

Covid-19 Disease Outbreak Outlook

Arizona State and Pima County

Updated October 21, 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 October 18th, 5779 new Covid-19 cases were diagnosed in Arizona (Figure 1). This represents an 18% increase from last week's revised tally of 4901 cases. Because delays in test reporting remain minimal, last week's initial tally of 4841 new cases was only upwardly revised this week by 1% (60 cases).

Covid-19 trends among those 15 – 24 years, like those of other age groups, demonstrate a slow but steady increase. From last week to this week, there were 146 more cases among those <15 years, 74 more among those 15 – 24 years, 591 more among those 25 – 64 years, and 67 more among those ≥65 years (Figure 2 following page).

Rising case counts warrant reappraisal of government policies as well as individuals' adherence with face masks, physical distancing, and hand hygiene practices. Current transmission levels are somewhat higher than those observed during the last week of May when 4787 cases were diagnosed. A mere 4 weeks later, Arizona's case count reached a peak of 27812 cases. Given the possibility of exponential growth, current conditions could deteriorate rapidly.

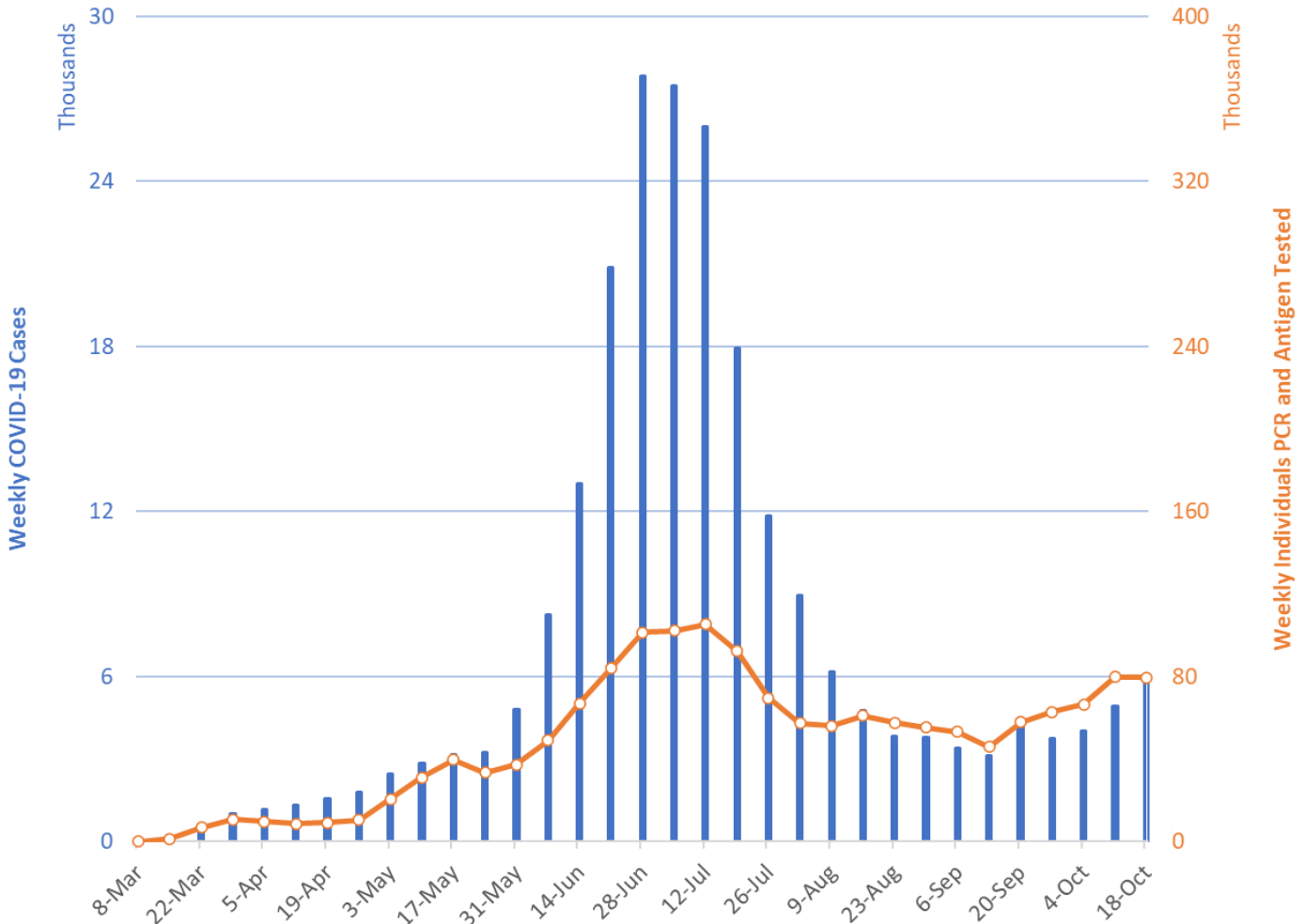


Figure 1. Newly Diagnosed Covid-19 Cases in Arizona and Number of Individuals Undergoing PCR and Antigen Testing March 1 through October 18.

