

**Public Health COVID-19 Response
Scientific Update
July 5, 2020**

Arizona is in a very different and much more dangerous place today.

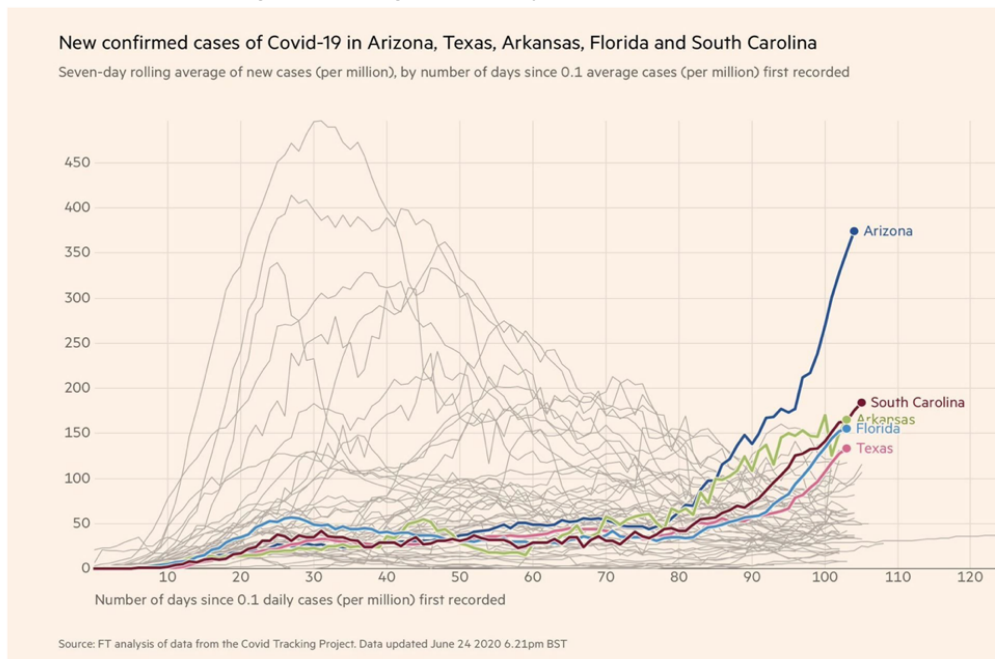
Currently, in many states across the U.S., COVID-19 spread rates are comparable to those seen in the early epidemic, before any interventions were implemented. Accordingly, and as predicted by epidemic models across the country, some states are again forced to close sectors of their economies. This report outlines the current state of science and evidence-based considerations for going forward.

What we know about the SARS-CoV-2 virus.

1. Asymptomatic (no symptoms) and pre-symptomatic (24-48 hours before expression of symptoms) may fuel the spread.
2. Risk for illness and death increases with age (not just a 65+ problem).
3. Risk for illness and death increases exponentially in congregate settings, campuses are a dense network of highly connected, clustered settings with intense social contact; students meet in dorms, classrooms and other common spaces.
4. SARS-CoV-2 viral particles can be transmitted with close contact, both indoors and outdoors.
5. Infection can be associated with cardiac, pulmonary, kidney, and neurological dysfunction.
6. COVID symptoms can last upwards of 50 days.

