

Covid-19 Disease Outbreak Outlook

Arizona State and Pima County

Updated November 4, 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 November 1st, 8597 new Covid-19 cases were diagnosed in Arizona (Figure 1). This represents a 19% increase from last week's initial tally of 7271 cases. Reporting delays continue to be minimal with 90% of the state's PCR tests being reported within 2 days. Even so, last week's initial tally of 7271 cases was upwardly revised by 11% (799 cases) this week which is twice last week's backfill (5%).

Case counts continue to increase among all age groups (Figure 2 following page). This is the 5th consecutive week of rising case counts. Conditions warrant reappraisal of government policies as well as individuals' adherence with face masks, physical distancing, and hand hygiene practices. Current transmission levels are a bit higher than those of 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. While current growth is not as brisk as it was in June, conditions still have the potential to deteriorate rapidly.

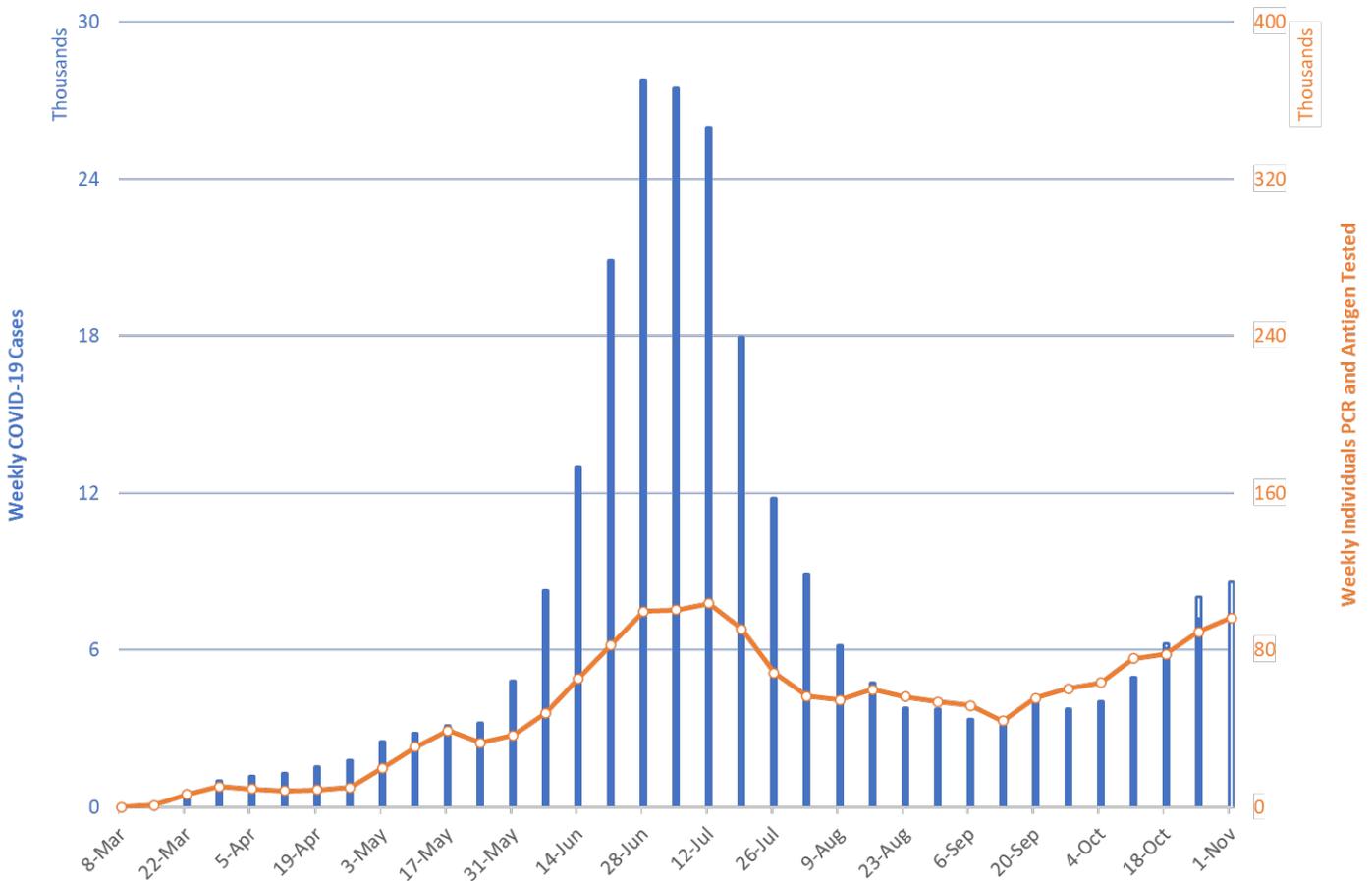


Figure 1. Newly Diagnosed Covid-19 Cases in Arizona and Number of Individuals Undergoing PCR and Antigen Testing March 1 through November 1.