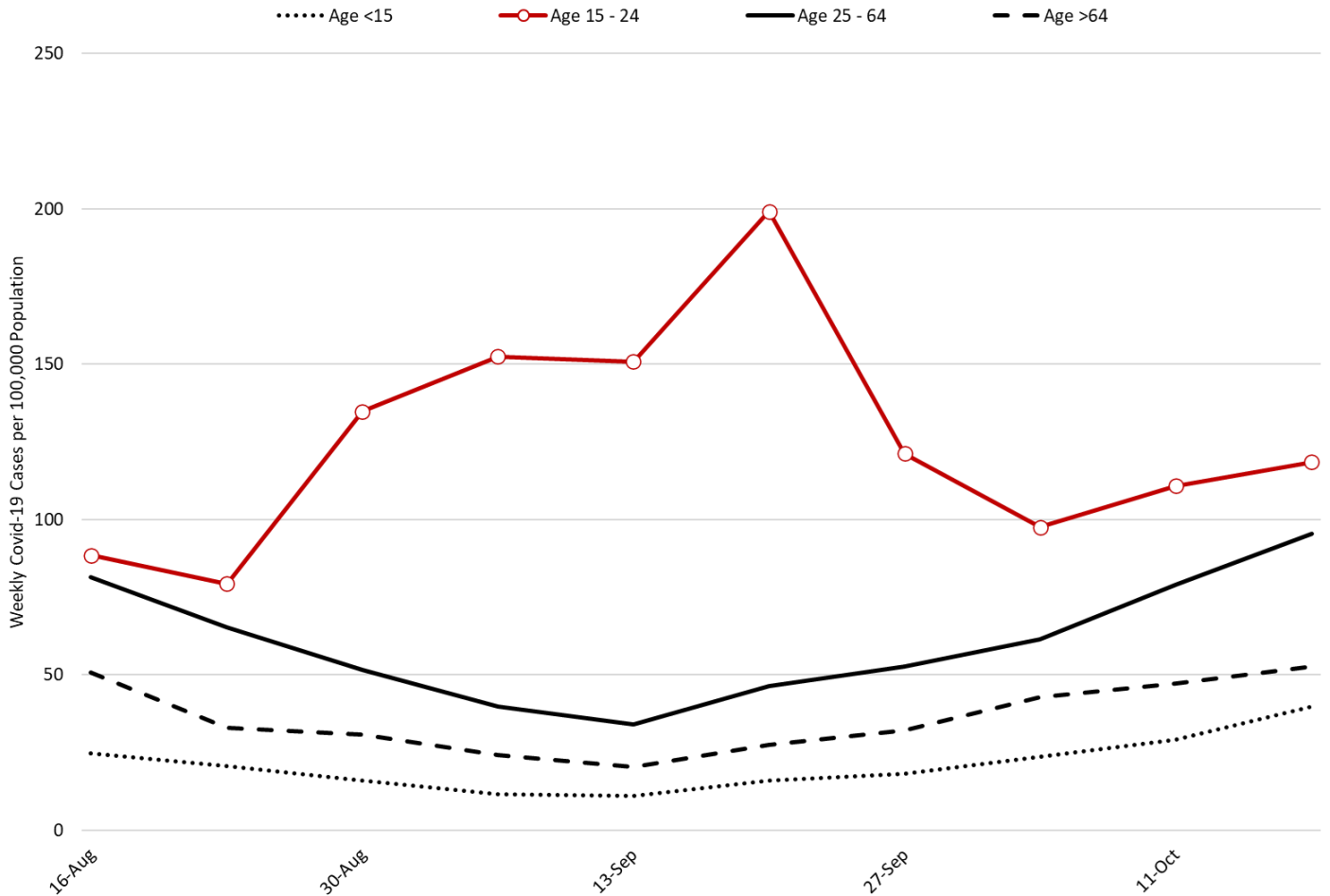


Figure 2. Newly Diagnosed Covid-19 Cases in Arizona by Age Group August 9 through October 18.

Test positivity among those undergoing PCR testing, including saliva testing, increased to 8% this week up from the 5 – 6% positivity rate seen through September and early October (Figure 3). From a nadir of 4.8% during the week ending September 6th, positivity has since increased to 7.9%.

Test positivity for antigen tests being conducted by the University of Arizona and by some long-term care facilities and retail clinics increased slightly this week to 3.4% (Figure 4 following page, left panel). Similarly, test positivity for saliva testing being conducted by Arizona State University for students and other groups increased to 5.6% (Figure 4 following page, right panel).

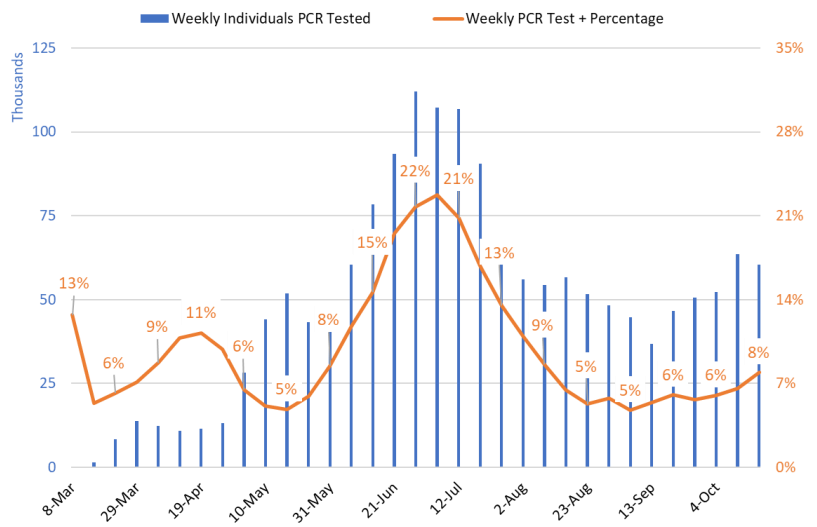


Figure 3. Weekly Number Patients PCR Tested and Percent with Positive Test March 1 – October 18.

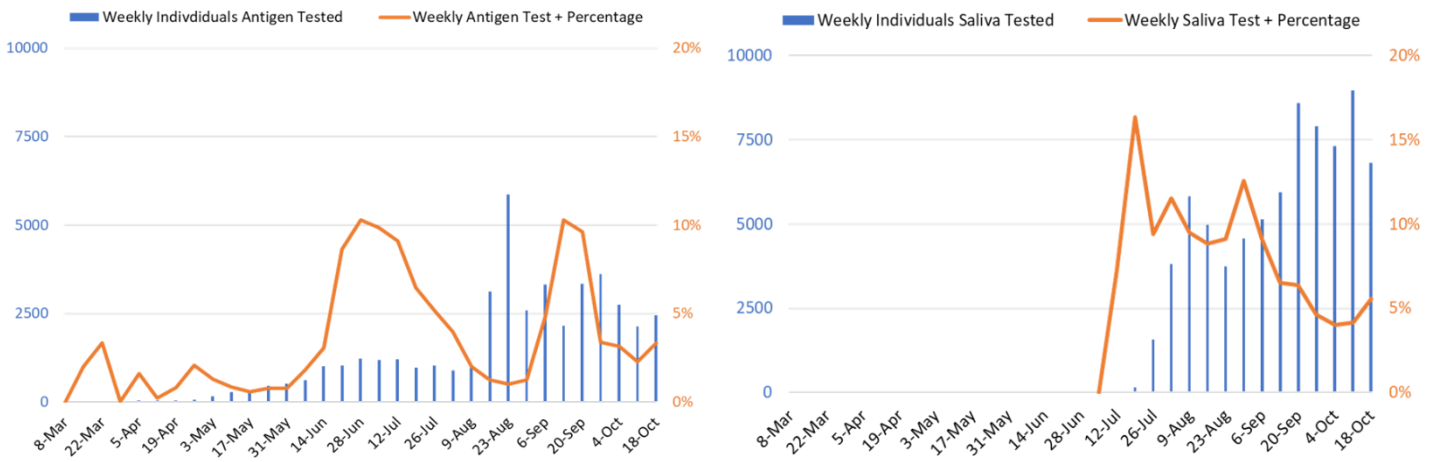


Figure 4. Weekly Number Patients Undergoing Covid-19 Antigen (left) and Saliva (right) Testing and Corresponding Percent Positive Results March 1 – October 18.

