

Covid-19 Disease Outbreak Outlook

Arizona State and Pima County

Updated October 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 October 25th, 7221 new Covid-19 cases were diagnosed in Arizona (Figure 1). This represents a 19% increase from last week's revised tally of 6064 cases. Reporting delays continue to be minimal. Accordingly, last week's tally of 5779 new cases was only upwardly revised by 5% (285 cases) this week. Some of this backfill was also attributable to moving this report earlier in the week.

Case counts continue to increase among all age groups (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 just shy of those observed during the first week of June when 8239 cases were diagnosed. A mere 3 weeks later, Arizona's case count reached a peak of 27796 cases. Given the possibility of exponential growth, current conditions could deteriorate rapidly.

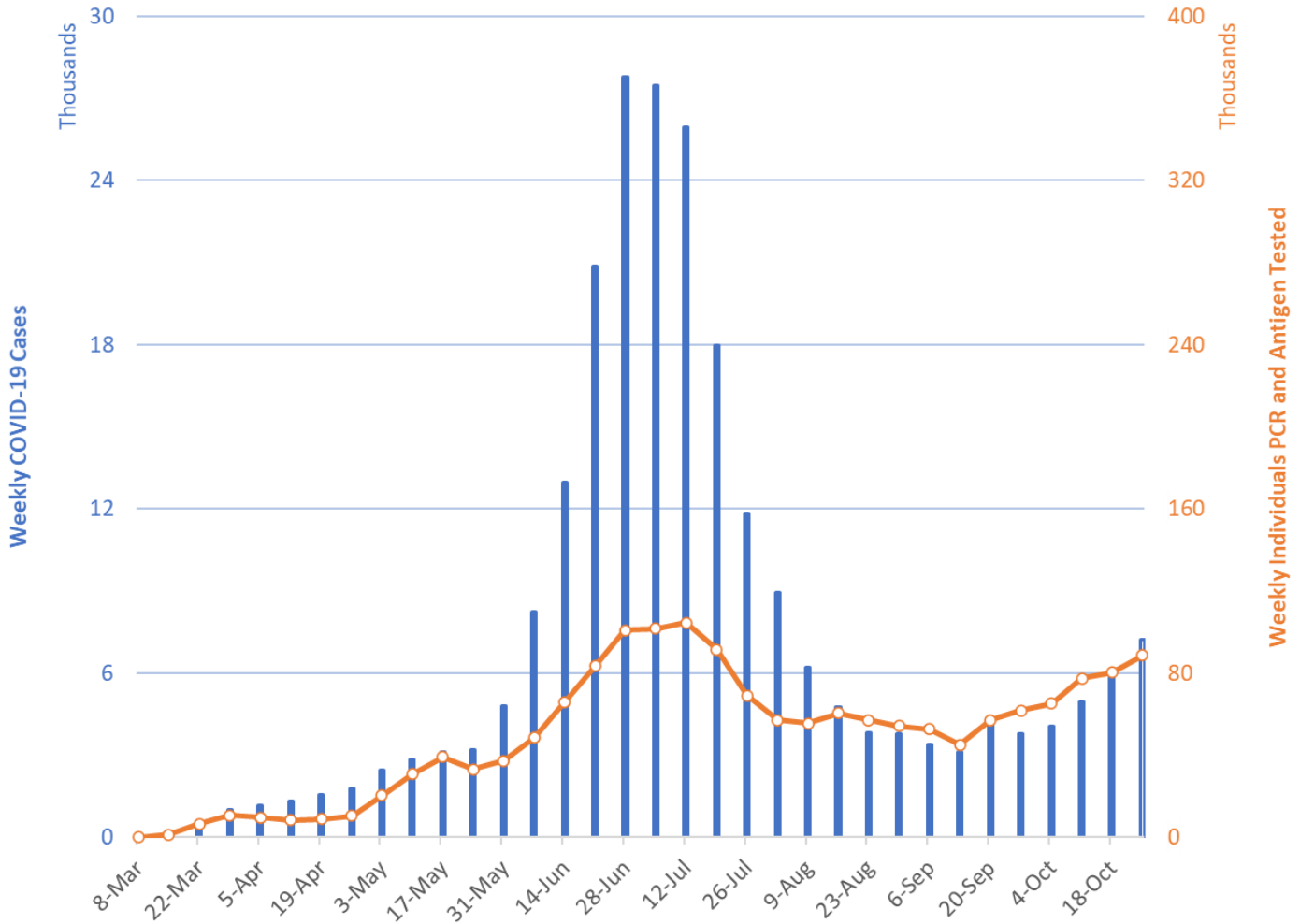


Figure 1. Newly Diagnosed Covid-19 Cases in Arizona and Number of Individuals Undergoing PCR and Antigen Testing March 1 through October 25.

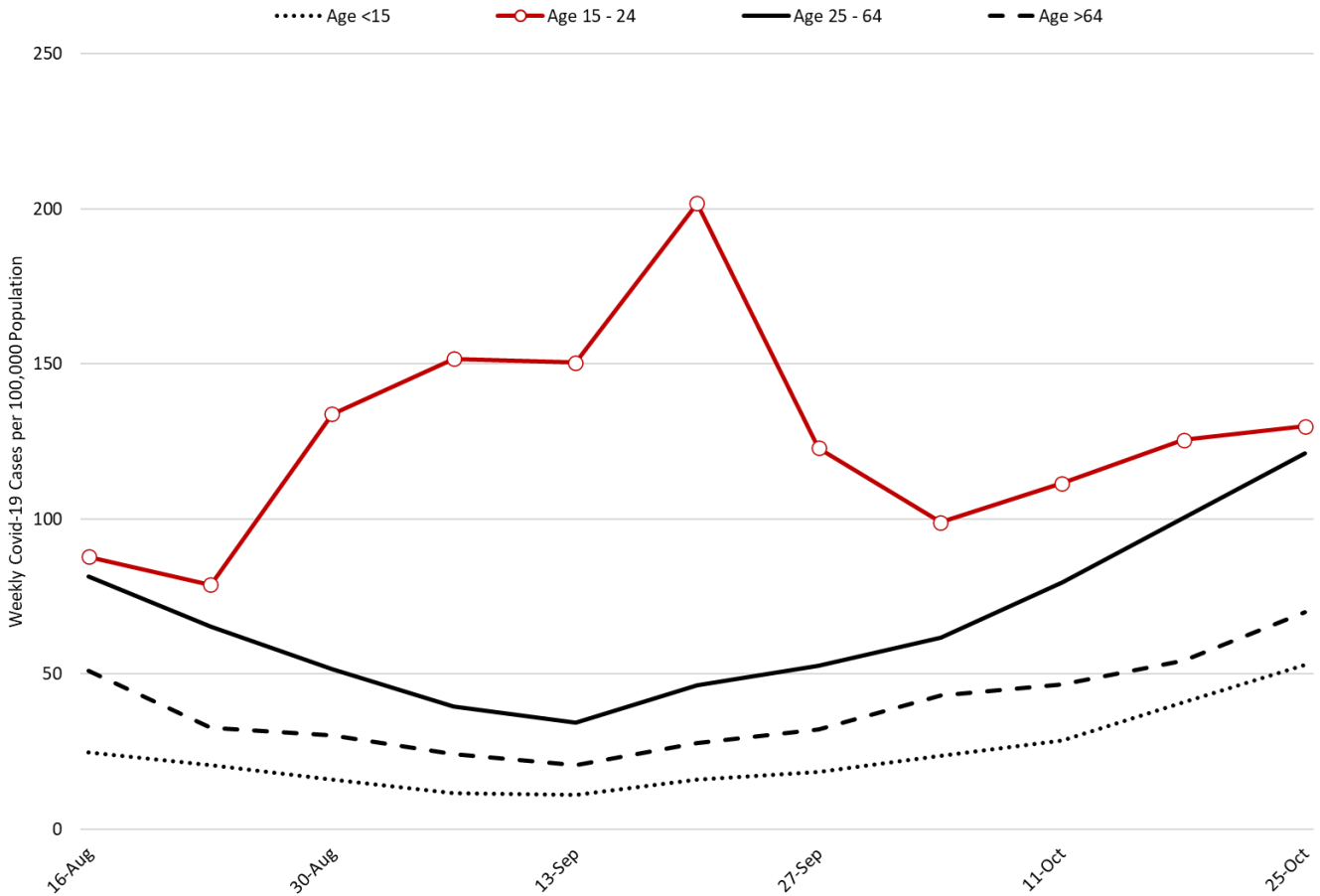


Figure 2. Newly Diagnosed Covid-19 Cases in Arizona by Age Group August 9 through October 25.