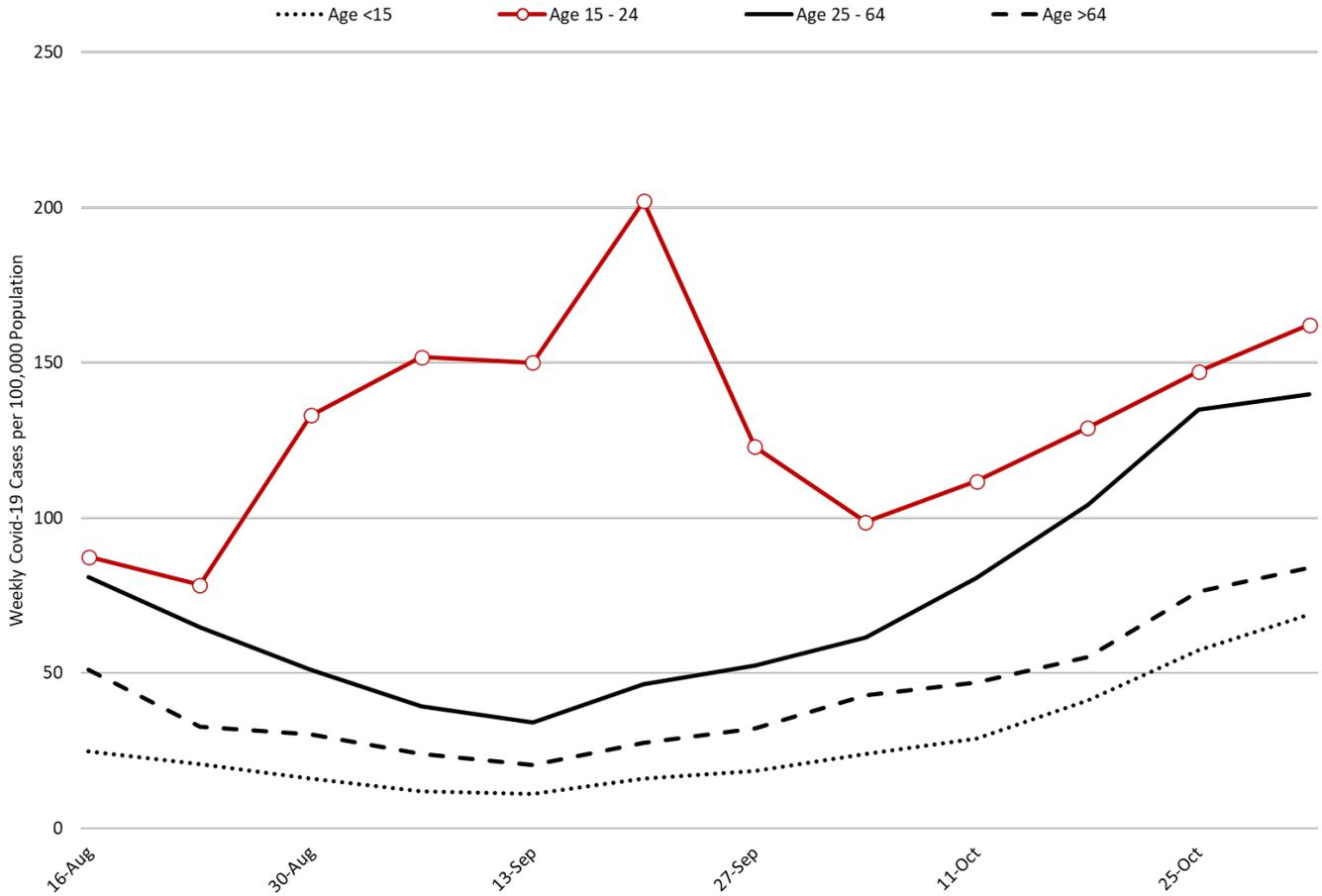


Figure 2. Newly Diagnosed Covid-19 Cases in Arizona by Age Group August 9 through November 1.

Test positivity among those undergoing PCR testing, including saliva testing, increased to 10% 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 10.4%.

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 8.0%. Test positivity for saliva testing being conducted by Arizona State University for students and other groups increased to 6.3%.

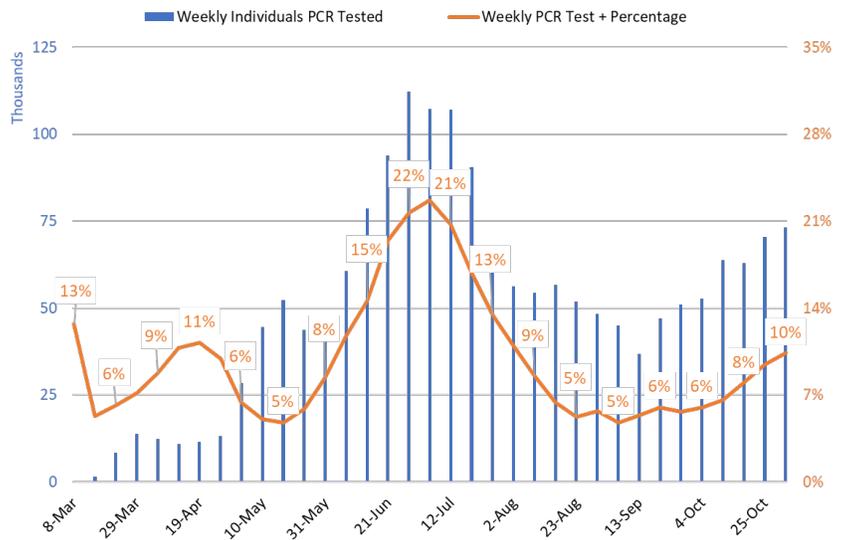


Figure 3. Weekly Number Patients PCR Tested and Percent with Positive Test March 1 – November 1.

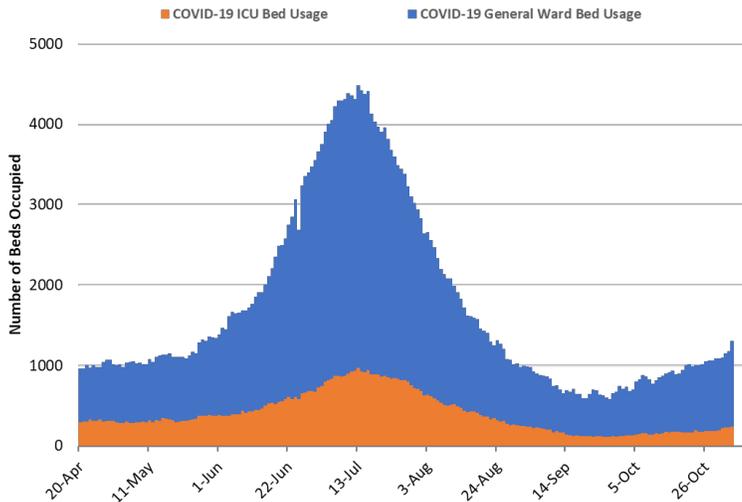


Figure 4. Arizona Daily Covid-19 General Ward and ICU Census April 20 – November 3.

As of November 3rd, 1306 Arizona hospital beds were occupied by patients with suspected or confirmed Covid-19. This is higher than the 1059 beds occupied last week (Figure 4).

Specifically, 1065 (12%) of Arizona’s 8621 general ward beds were occupied by Covid-19 patients, a 22% increase from last week’s 871 occupied beds. An additional 1250 (15%) beds remained available for use which is more than last week’s 1221 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 12.4% on November 3rd (Figure 5). As of November 3rd, 241 (15%) of Arizona’s 1652 ICU beds were occupied with Covid-19 patients, a 28% increase from last week’s count of 188 patients. An additional 236 (14%) ICU beds remain available which is lower than last week’s 257 beds. Arizona hospitals’ safety margin of available beds continues to erode in both the ward and ICU (Figure 6, following page).

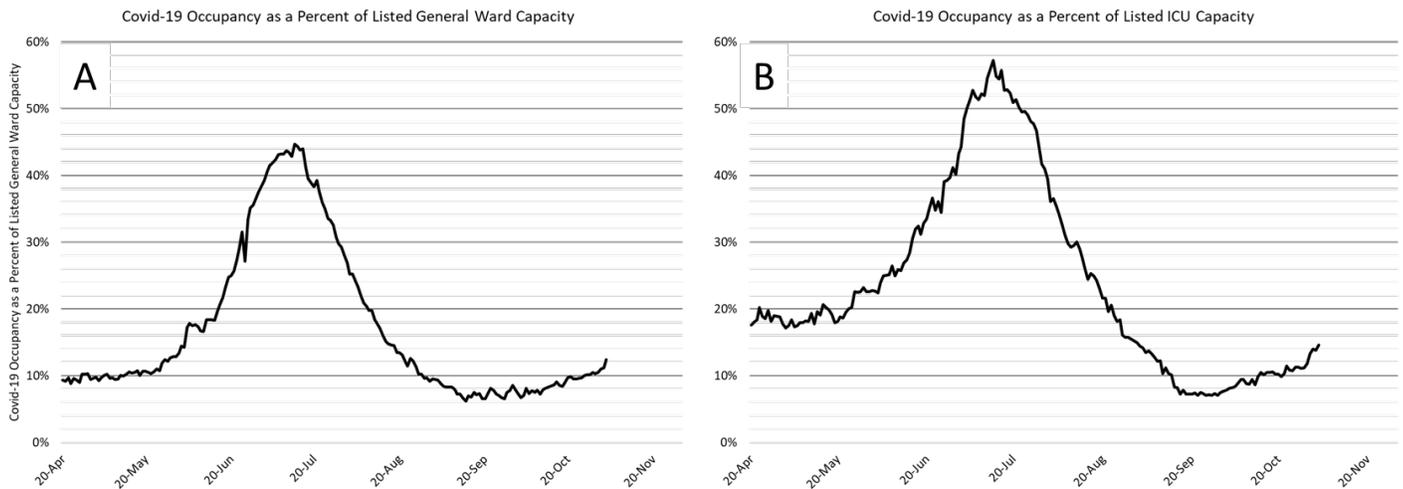


Figure 5. Covid-19 Occupancy as a Percent of Listed General Ward (A, left) and ICU (B, right) Capacity in Arizona April 20 – November 3.