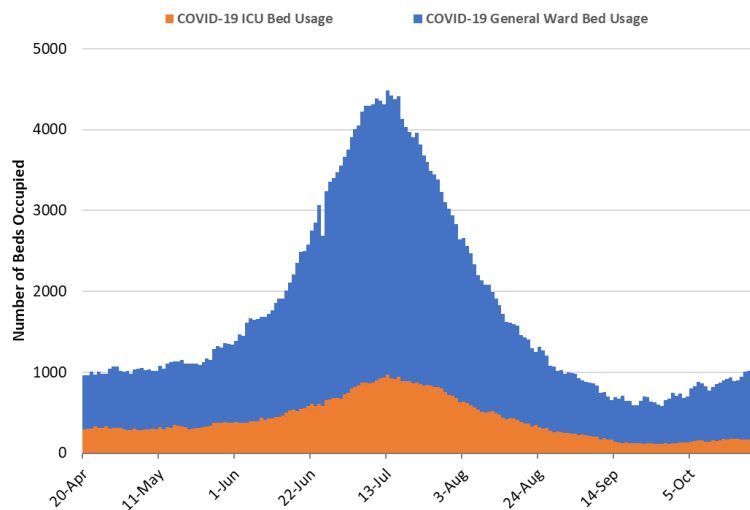


Figure 5. Arizona Daily Covid-19 General Ward and ICU Census April 20 – October 21.

As of October 21st, 1012 Arizona hospital beds were occupied by patients with suspected or confirmed Covid-19. This is higher than the 899 beds occupied last week (Figure 5).

Specifically, 848 (10%) of Arizona’s 8620 general ward beds were occupied by Covid-19 patients, an 17% increase from last week’s 726 occupied beds. An additional 1148 (13%) beds remained available for use which is lower than last week’s 1304 available beds.

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 9.9% on October 21st (Figure 6). Much of this is attributable to Covid-19 transmission among vulnerable groups.

As of October 21st, 164 (10%) of Arizona’s 1670 ICU beds were occupied with Covid-19 patients, a 5% decrease from last week. An additional 267 (16%) ICU beds remain available which is lower than last week’s 282 beds. Arizona hospitals’ safety margin of available beds is continuing to erode (Figure 7).

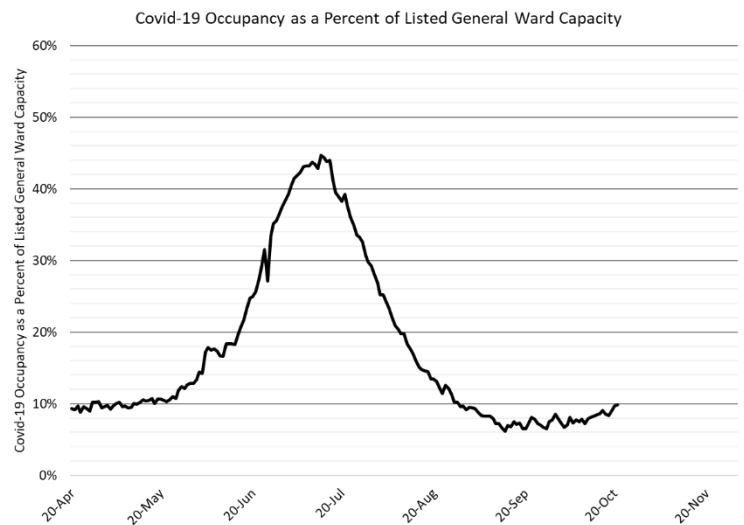


Figure 6. Covid-19 Occupancy as a Percent of Listed General Ward Capacity in Arizona April 20 – October 21.

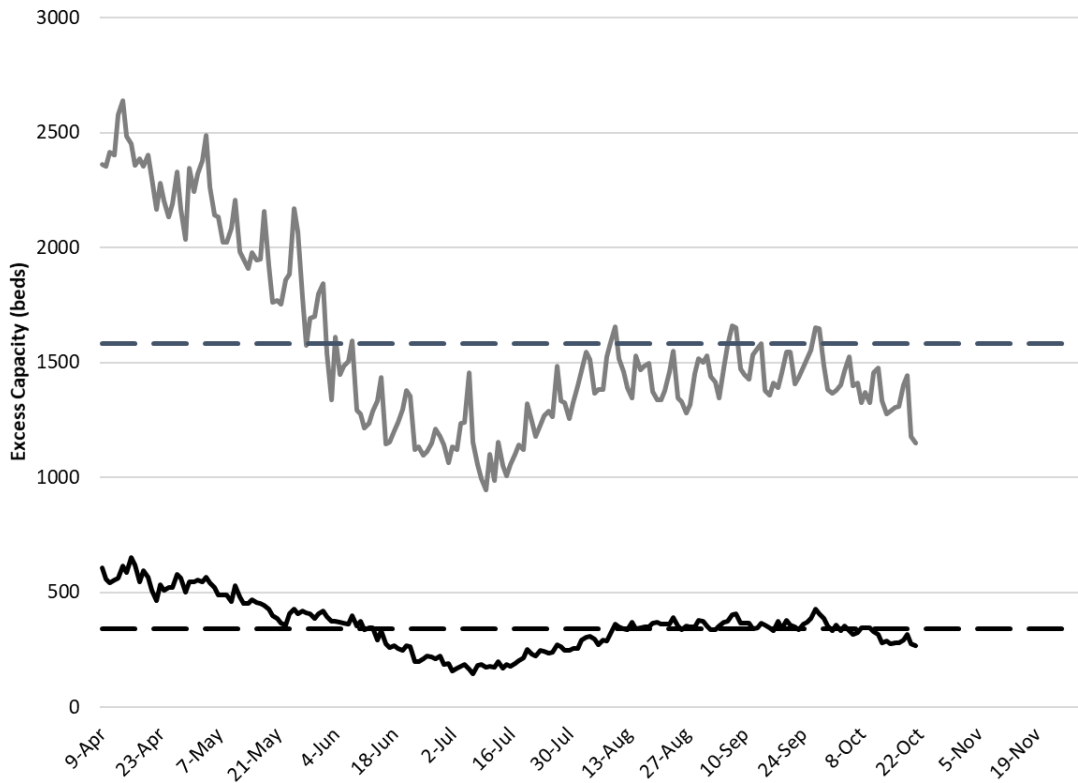


Figure 7. Observed Excess Non-Surge General Ward and ICU Capacity April 20 – October 21.