Test positivity among those undergoing PCR testing, including saliva testing, increased to 9% 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 9.3%.

Test positivity for antigen tests being conducted by the University of Arizona and by some long-term care facilities and retail clinics increased this week to 5.1% (Figure 4 following page, left panel). test positivity for saliva testing being conducted by Arizona State University for students and other groups held steady at 5.8% (Figure 4 following page, right panel).

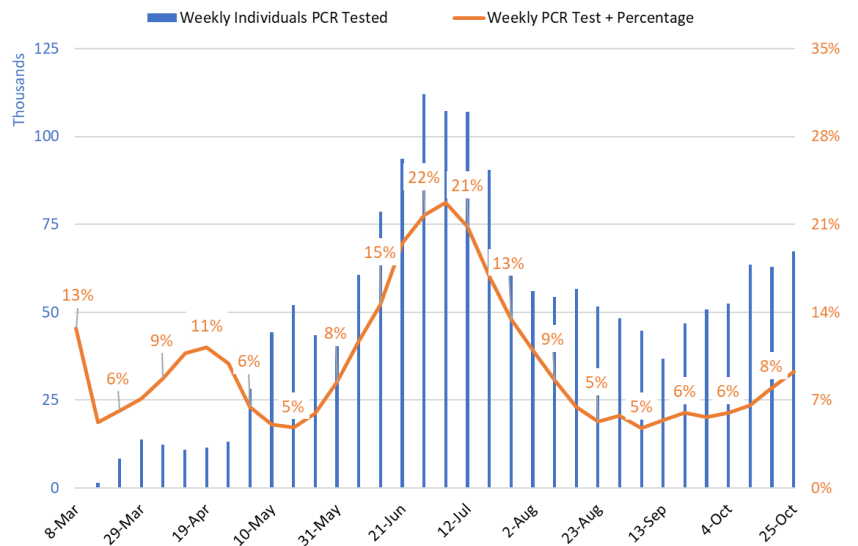


Figure 3. Weekly Number Patients PCR Tested and Percent with Positive Test March 1 – October 25.

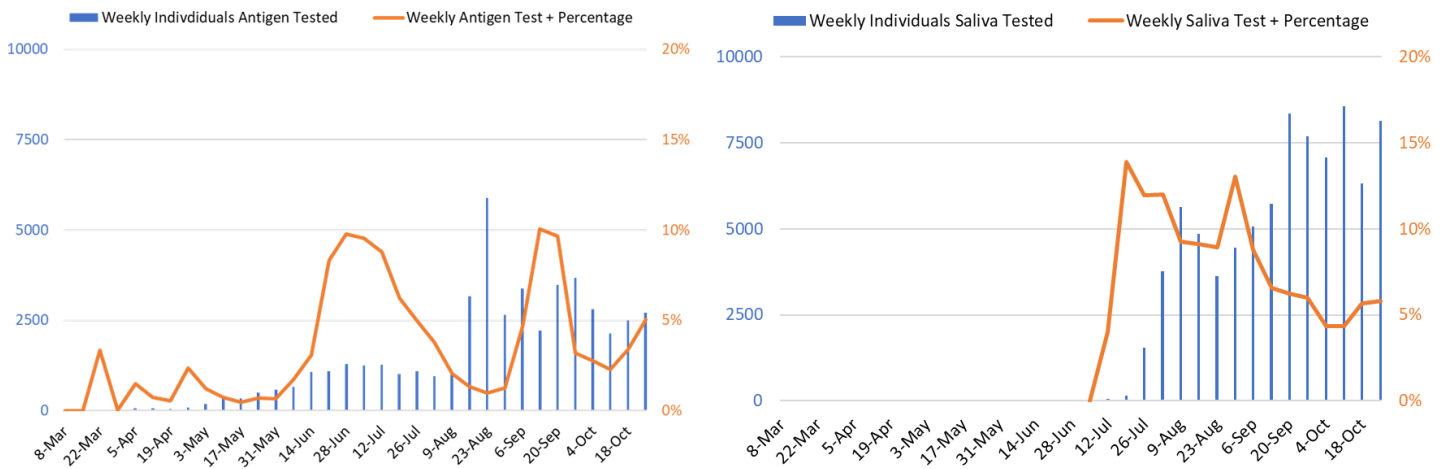


Figure 4. Weekly Number Patients Undergoing Covid-19 Antigen (left) and Saliva (right) Testing and Corresponding Percent Positive Results March 1 – October 25.

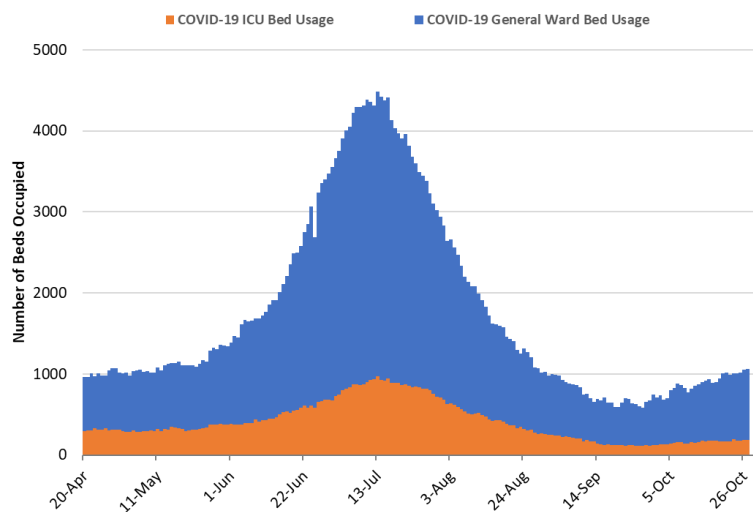


Figure 5. Arizona Daily Covid-19 General Ward and ICU Census April 20 – October 27.

As of October 27th, 1059 Arizona hospital beds were occupied by patients with suspected or confirmed Covid-19. This is higher than the 1003 beds occupied last week (Figure 5).

Specifically, 871 (10%) of Arizona’s 8602 general ward beds were occupied by Covid-19 patients, a 5% increase from last week’s 832 occupied beds. An additional 1221 (14%) beds remained available for use which is more than last week’s 1180 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 10.1% on October 27th (Figure 6).

As of October 27th, 188 (11%) of Arizona’s 1670 ICU beds were occupied with Covid-19 patients, a 10% increase from last week. An additional 257 (15%) ICU beds remain available which is lower than last week’s 276 beds. Arizona hospitals’ safety margin of available beds is continuing to erode (Figure 7).