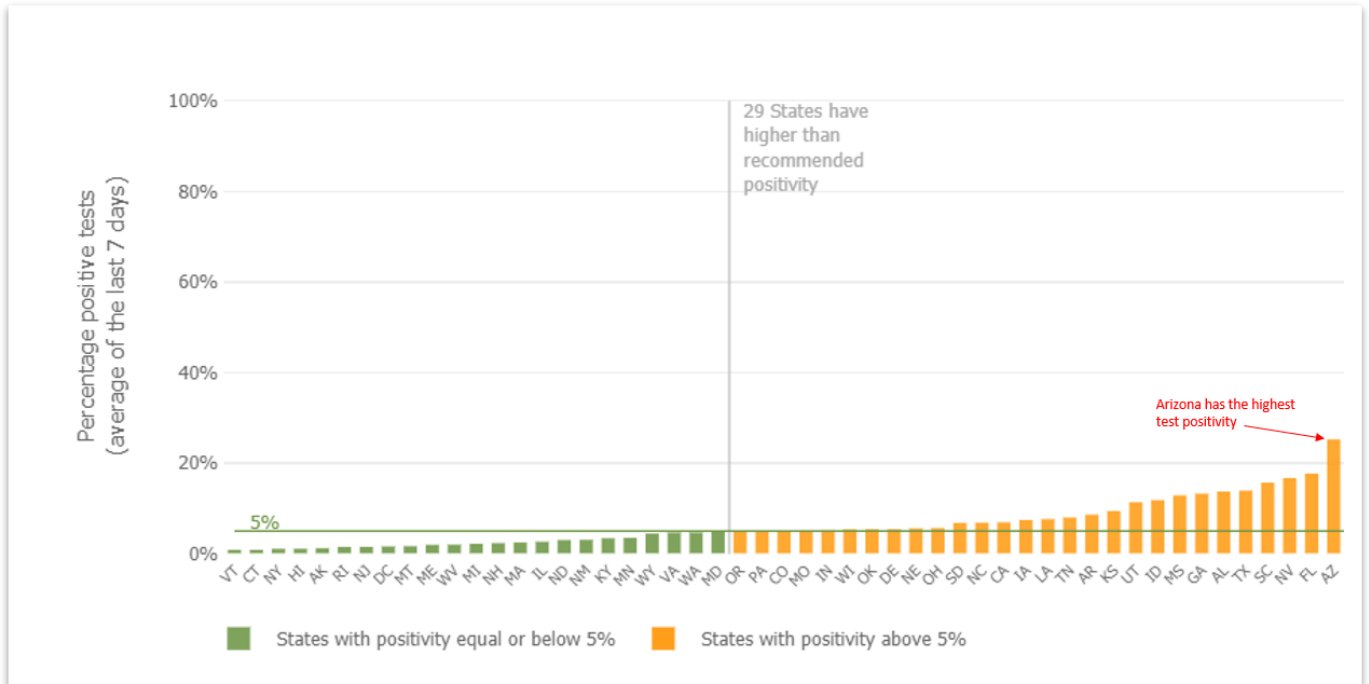
What we know about Arizona.

1. Arizona has the highest per capita infection rates in the nation. Half of all cases in Arizona are among people aged 20-44 years.

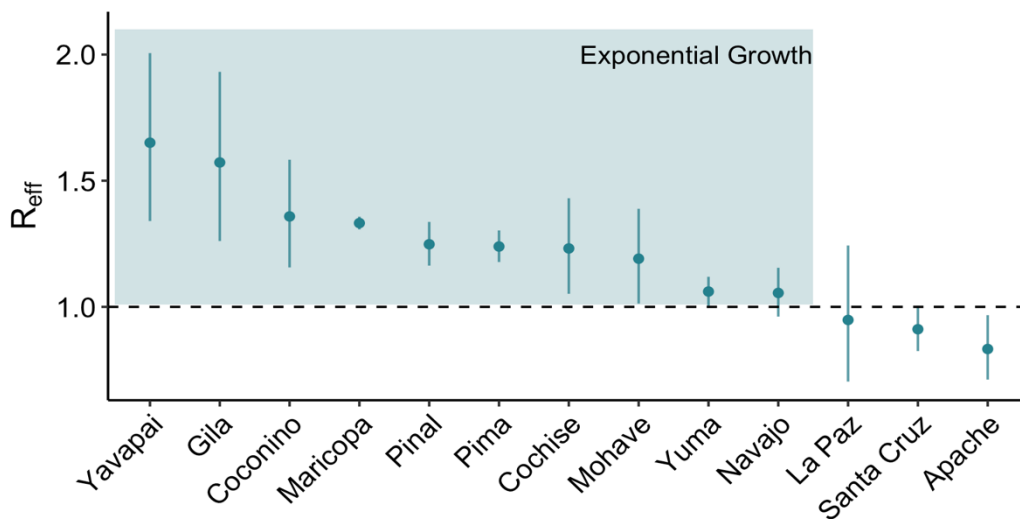


- Arizona's COVID-19 Test Positivity is above 25%** (see graphic below). The World Health Organization (WHO) advised governments that before reopening, rates of positivity in testing (i.e., out of all tests conducted, how many came back positive for COVID-19) should remain at 5% or lower for at least 14 days. **As of July 3, 2020, Arizona has the highest test positivity in the continental U.S.**

Source: <https://coronavirus.jhu.edu/testing/testing-positivity>



- The vast majority of the state of Arizona is experiencing exponential growth of SARS-CoV-2 infection.** We estimated the time-varying R_0 (called $R_{\text{effective}}$) over the last week and a half for each county in AZ. Points represent median estimates and error bars are 95% credible intervals. The shaded region represents counties for which the median $R_{\text{effective}}$ is above 1, suggesting exponential growth of cases. Greenlee and Graham counties were removed due to low case counts. Estimated R_0 for Coconino County is 1.3.



3. On Monday June 29, 2020, the **ADHS director declared that hospitals could activate "crisis care standards"** that guide the allocation of scarce resources to patients based on factors such as their likelihood for survival.
4. **Arizona, flu season** usually begins in October and continues through May, every year in Arizona, on average 5 to 20 percent of the population gets the flu. The scientific community is in agreement that COVID is more deadly than the flu. The case fatality for COVID is 5 times that of the flu.