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

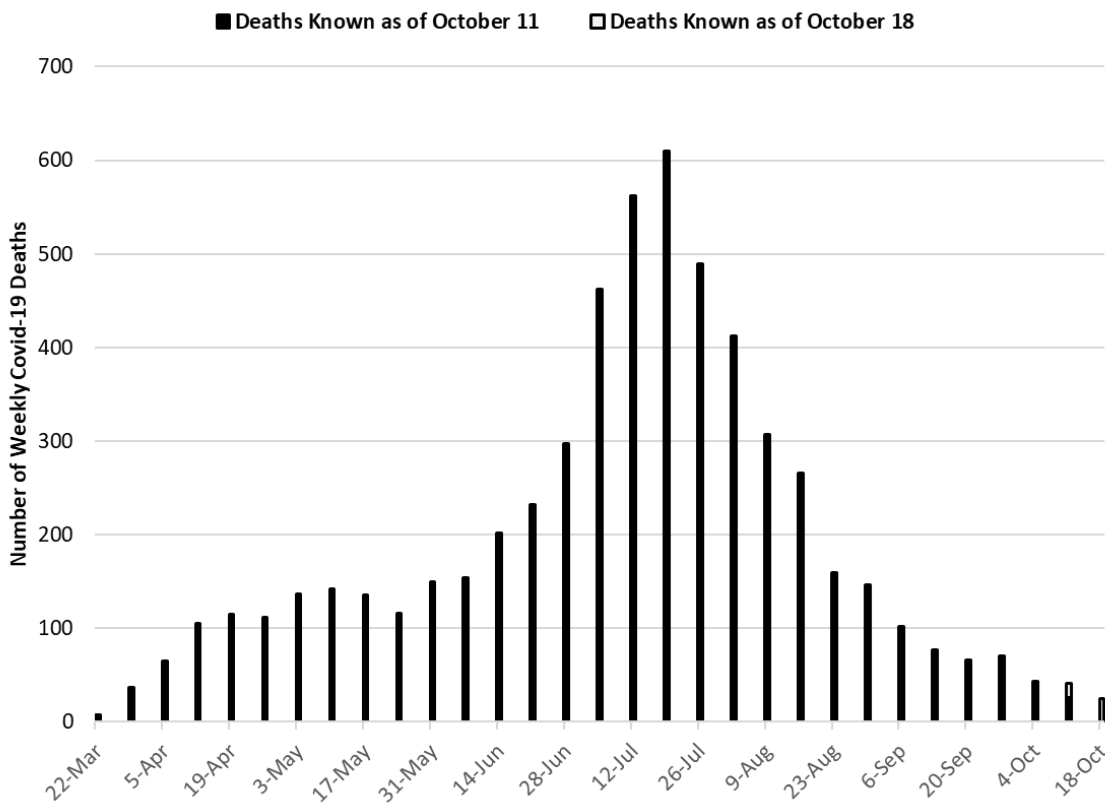


Figure 8. Weekly Known Arizona Covid-19 Deaths March 1 – October 18.

Pima County Outlook

For the week ending October 18th, 488 Pima County residents were diagnosed with Covid-19 (Figure 9). This represents a 2% reduction from the 496 confirmed cases last week. Test reporting remains relatively timely as last week's initial report of 498 new cases was revised downward by 2 cases this week. From last week to this week, there were 3 more cases among those <15 years, 7 more cases among those 15 – 24 years, 4 fewer among those 25 – 64, and 14 fewer among those >64 years (Figure 10).

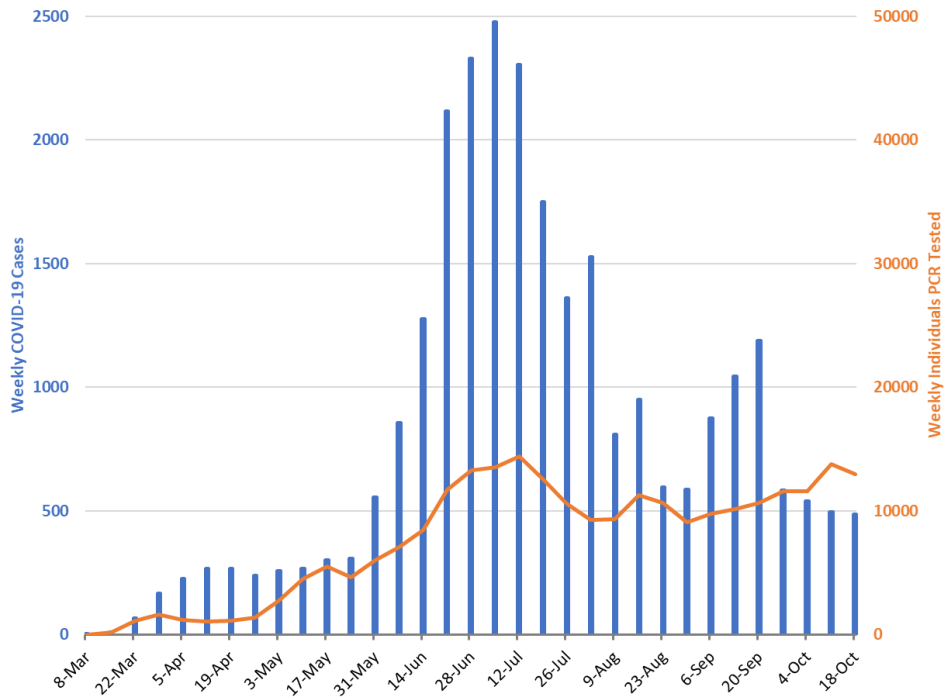


Figure 9. Covid-19 Cases and Individuals PCR and Antigen Tested in Pima County from March 1 - October 18.