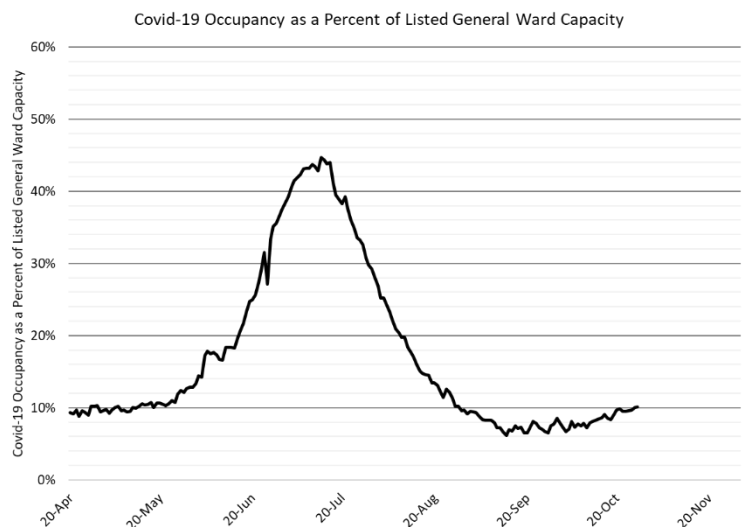


Figure 6. Covid-19 Occupancy as a Percent of Listed General Ward Capacity in Arizona April 20 – October 27.

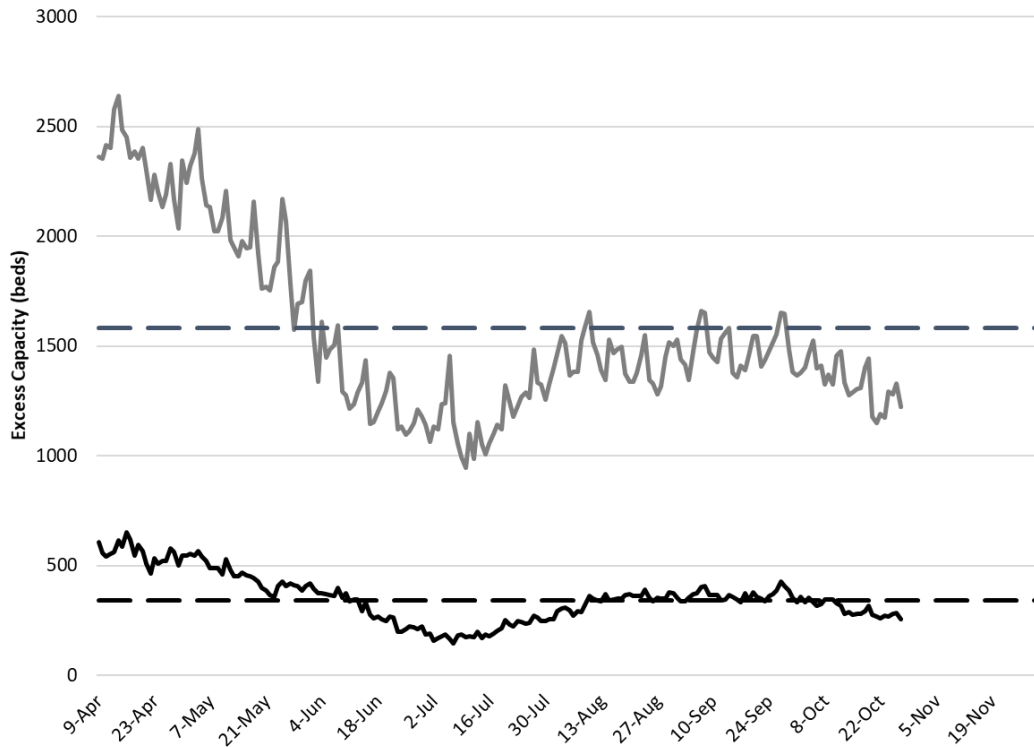


Figure 7. Observed Excess Non-Surge General Ward and ICU Capacity April 20 – October 27.

With 610 deaths, the week ending July 19th remains Arizona’s deadliest week (Figure 8). Because new case counts are increasing, mortality trends demonstrated a slight increase from the week ending October 4th to the week ending October 11th, 43 to 49 reported deaths. Because cases have increased most rapidly among those <65 years of age, steep increases in mortality are not expected.

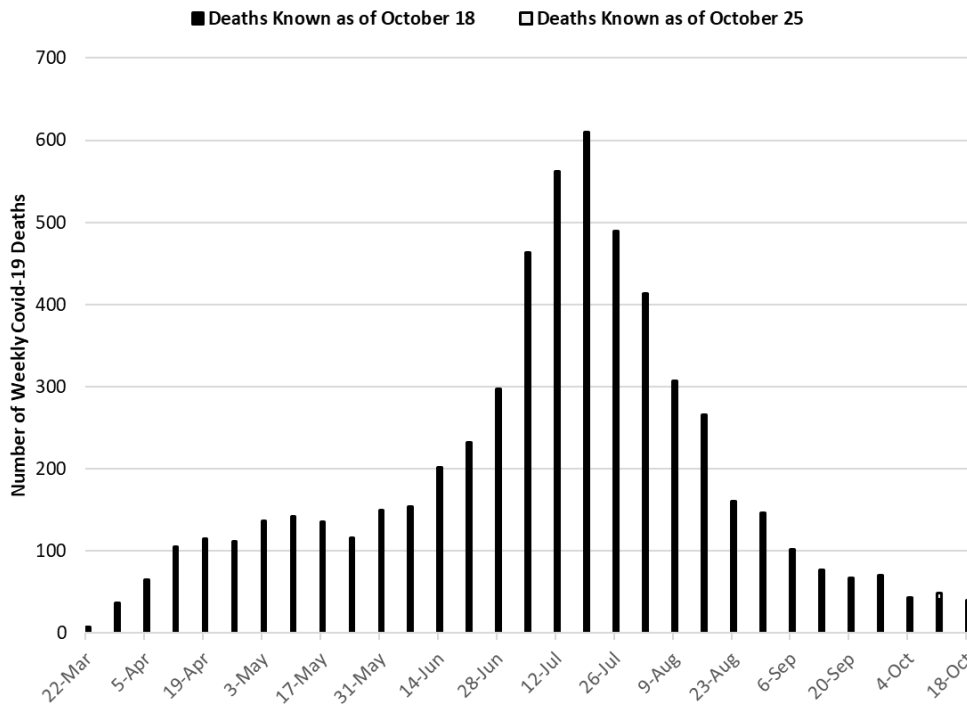


Figure 8. Weekly Known Arizona Covid-19 Deaths March 1 – October 25.

Pima County Outlook

For the week ending October 25th, 819 Pima County residents were diagnosed with Covid-19 (Figure 9). This represents a 63% increase from the 503 confirmed cases last week. Test reporting remains relatively timely as last week's initial report of 488 new cases was only revised upwards by 15 cases this week. From last week to this week, the sharpest increase was among working-age adults 25 – 64 years of age (Figure 10). With such a sharp increase, it suggests an outbreak in an institutional setting versus general community spread.