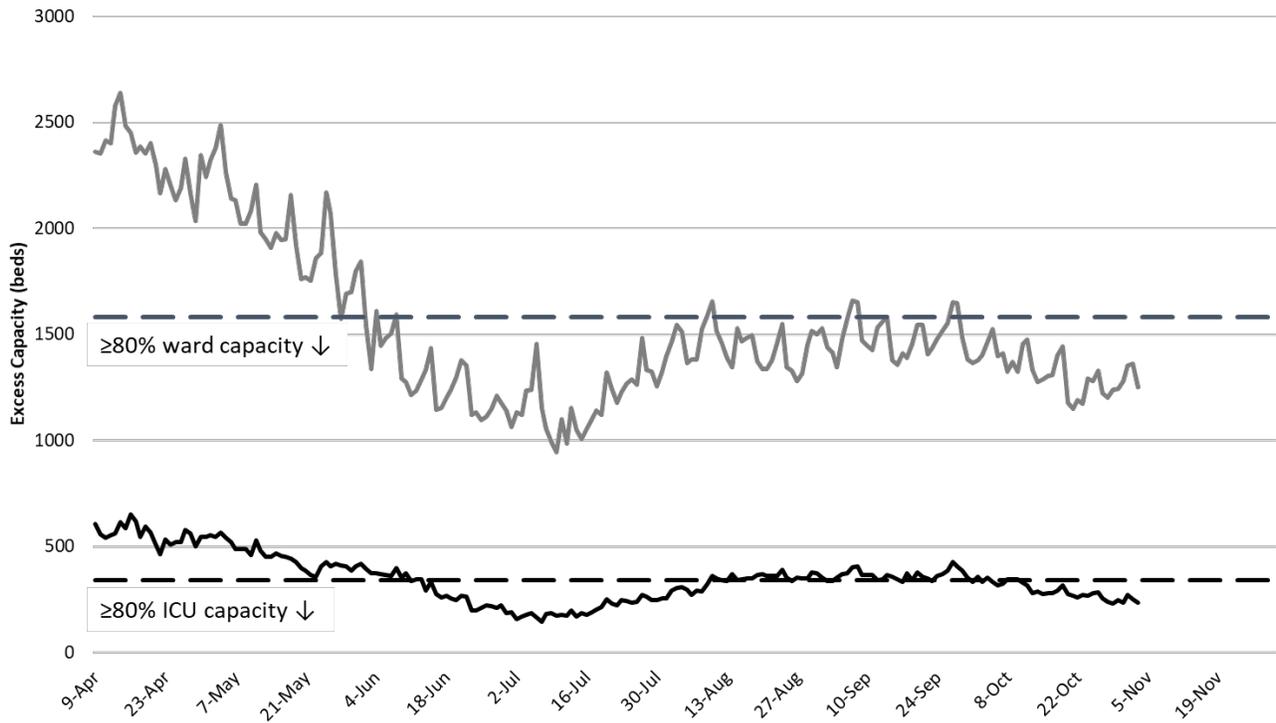


Figure 6. Observed Excess Non-Surge General Ward and ICU Capacity April 20 – November 3.

With 615 deaths, the week ending July 19th remains Arizona’s deadliest week (Figure 7). Weekly Covid-19 mortality reached a nadir of 43 deaths the week ending October 4th. Because cases have been increasing, deaths are now slowly trending up but remain well below rates observed in April in May. Fewer cases among residents of long-term care facilities and improved treatment are helping to reduce pressure on hospitals and fatalities.

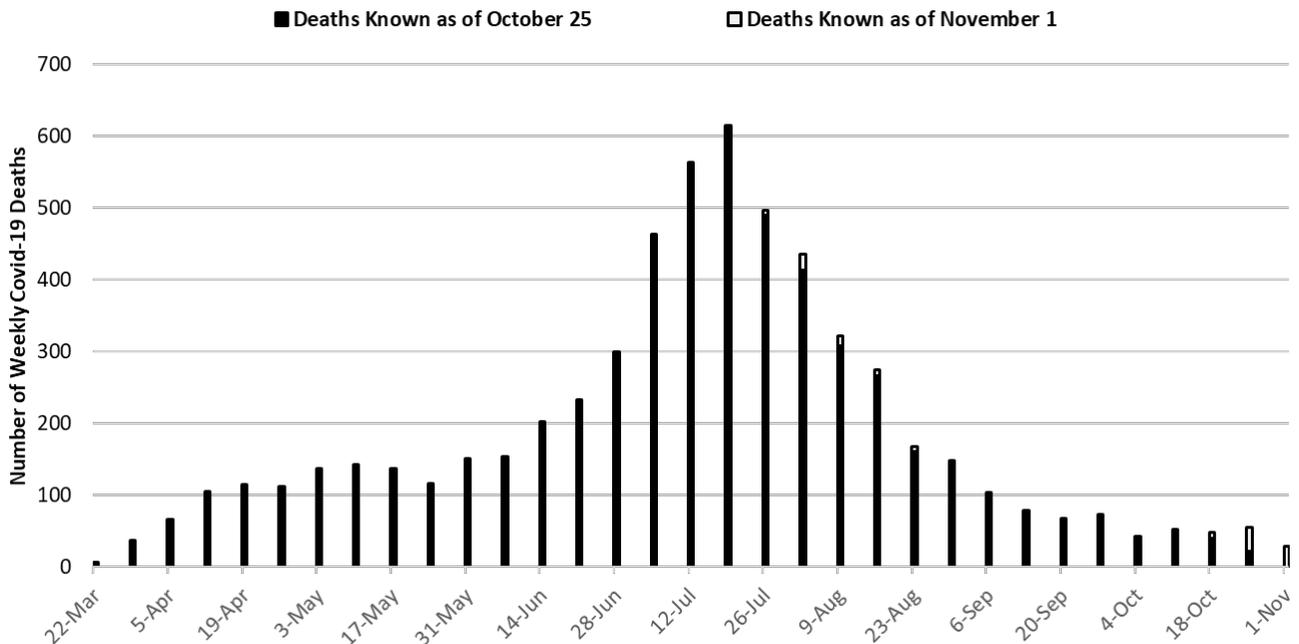


Figure 7. Weekly Known Arizona Covid-19 Deaths March 1 – November 3.

Pima County Outlook

For the week ending November 1st, 1152 Pima County residents were diagnosed with Covid-19 (Figure 8). This represents a 41% increase from the 819 initially reported cases last week. Test reporting remains relatively timely with 90% of the county's tests being reported within 2 days. However, last week's initial report of 819 cases was upwardly revised by 13% (105 cases) this week. From last week to this week cases increased among all age groups (Figure 9).