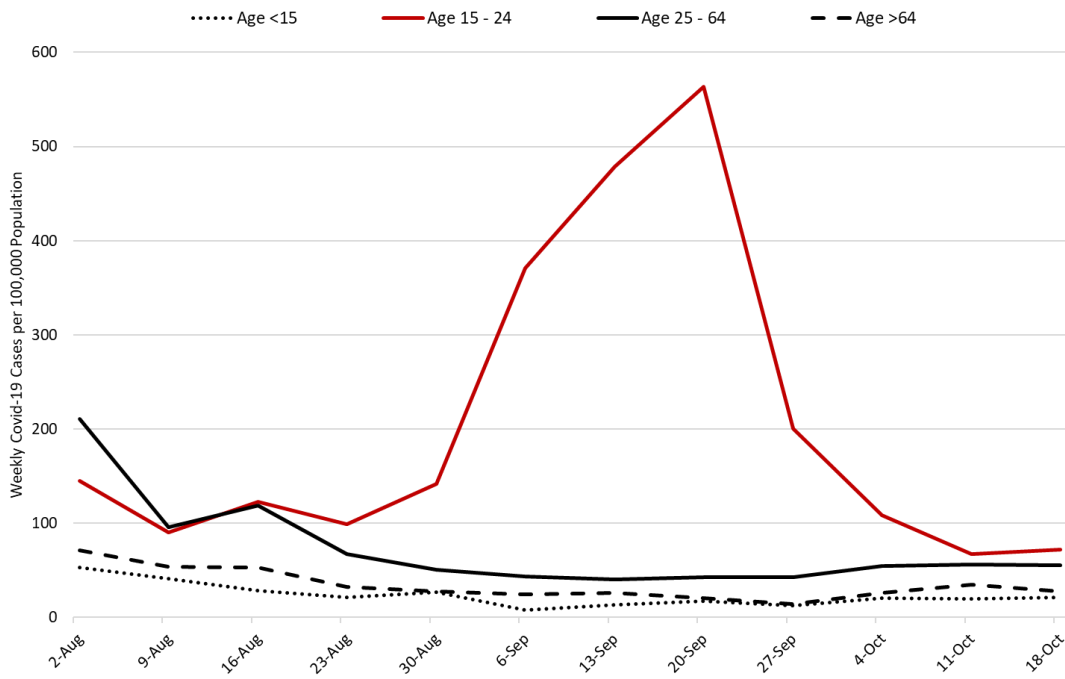


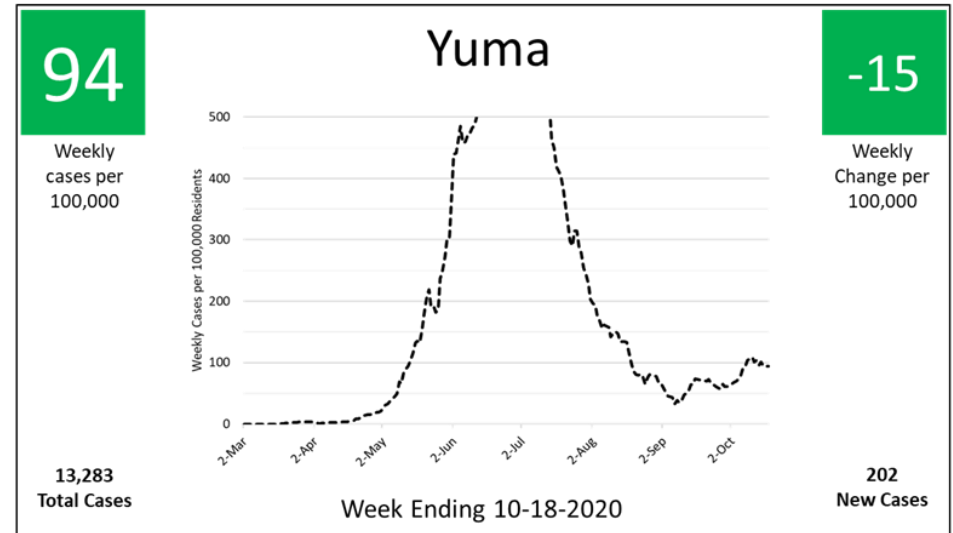
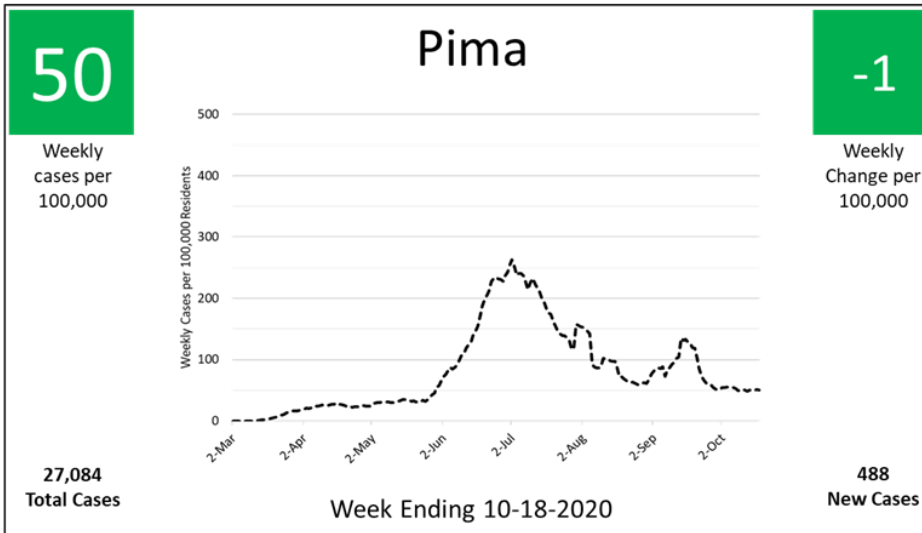
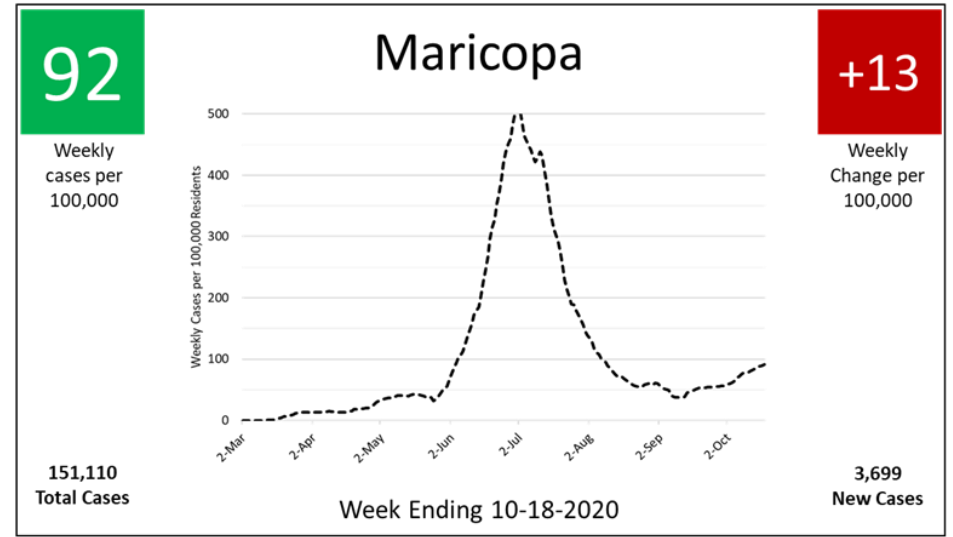
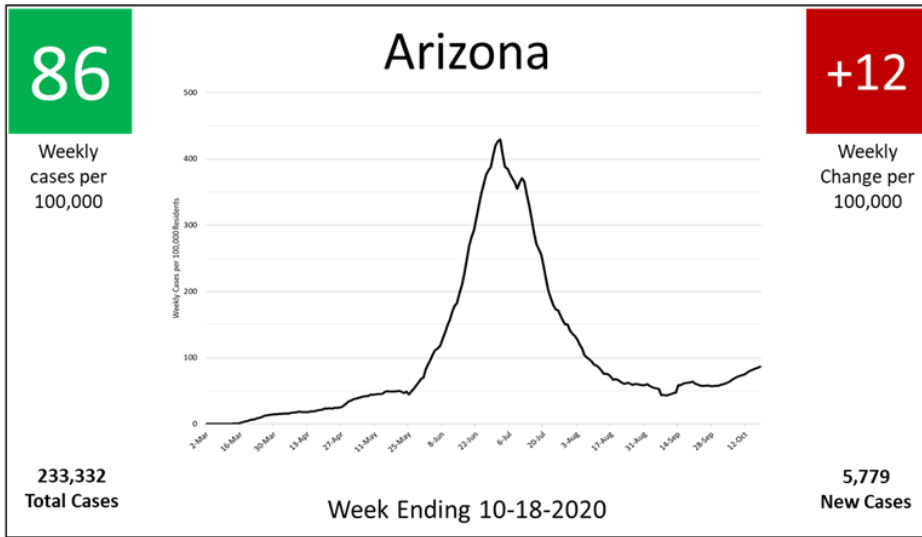
Figure 10. Covid-19 Cases by Age Group in Pima County from July 27 - October 18.