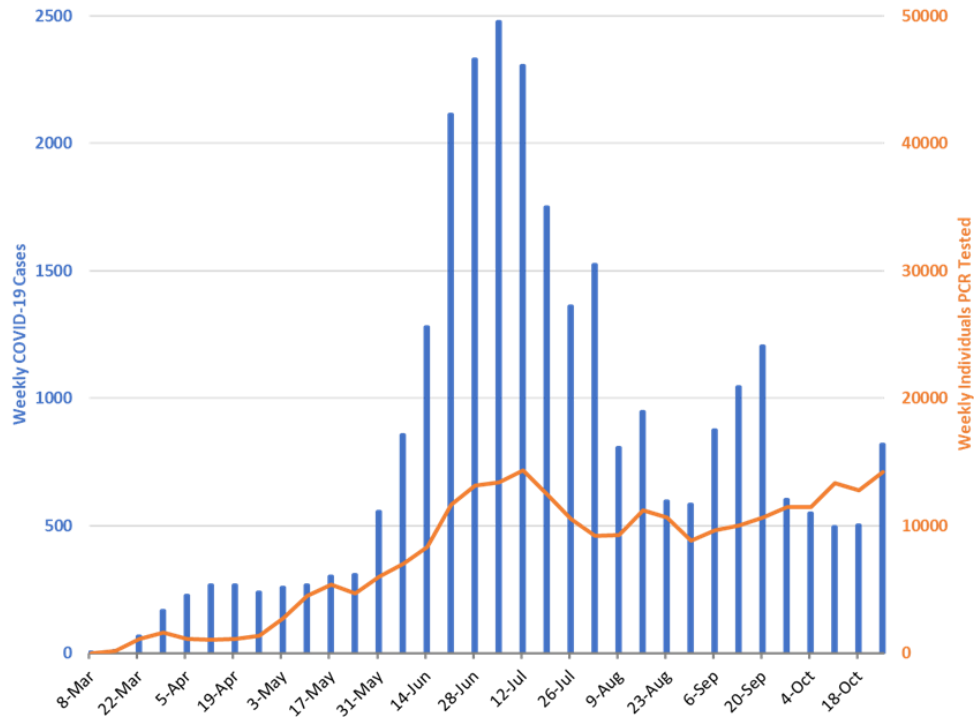


Figure 9. Covid-19 Cases and Individuals PCR and Antigen Tested in Pima County from March 1 - October 25.

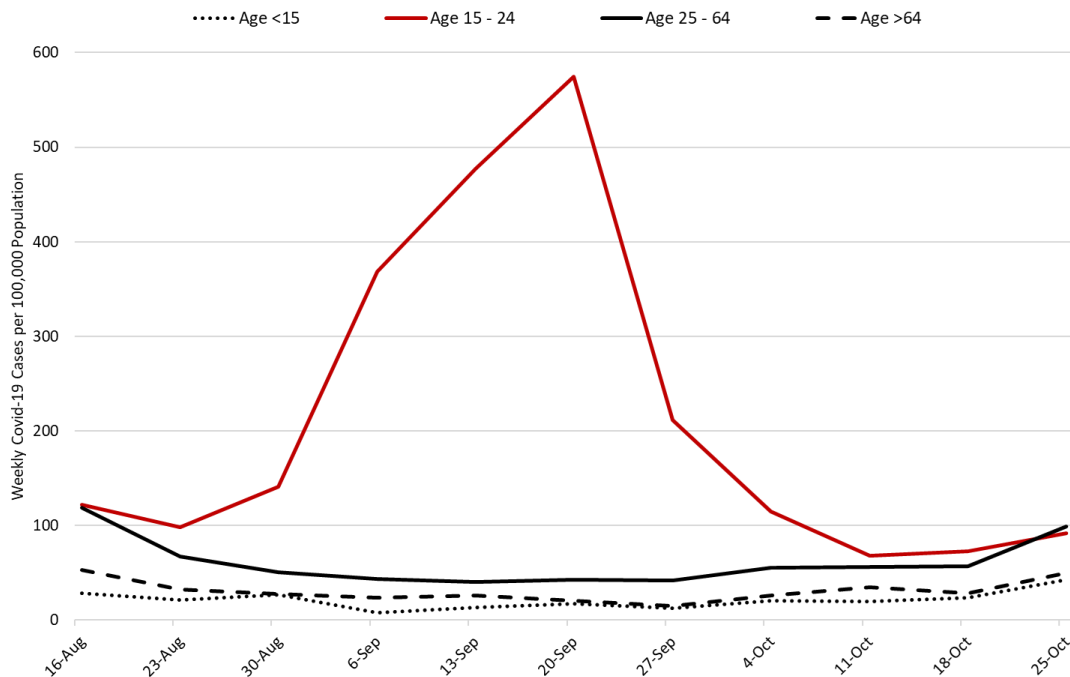


Figure 10. Covid-19 Cases by Age Group in Pima County from August 9 - October 25.

Summary:

- Viral transmission increasing among all age groups in Arizona and, if not addressed, increases the risk for exponential growth and subsequent over-burdening of hospital resources.
 - Community-driven transmission is now on par with that observed during the first week of June when 8239 cases were diagnosed.
 - New cases are currently being diagnosed at a rate of 106 cases per 100,000 residents per week. This rate is currently increasing by approximately 22 cases per 100,000 residents per week.
 - To date, the maximum weekly case rate was 429 cases per week on July 2 and the maximum week-over-week increase in the case rate was 117 cases per week on June 23.
 - Geographic differences continue to manifest by county with Gila, Graham, Greenlee, 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.
- Declines in Covid-19 mortality have ceased and are expected to slowly increase over the coming weeks.
 - Avoiding cases among those ≥ 65 years of age, particularly those residing in long-term care facilities, is critical to keeping mortality low. For example, [LTC residents in Pima County](#) have accounted for <5% of the county’s cases but about 14% of hospitalizations and 39% of deaths.

Next update scheduled for November 4.

County data appear below.