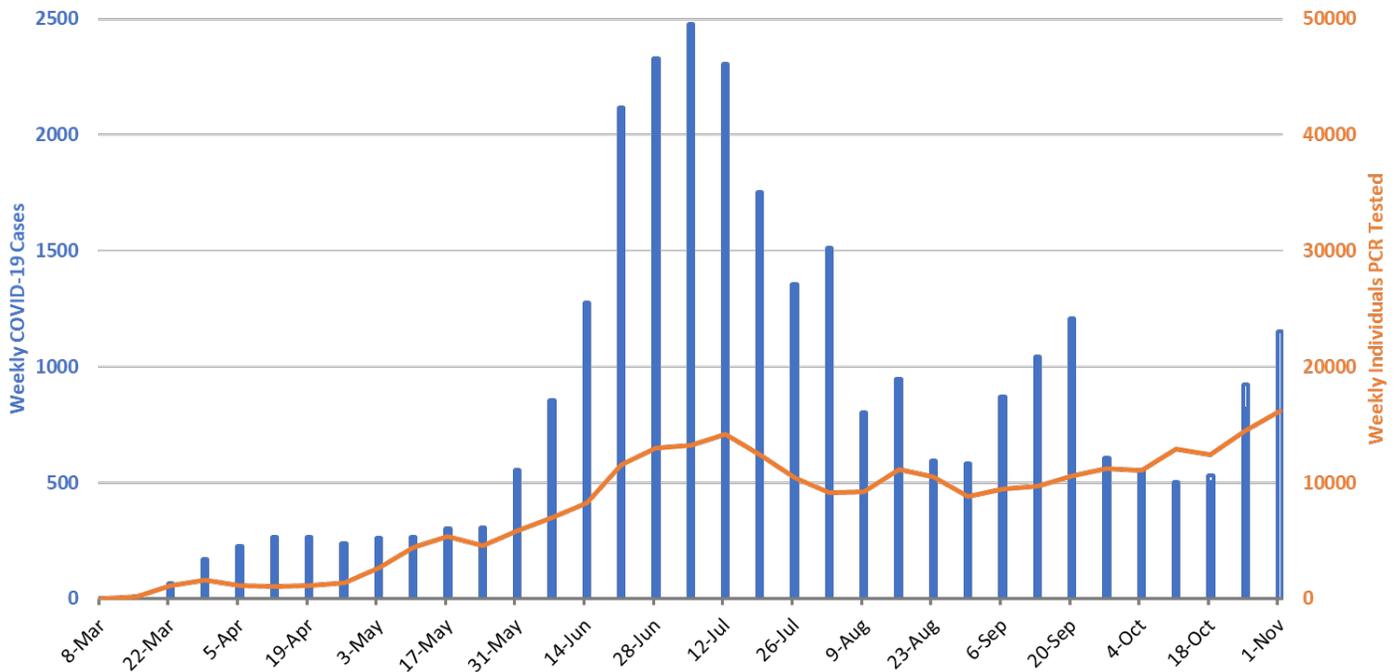


Figure 8. Covid-19 Cases and Individuals PCR and Antigen Tested in Pima County from March 1 - October 25.

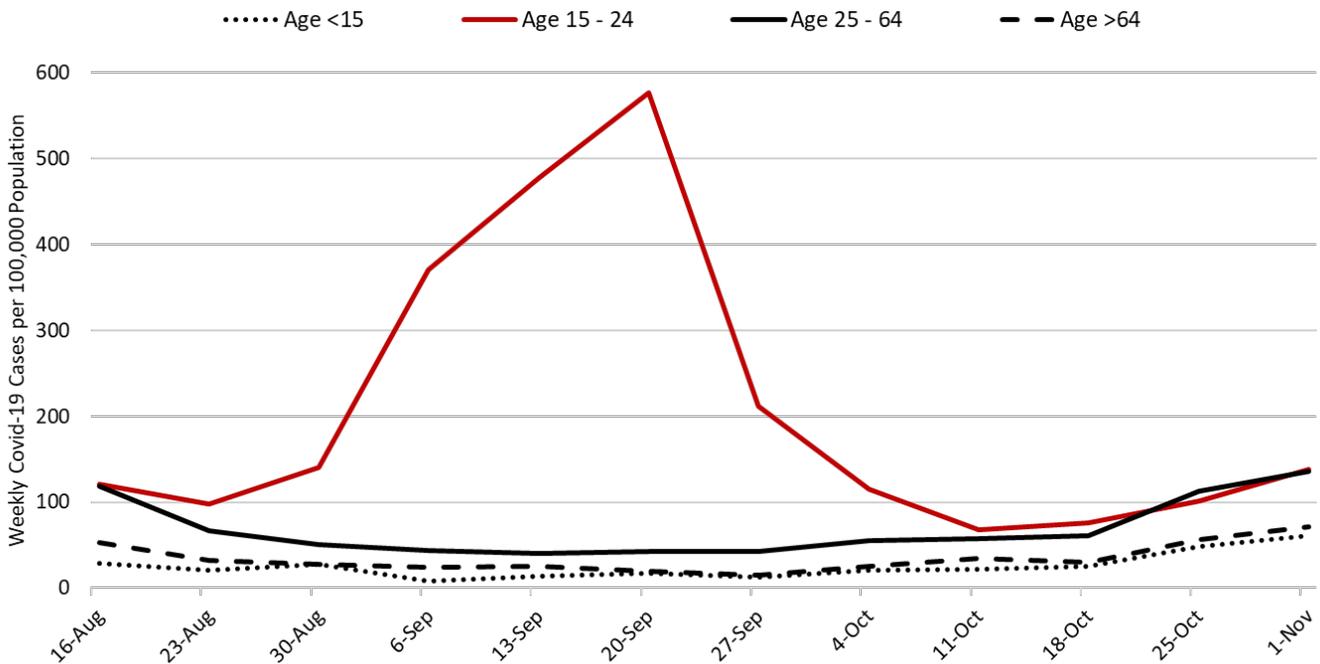


Figure 9. Covid-19 Cases by Age Group in Pima County from August 9 - October 25.

Summary:

- Viral transmission increasing among all age groups in Arizona and, if not addressed, increases the risk for subsequent over-burdening of hospital resources.
 - Community-driven transmission has now surpassed rates observed during the first week of June when 8239 cases were diagnosed.
 - New cases are currently being diagnosed at a rate of 129 cases per 100,000 residents per week. This rate is currently increasing by approximately 17 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 now slowly increasing.
 - 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 11.

County data appear below.