Summary:

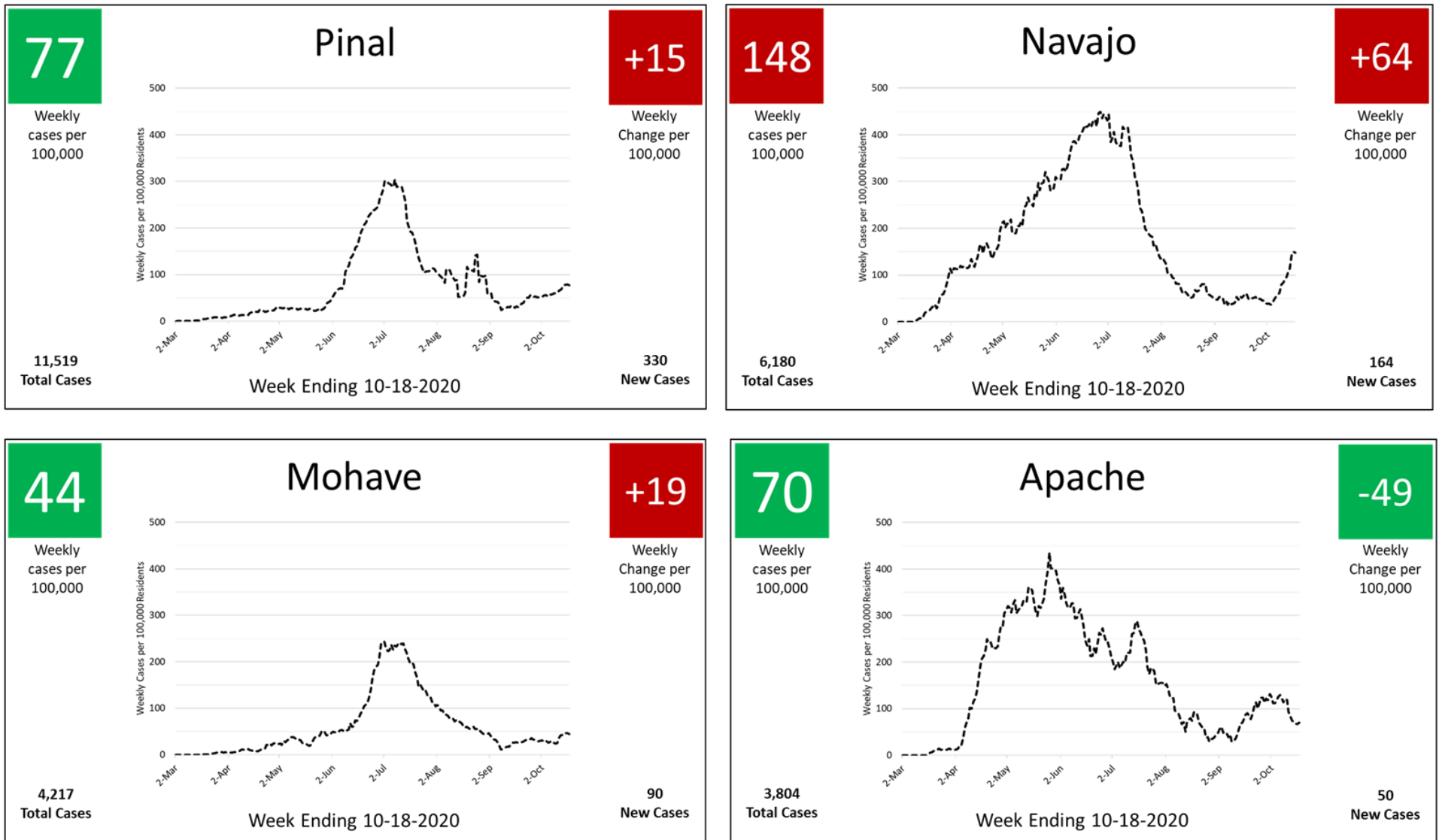
- Viral transmission among all age groups is increasing in Arizona and, if not addressed, increases the risk for explosive exponential growth and subsequent over-burdening of hospital resources.
 - Community-driven transmission is now greater than observed during the last week of May when 4800 cases were diagnosed.
 - New cases are currently being diagnosed at a rate of 86 cases per 100,000 residents per week. This rate is increasing by approximately 12 cases per 100,000 residents per week and is expected to be approximately 98 cases per 100,000 residents this time next week.
 - Geographic differences continue to manifest by county with Gila, Graham, Navajo and Coconino counties leading the current resurgence even though the largest number of new cases are being diagnosed in Maricopa County.
- 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” and other lapses in mitigation efforts.
 - Large, social gatherings should be avoided.
 - When possible, residents should avoid prolonged contact in indoor spaces where physical distancing is not adequate and adherence to face-masks is low.
 - Elected officials and community leaders should both model these behaviors and encourage others to follow suit.
- Hospital occupancy is increasing due to Covid-19 transmission among vulnerable groups. While adequate excess capacity remains, the safety margin is eroding.
 - The fall-winter viral respiratory season plus the return of part-time residents who winter in Arizona will place increasing strain on our hospitals through January.
 - If current trends continue, Arizona is on track to experience a major resurgence during the Thanksgiving – Christmas – New Year holiday season.
- While Covid-19 test results continue to be returned in a timely manner, test positivity is increasing suggesting an emerging mismatch between capacity and demand.
- Covid-19 mortality continues to decline; however, this trend is likely to reverse by the end of this month.

Next update scheduled for October 28.