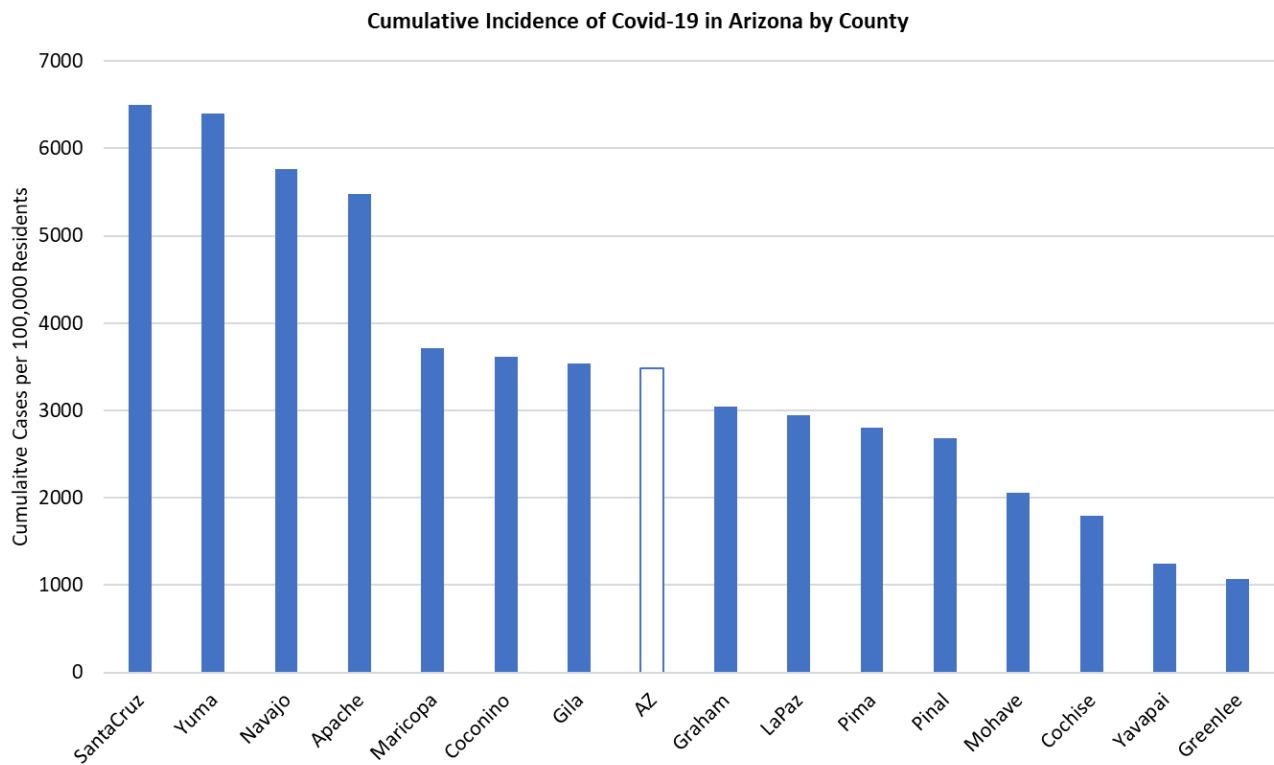


Figure 1A. Cumulative Covid-19 Incidence in Arizona by County March 1 - October 25.