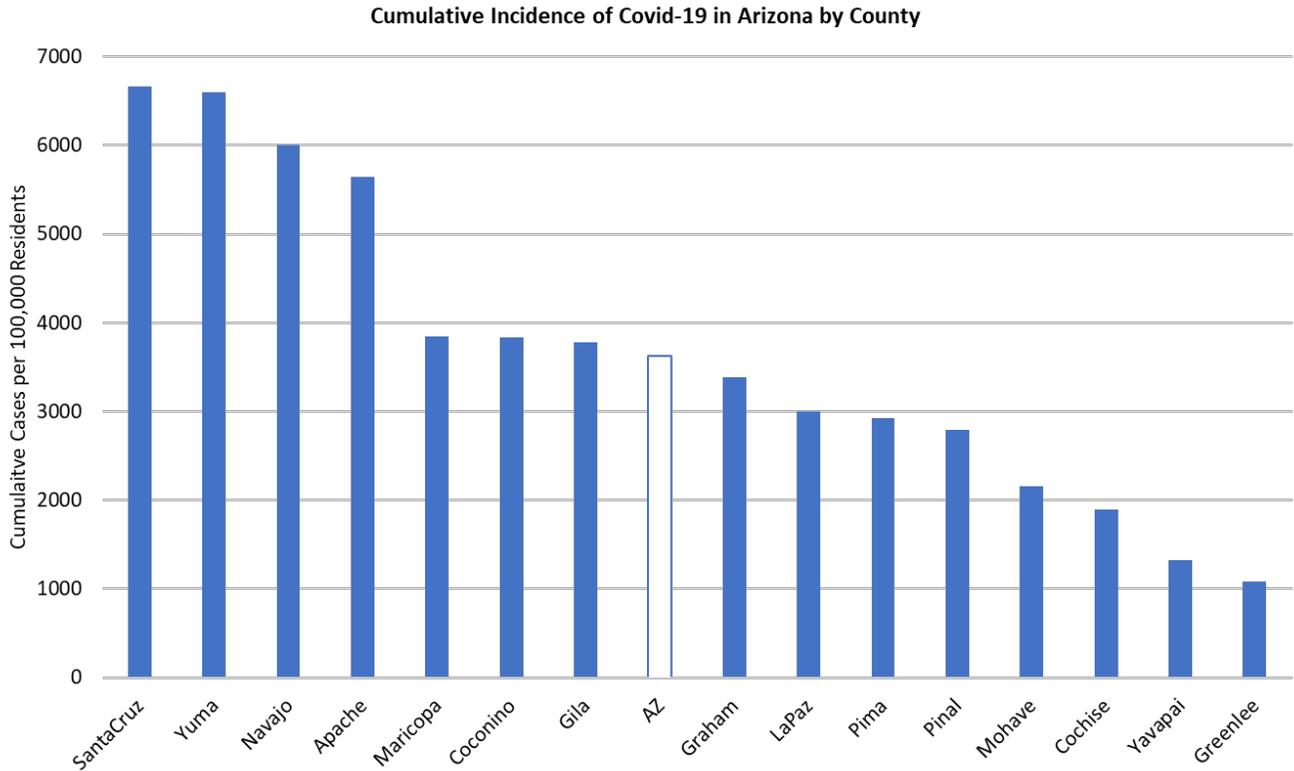


Figure 1A. Cumulative Covid-19 Incidence in Arizona by County March 1 – October 30.

