact of both universities on county-specific aggregate data are shown in Figure 11).

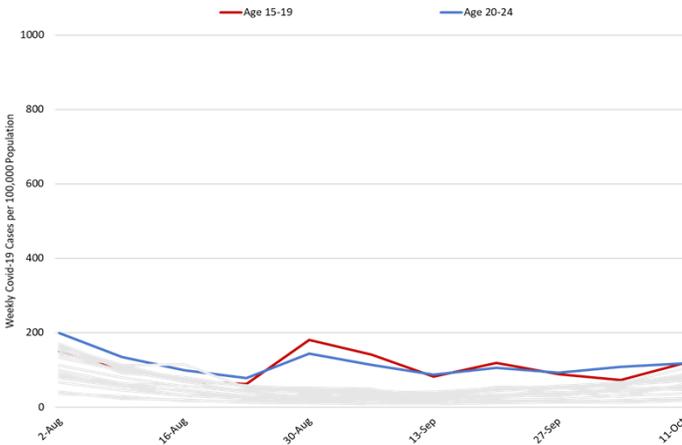
In summary, Maricopa County experienced increased case rates among those 15 –24 years during the last week of August. These rates are now generally holding steady. Pima County experienced a later, a larger, and a more sustained increase. Nevertheless, its cases rates continue to decline.

7-Day Average of Positive Test Results



Figure 10. 7-Day Average of Covid-19 Cases Identified by University of Arizona through October 16 as Reported on the UA Dashboard.

Maricopa County



Pima County

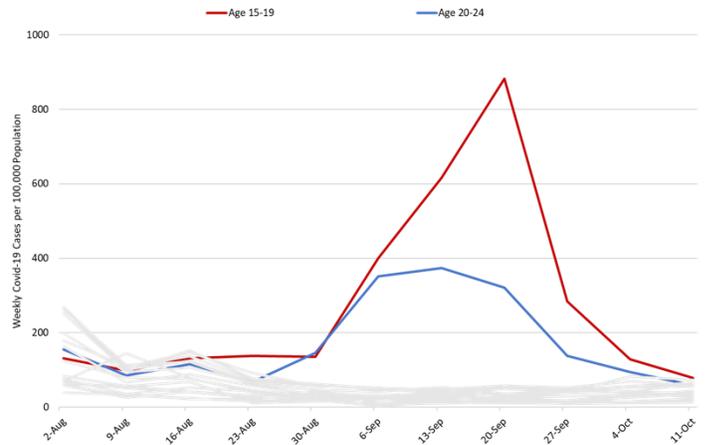


Figure 11. Population-Normed Covid-19 Cases per 10,000 population by Age Group Jul 27 – October 11 in Maricopa and Pima Counties (best viewed in color).

Summary:

- The previously observed bifurcation in Arizona's Covid-19 outbreak between those aged 15 – 24 years and everyone else has now converged into a single trend marked by slowly increasing viral transmission among all age groups.
 - Community-driven viral transmission is now equivalent to that seen during the last week of May (4800 weekly cases) when Arizona was only 4 weeks away from its summer peak (27800 weekly cases).
 - Mask-wearing ordinances will be needed for the foreseeable future to mitigate the spread of Covid-19.
 - Additional measures are now needed to address “quarantine fatigue” before the viral respiratory season which is fast approaching. If current trends are not reversed, Arizona is on track to experience a major resurgence during the Thanksgiving – Christmas – New Year holidays.
- Recent increases in Covid-related hospital utilization are unlikely to be attributable to hospital reporting compliance. Instead, rising occupancy is almost certainly due to increasing transmission among vulnerable groups.
 - While adequate excess capacity remains available in ward and ICU beds for the near future, the safety margin is now declining and will continue to do so for the foreseeable future.
- While current Covid-19 test capacity is adequate as evidenced by quick turn-around for PCR results and a PCR test positivity of 5 - 6%, test positivity for traditional PCR testing is now slowly trending up along with new case rates.
- Covid-19 mortality continues to decline; however, this trend is likely to halt or reverse by the end of the month if current trends continue unabated.

Next update scheduled for October 23.

No County Data appear this week.