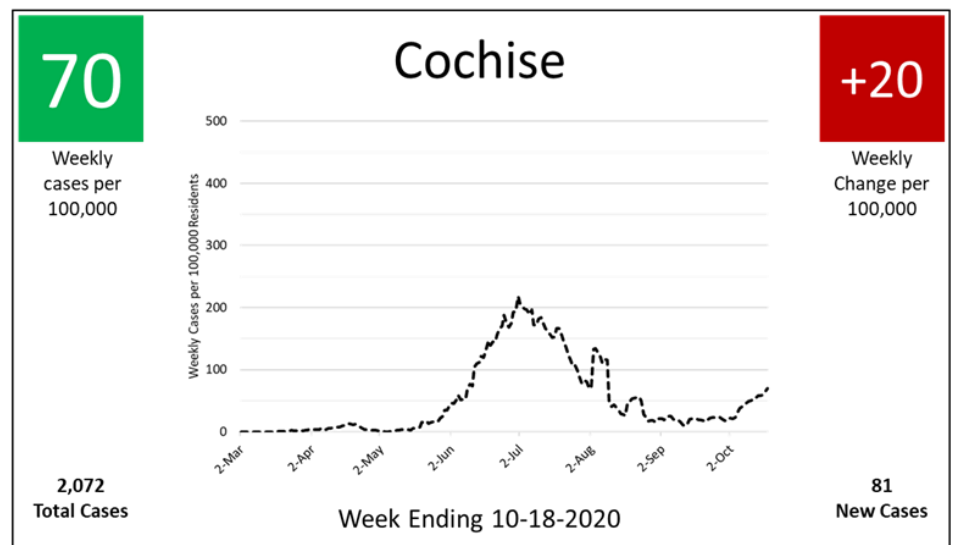
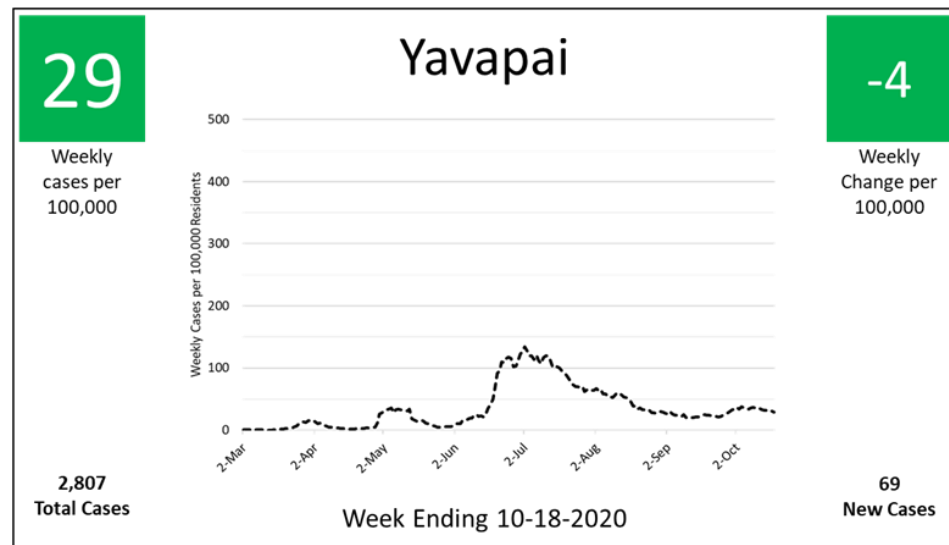
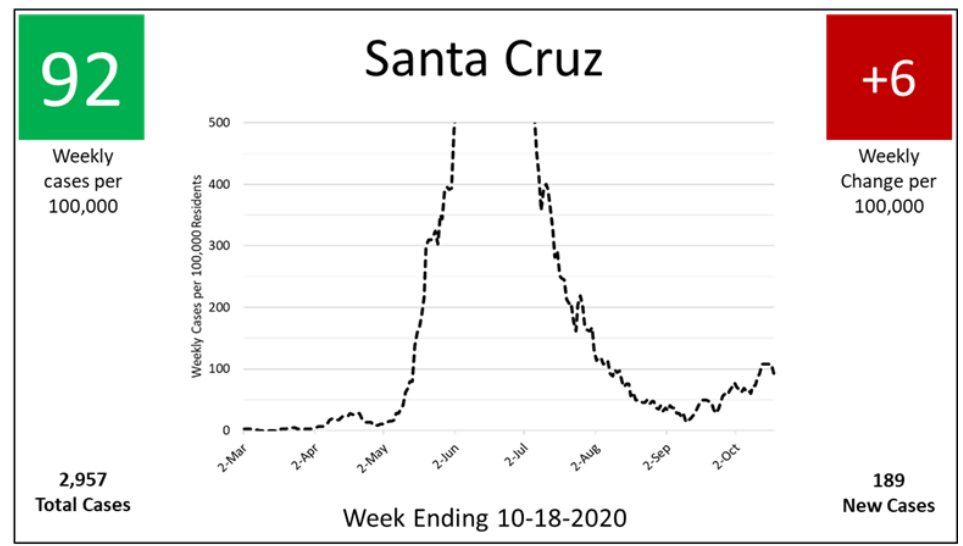
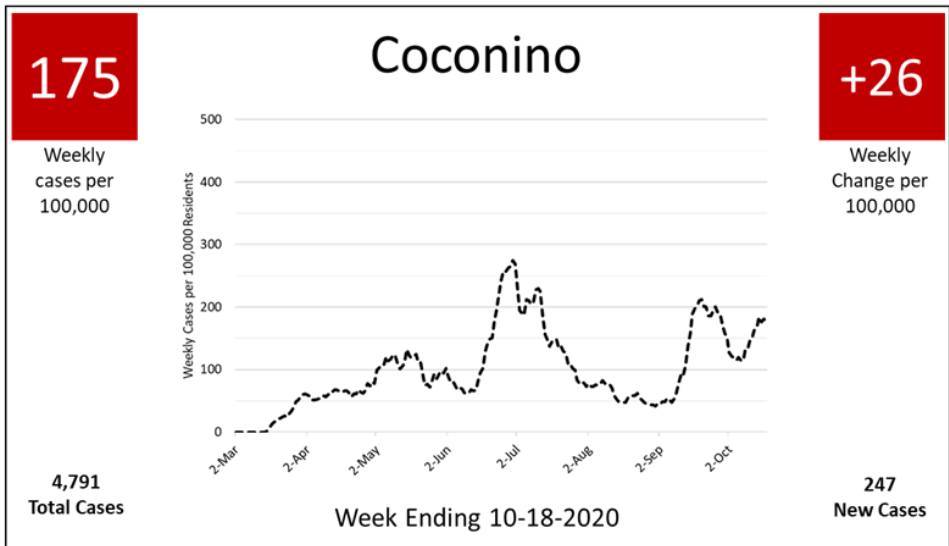
County data appear below.