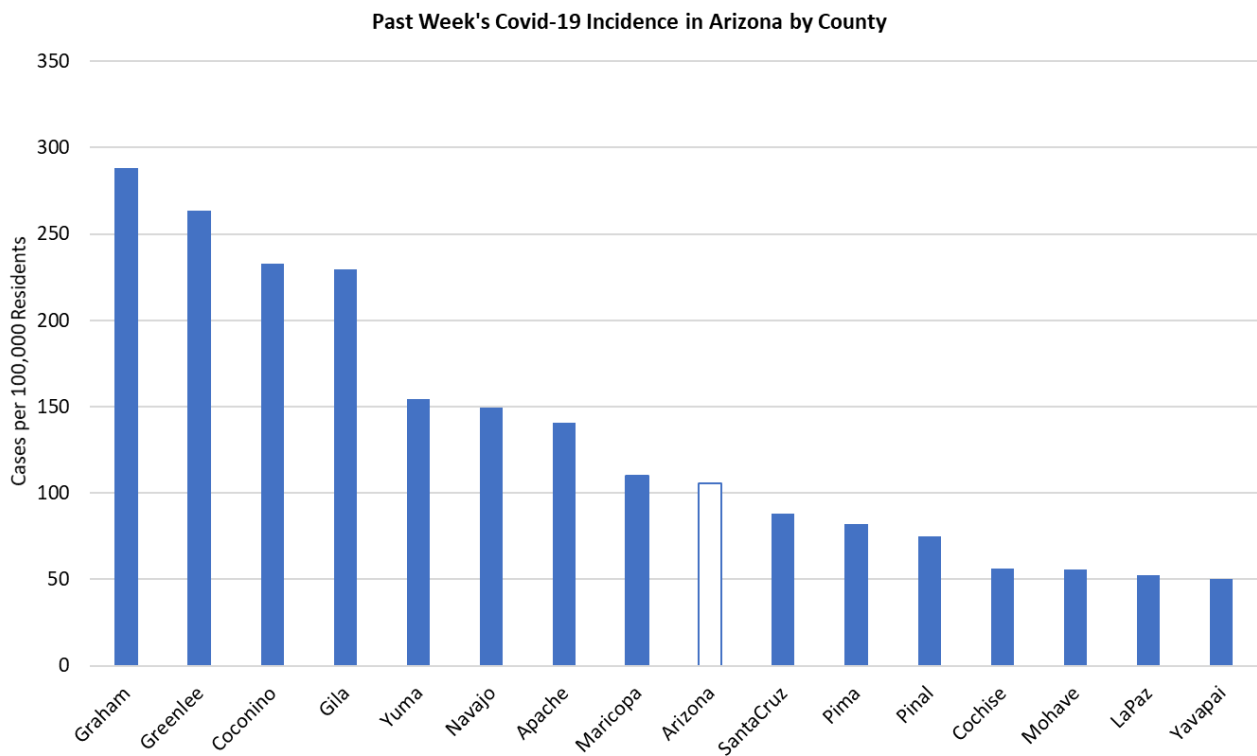
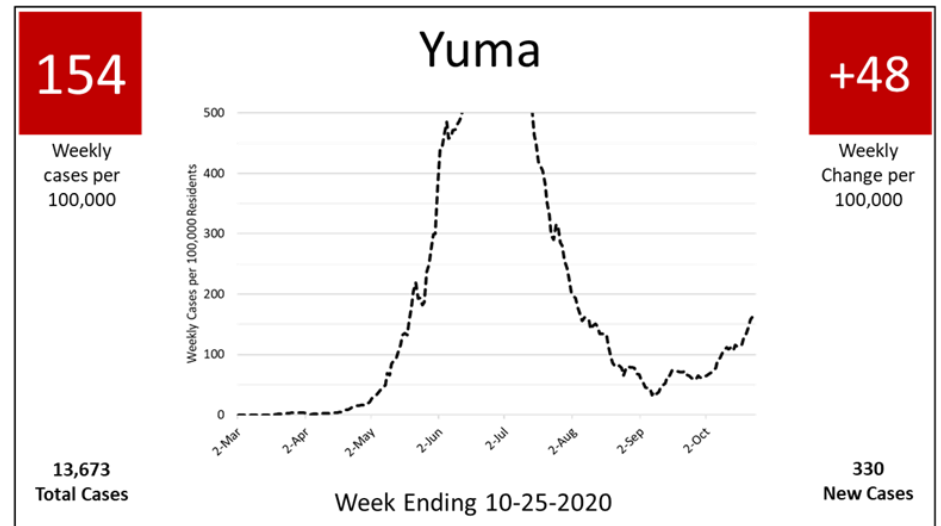
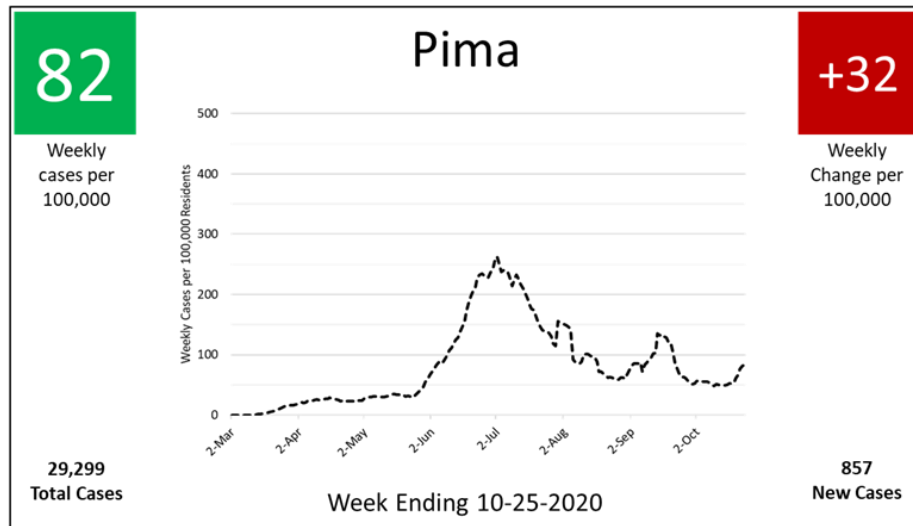
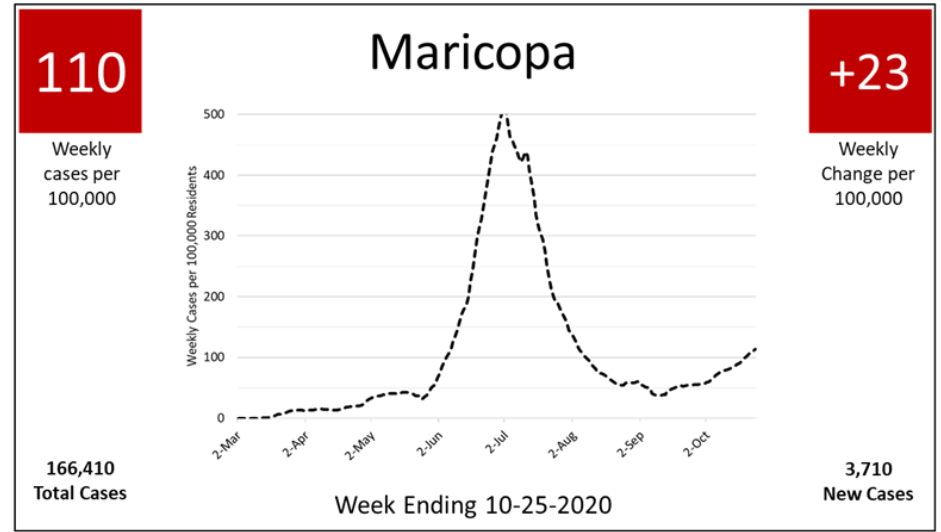
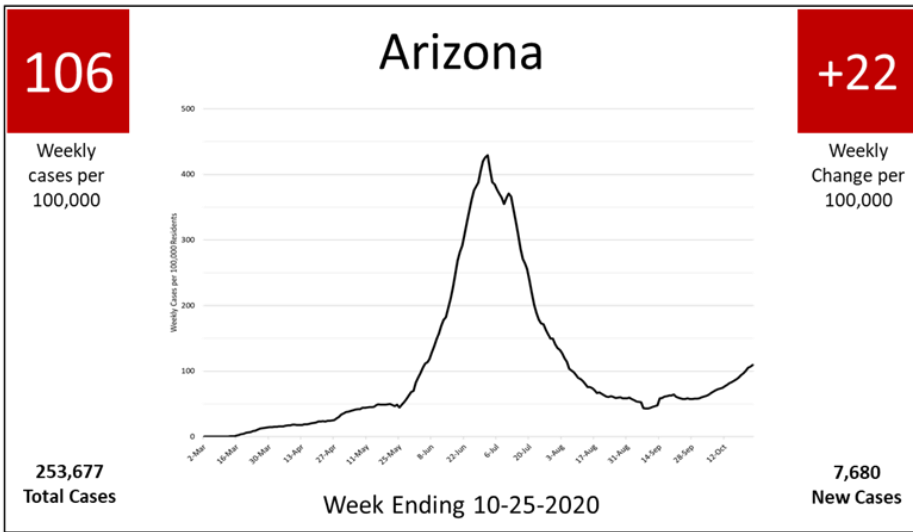
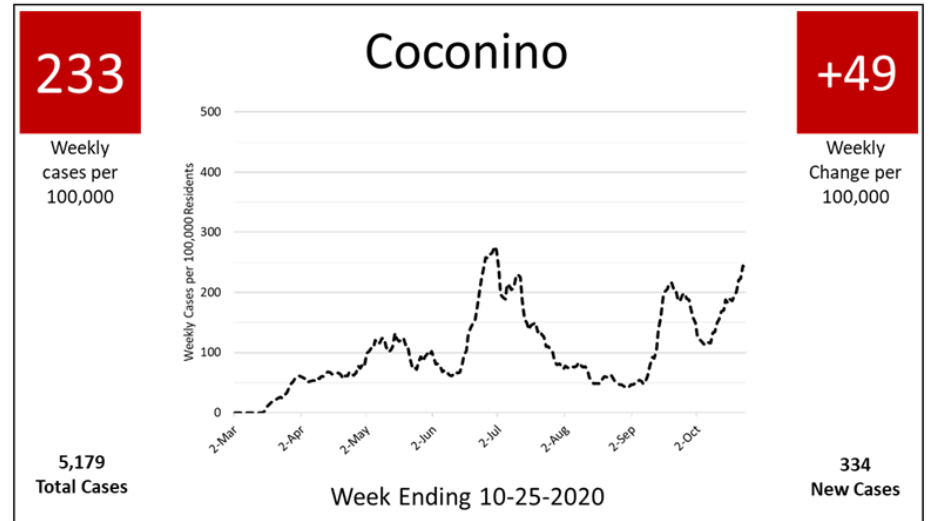
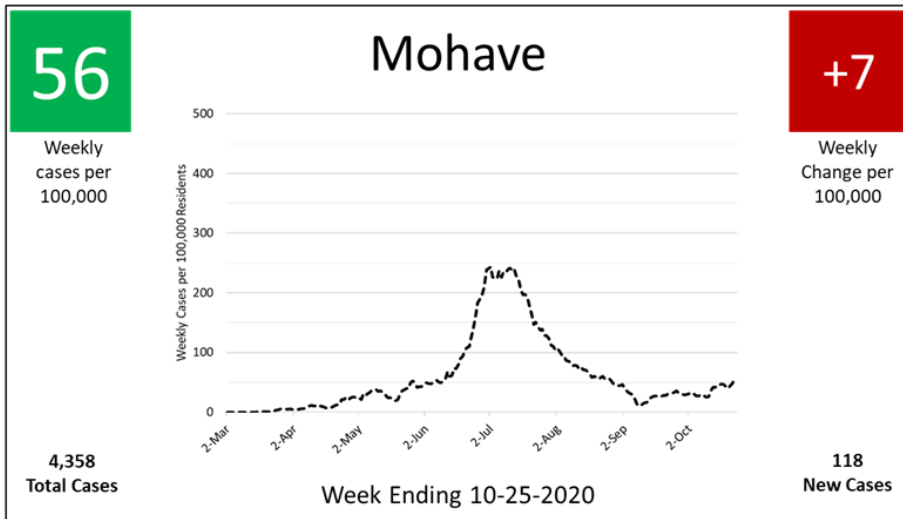
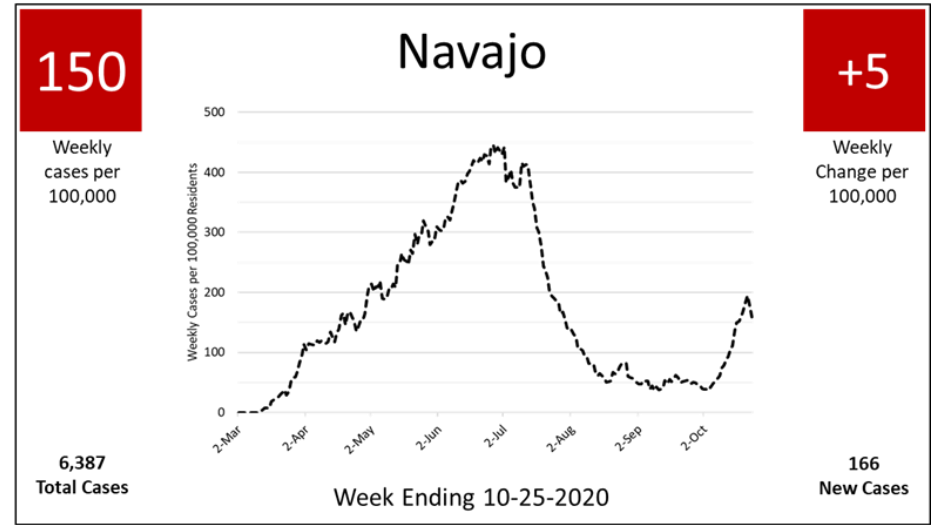
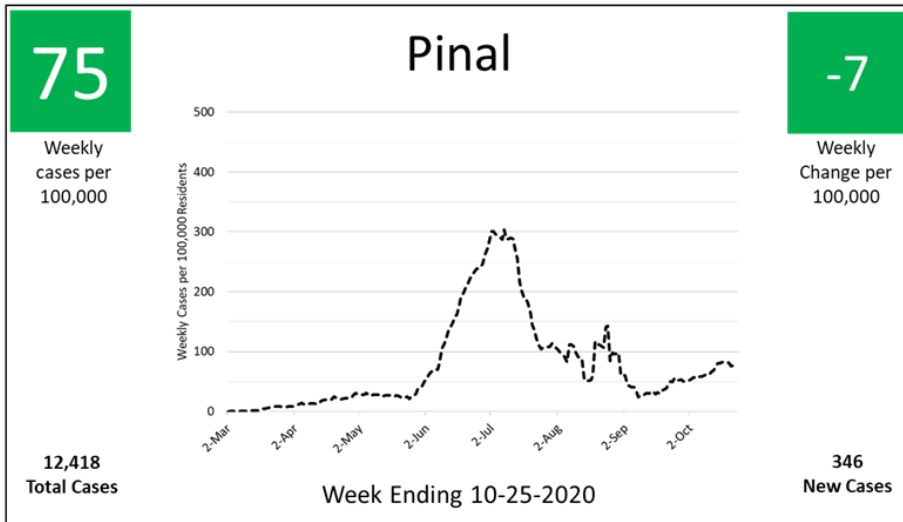