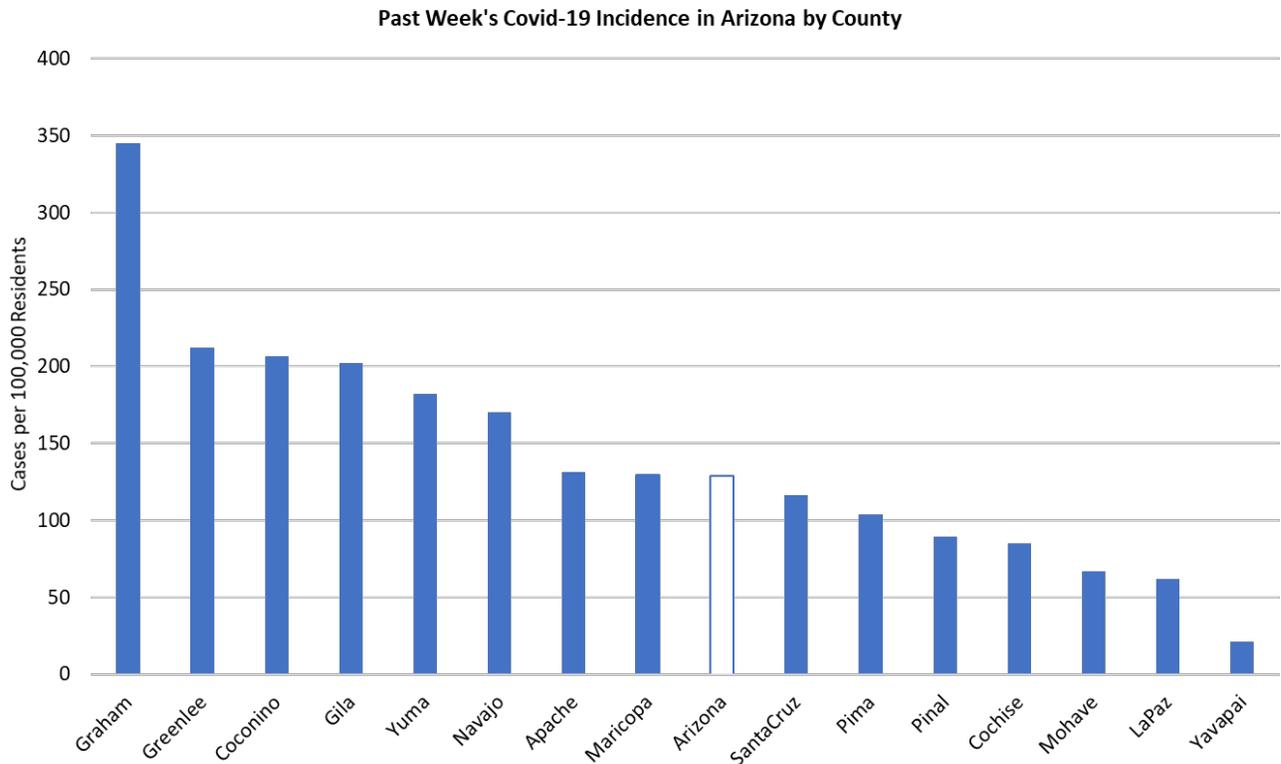
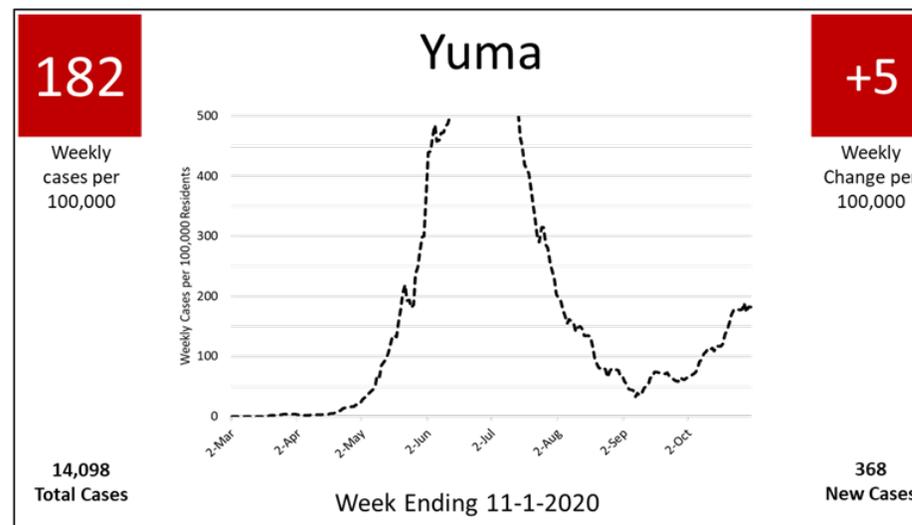
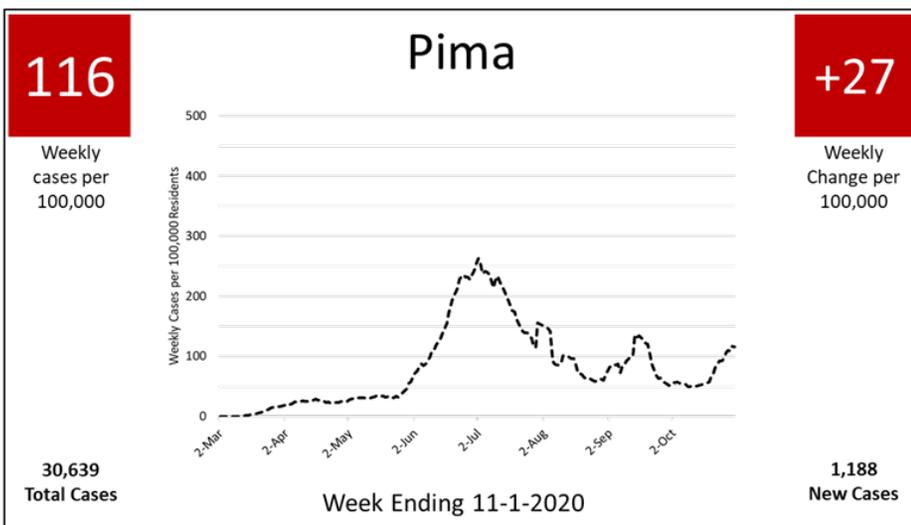
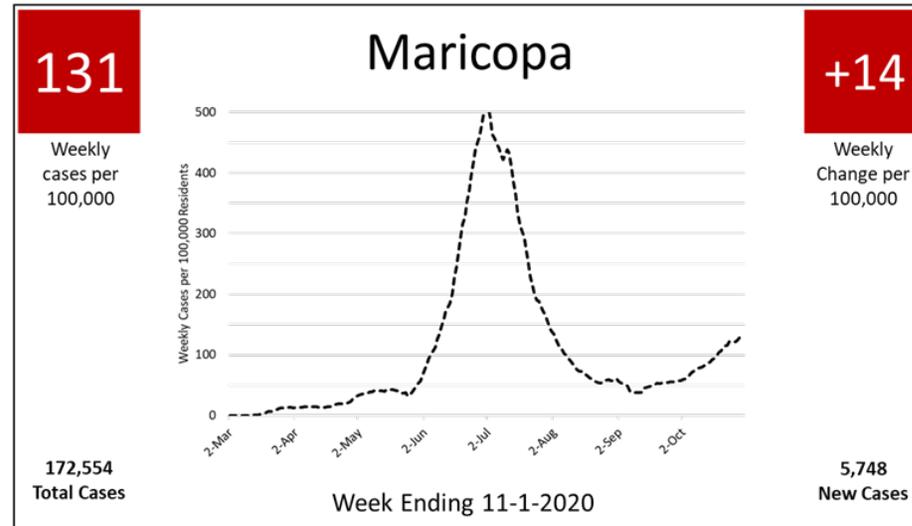
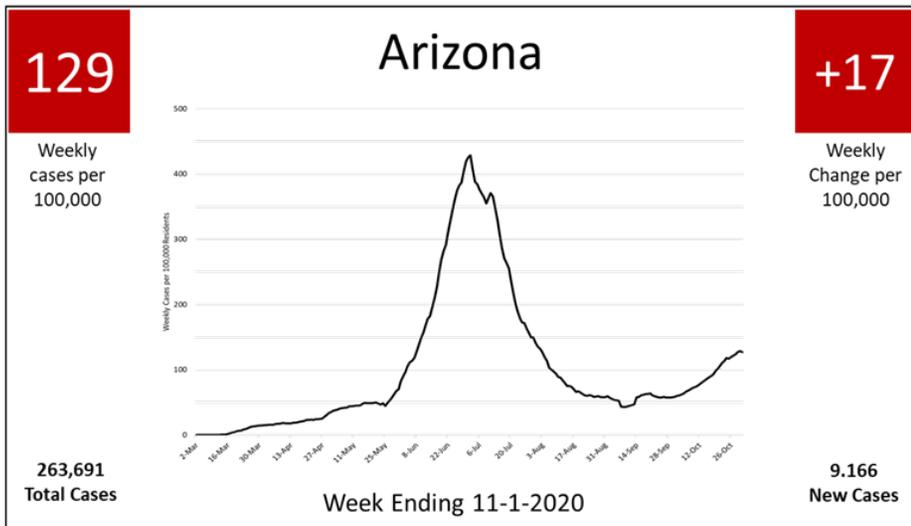
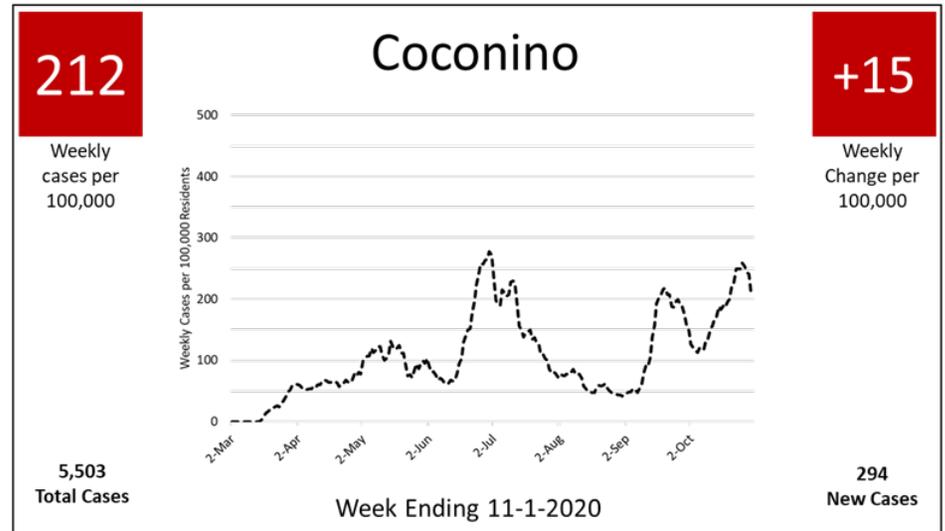
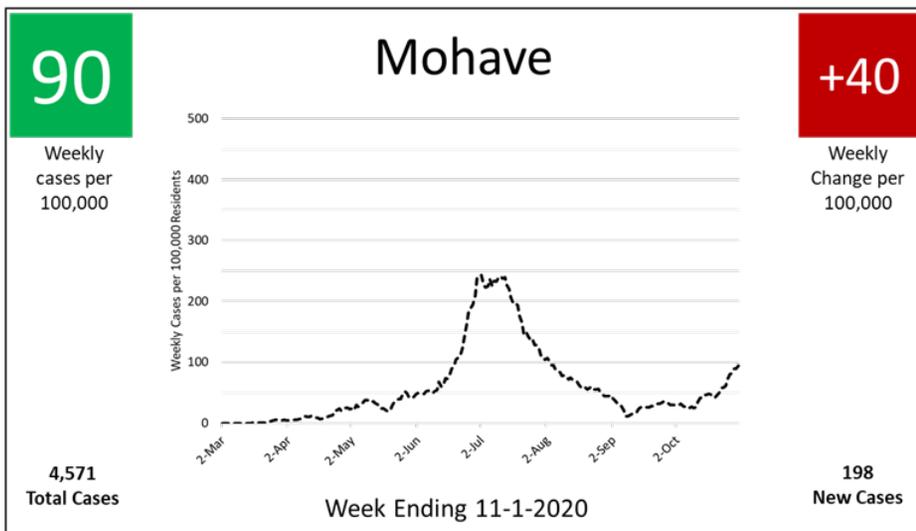
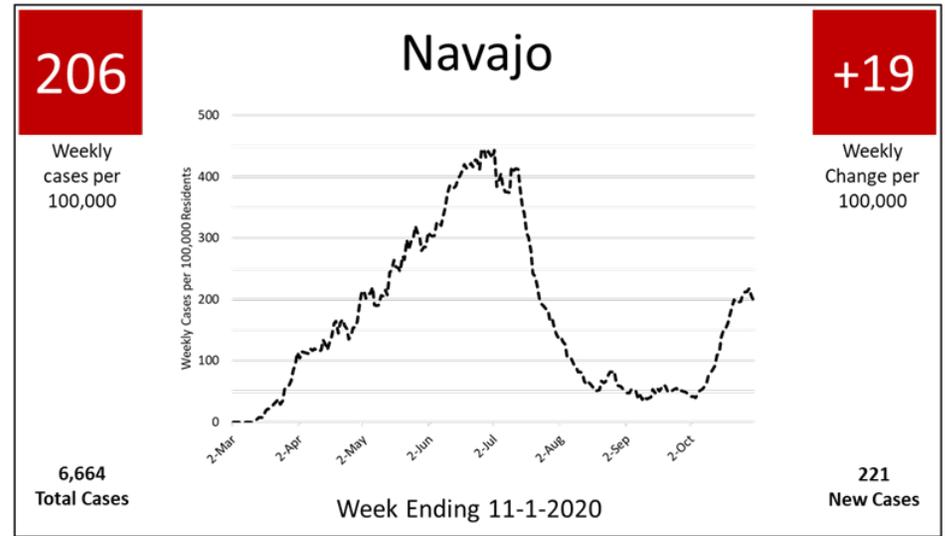
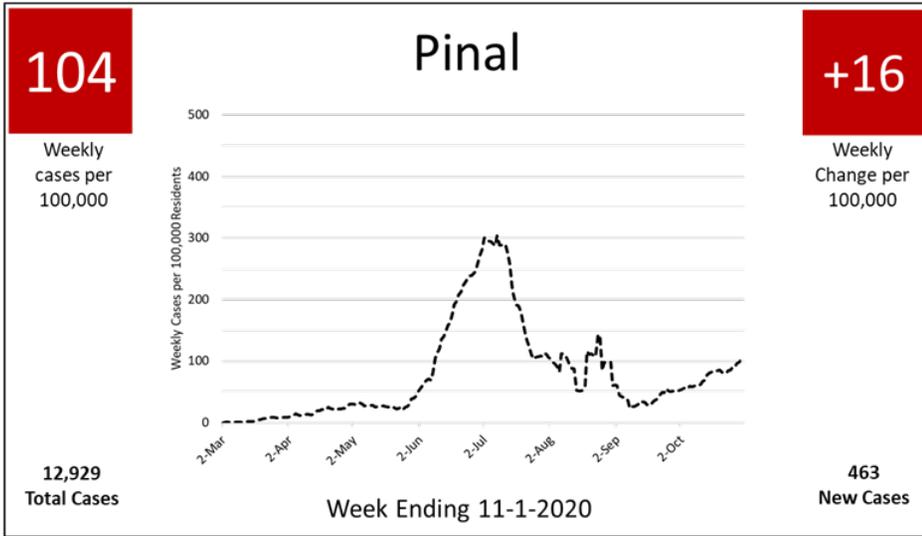