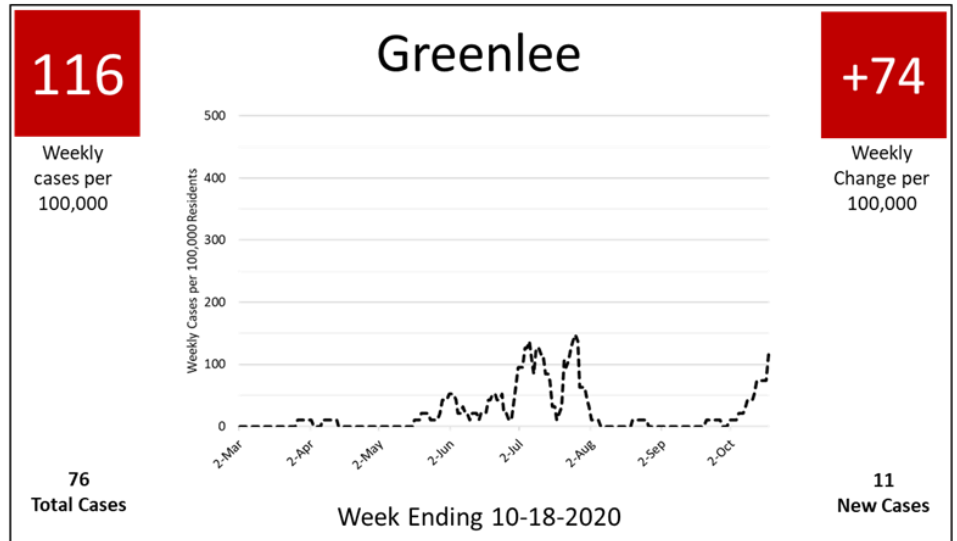
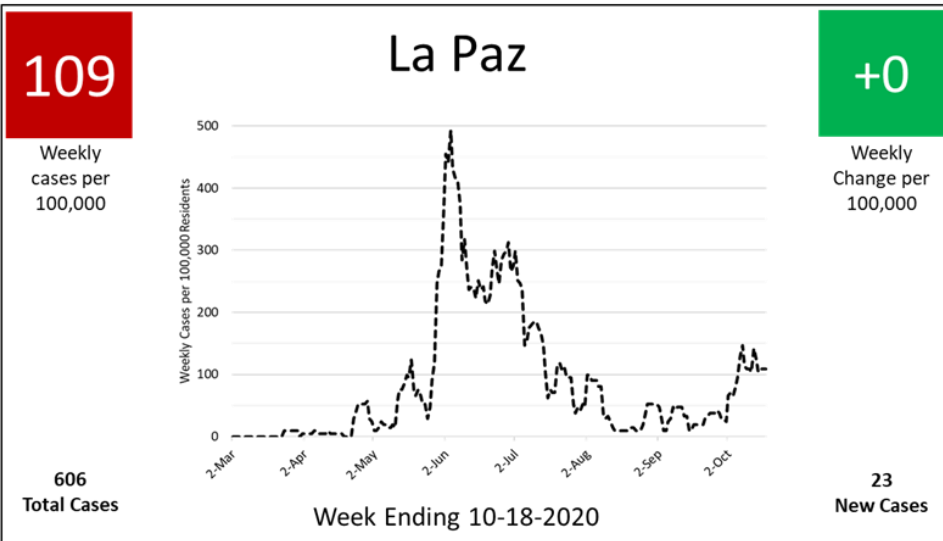
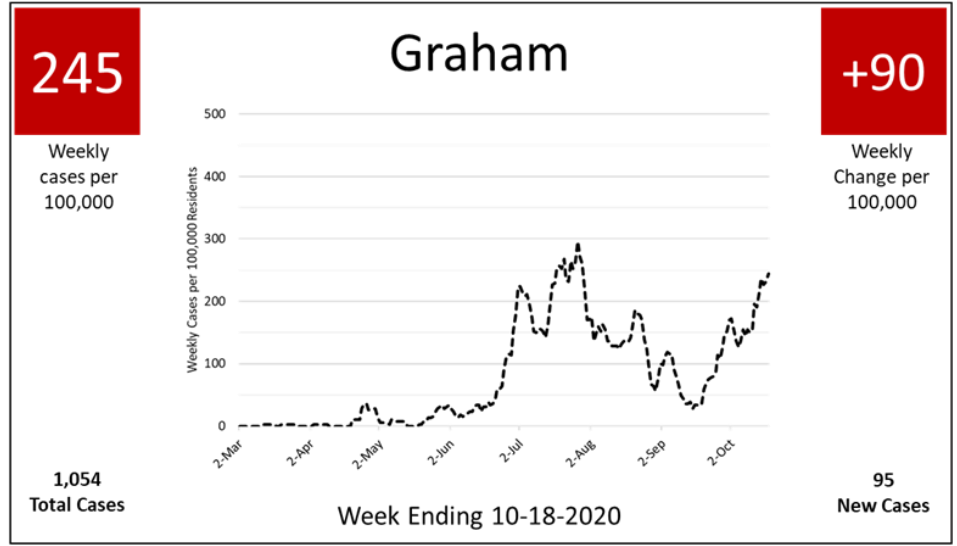
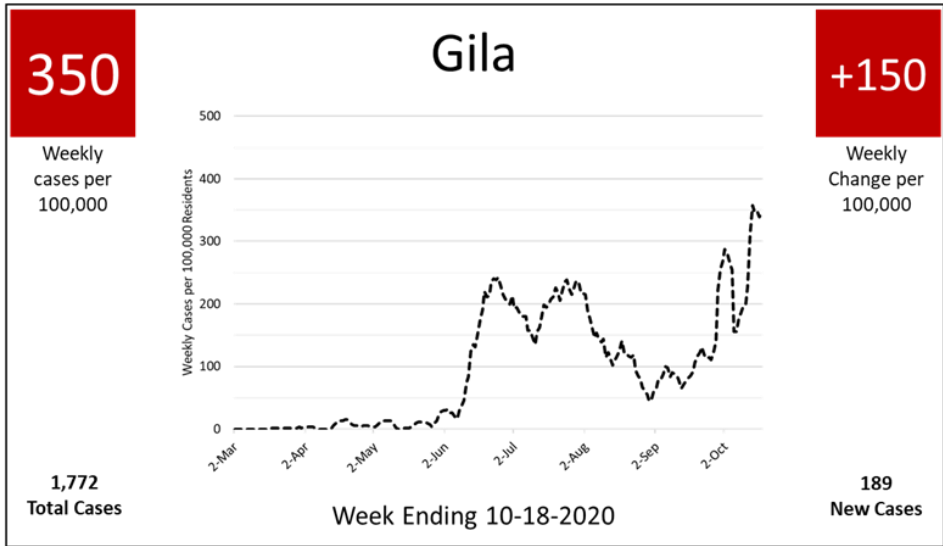
Appendix Figure 1. Weekly Covid-19 Case Rates and Week-to-Week Change per 100,000 Population by County March 1 – October 18
 (Green shading represents a case rate <100 per 100,000 per week or a declining week-to-week change).



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