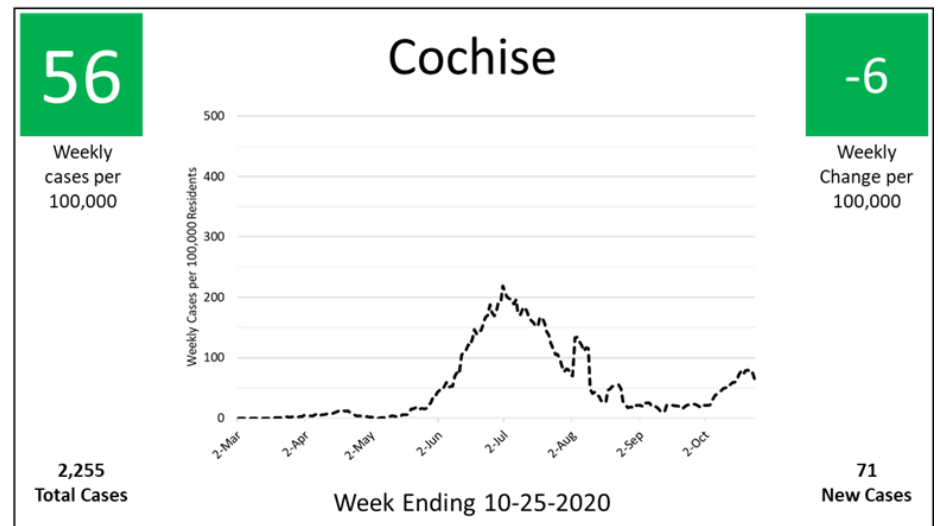
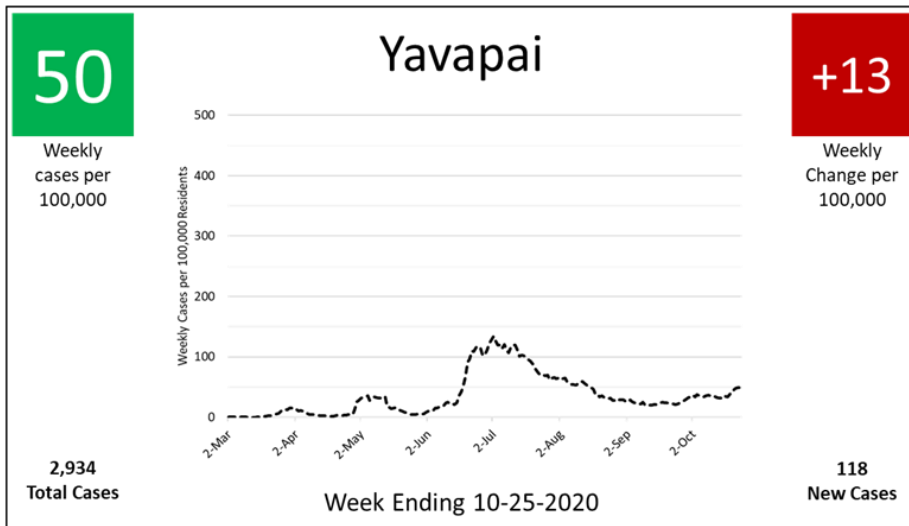
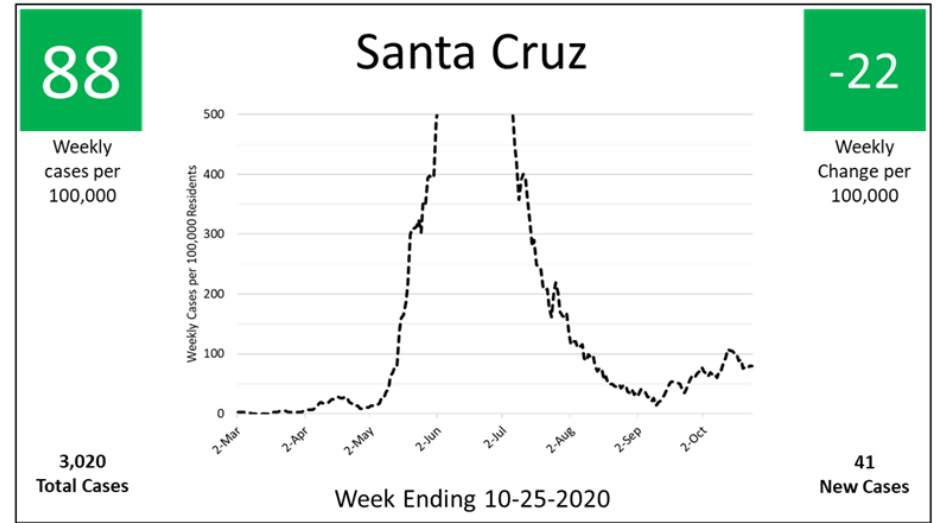
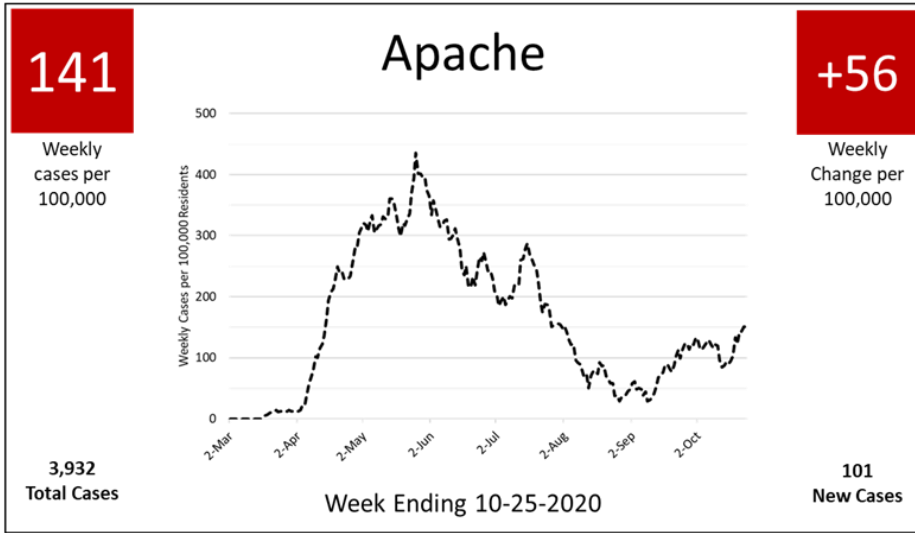
Figure 2A. Covid-19 Weekly Cumulative Incidence in Arizona by County October 18 - October 25.