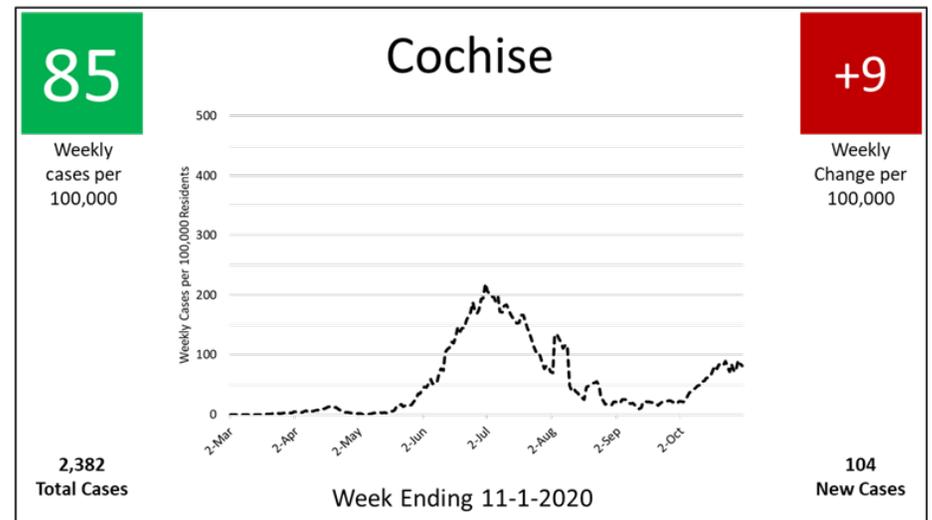
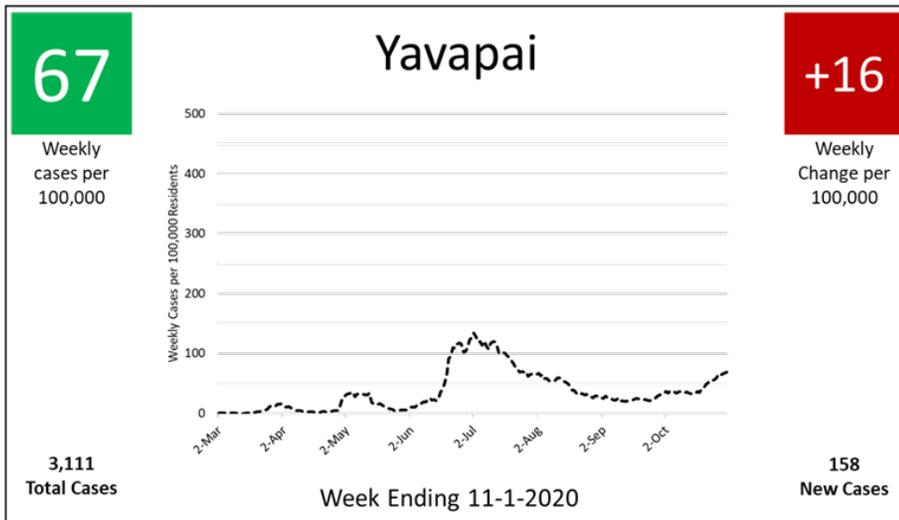
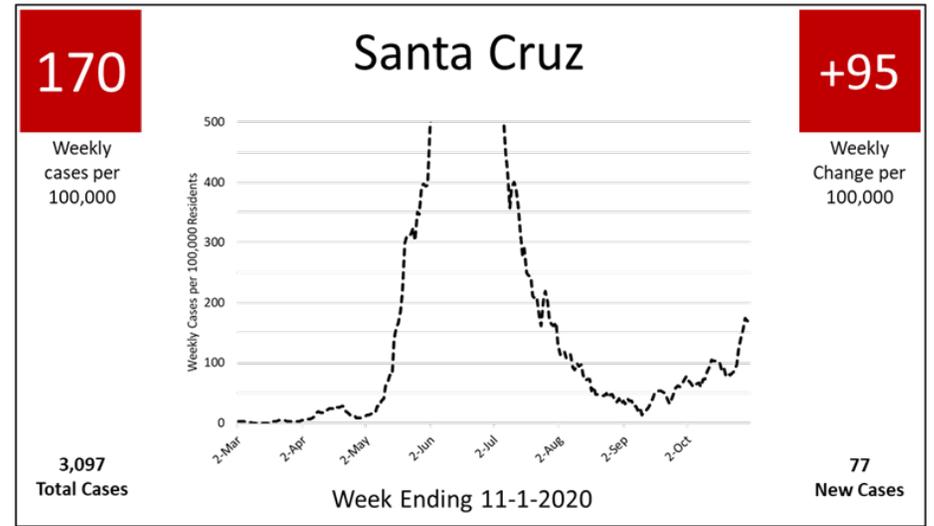
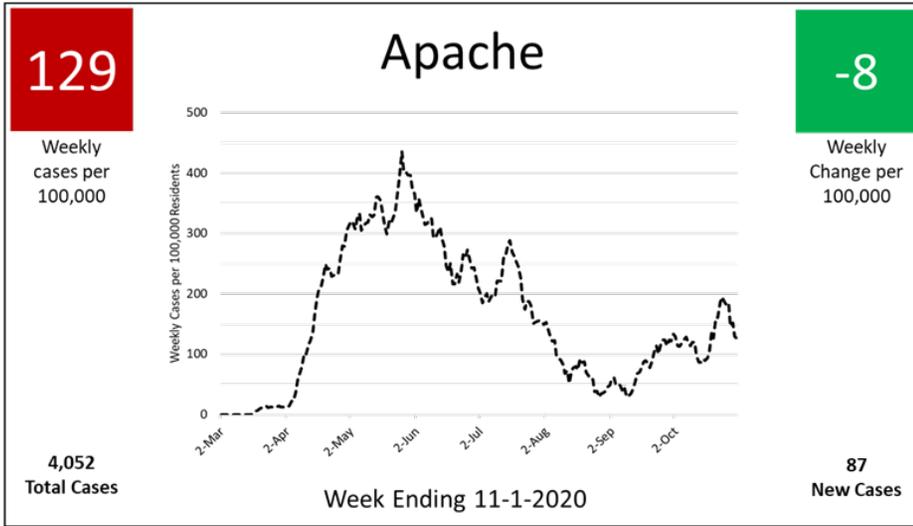
Figure 2A. Covid-19 Weekly Cumulative Incidence in Arizona by County October 18 – October 30.



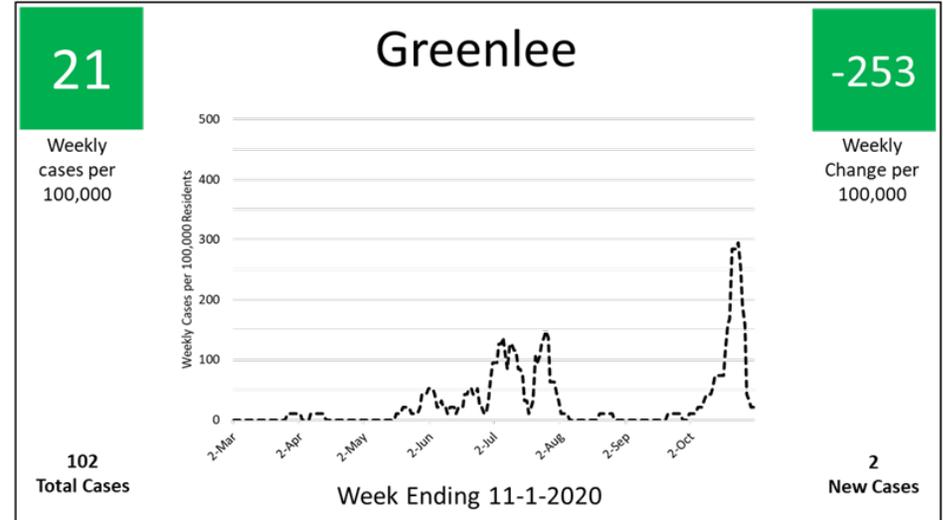
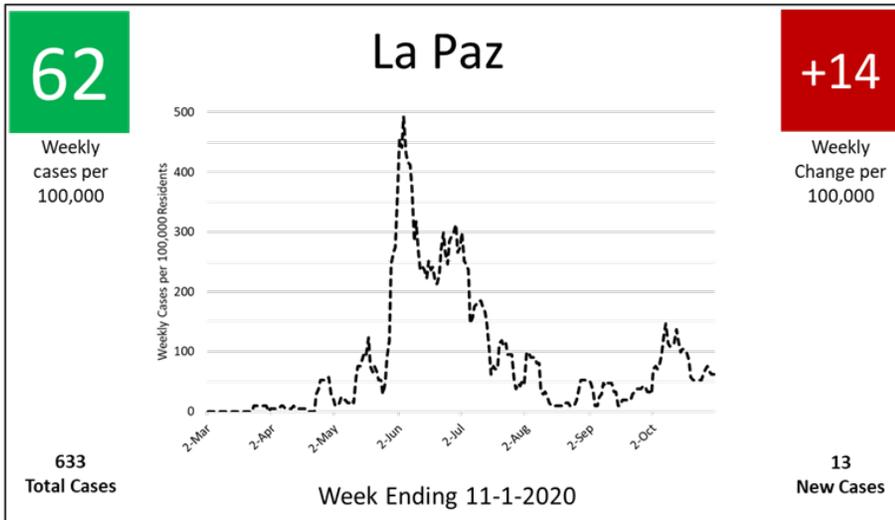
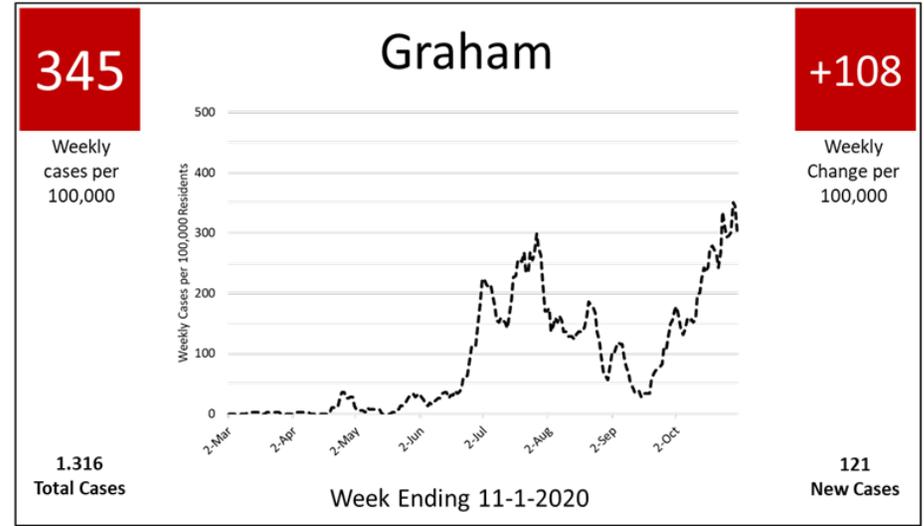
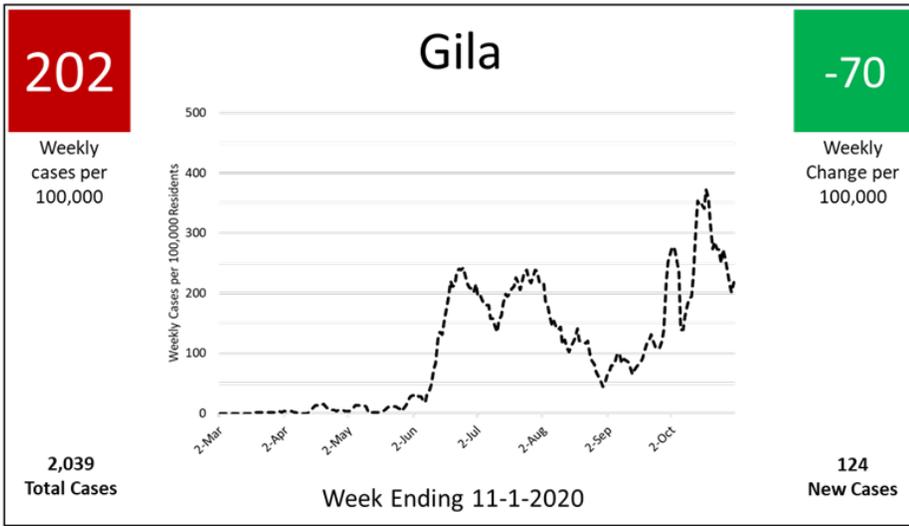
Appendix Figure 3A. Weekly Covid-19 Case Rates and Week-to-Week Change per 100,000 Population by County March 1 – October 30
 (Green shading represents a case rate <100 per 100,000 per week or a declining week-to-week change).



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