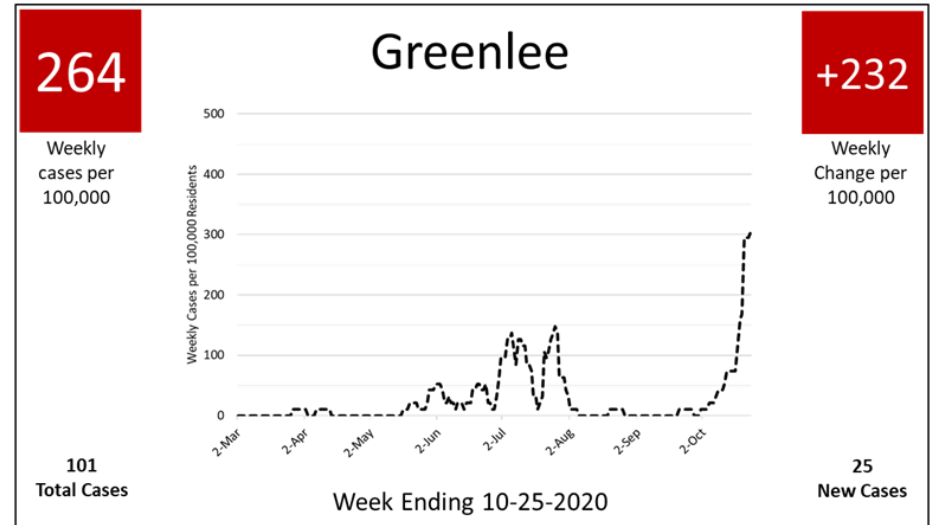
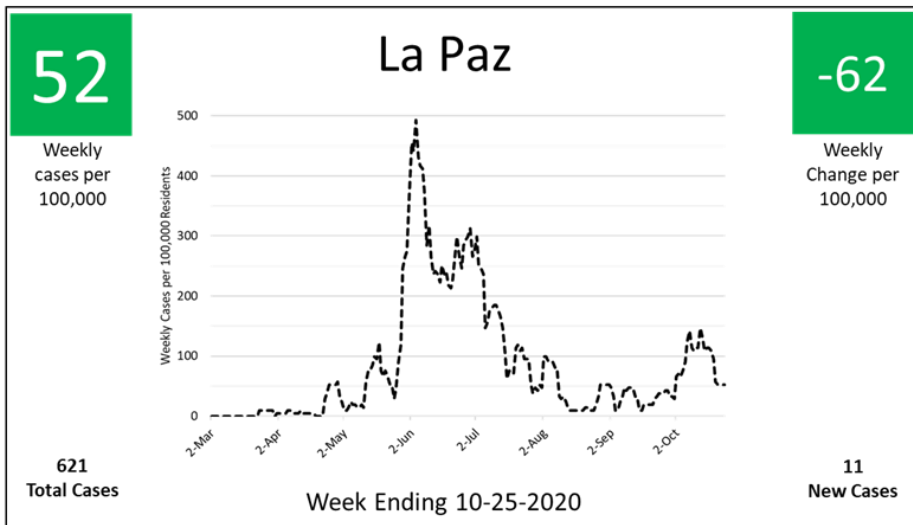
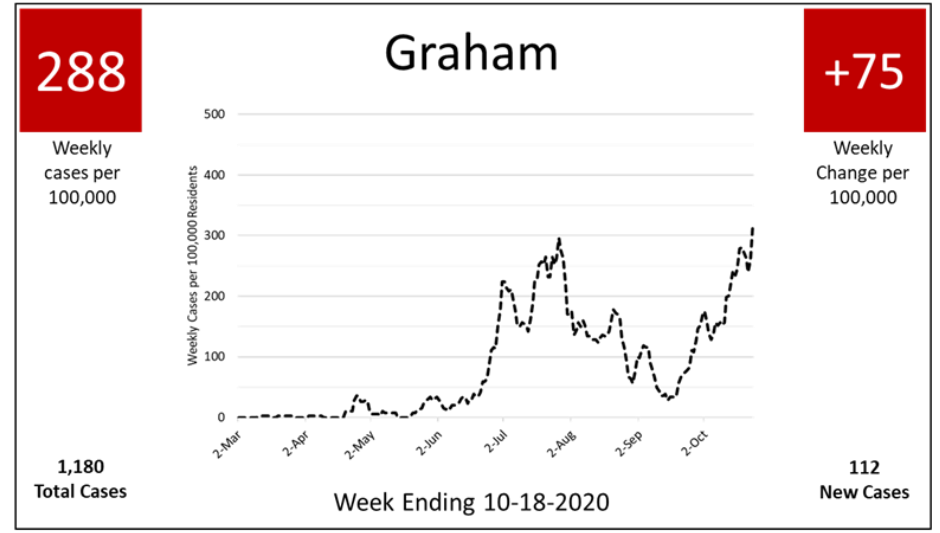
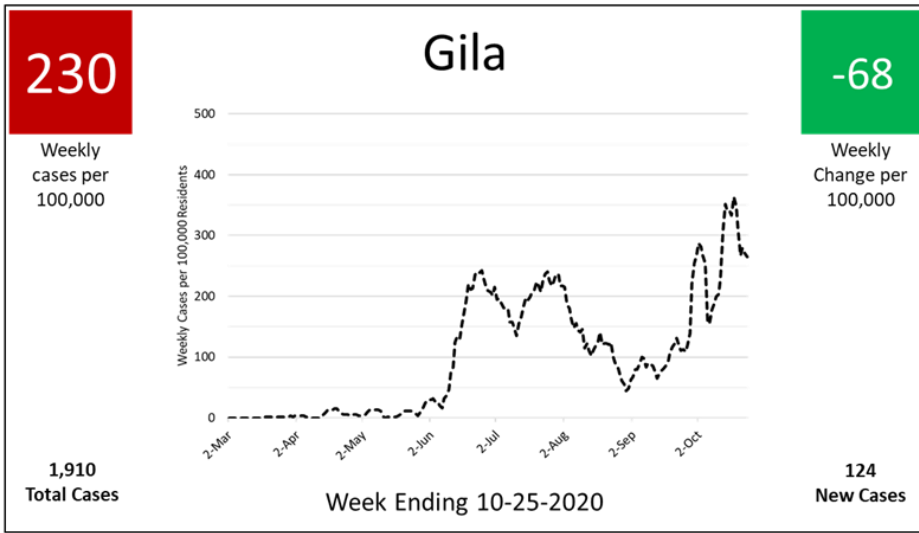
Appendix Figure 3A. Weekly Covid-19 Case Rates and Week-to-Week Change per 100,000 Population by County March 1 – October 25
 (Green shading represents a case rate <100 per 100,000 per week or a declining week-to-week change).



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