What we know about Coconino County.

Community Wide Spread is Very High

- 23% of detected cases required hospitalization, and 23% of those hospitalized cases required the ICU.
- 25% of the hospitalized cases were 65 years and older (75% of those hospitalized were younger than 65 years).
- 49% of cases in Coconino and the entire state were 20-44 years old and 11% of cases in Coconino and the entire state were < 20 years old.
<https://www.coconino.az.gov/DocumentCenter/View/35985/0701-Weekly-Report>

Testing Supply Chain is Bottlenecked

- Coconino County averaged approximately 200-300 tests per day.
- Return of test results are stalled due to volume of testing throughout the state; Sonora Quest is a 5-7 days turn around; LabCorp is 3-5 days. While people wait for test results they may continue to spread the virus.

Health Systems Capacity is Overwhelmed

- Regional health systems ICUs are at near zero availability.

What we know will slow and stop the spread of COVID-19.

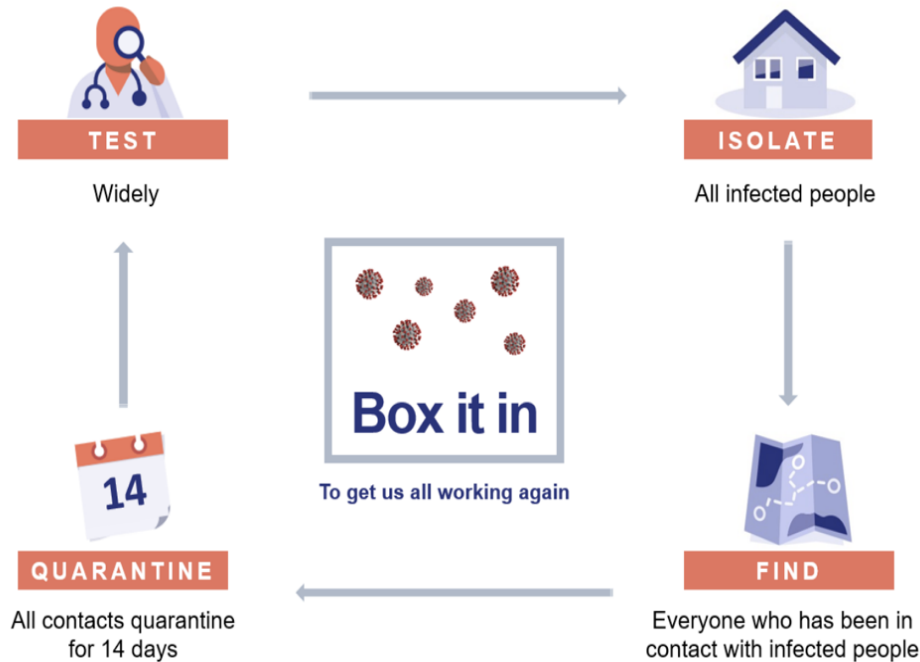
A "Box it In" Approach: Test - Trace - Isolate

The "[Box It In](#)" approach includes four tactics to limit and contain the spread of COVID-19. All four elements are crucial; if any one element is lacking, the virus can escape and spread explosively again. Success requires urgent expansion of the public health capacity and local and state coordination. Elements include:

1. Testing
2. Isolation of all infected people
3. Finding everyone who has been in contact with infected people
4. Quarantine all contacts for 14 days
5. Re-testing of those people

Step-by-step considerations are offered based on this evidence-based approach.

Figure: Box It In



In order to re-open the University campus safely, and not overwhelm the regional health system, each of the benchmarks must be met to ensure the prevention of COVID-19 related illness and death within our University and broader Flagstaff and neighboring County and Tribal communities.

#1 Testing:

- Testing does not slow the spread of the virus; it simply allows you to monitor the epidemic as it unfolds and take action to isolate infected people so the virus stops with them.
- Over the last 3 months, Coconino County has tested 13,881 residents (less than 10% of total population) and the County averages approximately 200-300 test per day, with a 3-5-day test turn around.
- Some universities are planning to test all students regularly, and although with caveats, some universities intend to conduct regular 'pooled' or group testing of students.
- In an ideal, most prepared scenario, **NAU would be able to test every student at least 2 times in the first 2 weeks of the semester as baseline and ideally repeat testing over the course the semester.** Students who test positive would have mandatory and monitored quarantine for 2 weeks. This may allow NAU to minimize asymptomatic spread and potentially control the epidemic on campus before it begins. Without such efforts, it is possible that we would never be able to control the spread on campus, and it would certainly spill over into our community. The Centers for Medicare and Medicaid (CMS) rate for the COVID-19 viral genetic test is approximately \$100.

#2 Quarantine:

- **Isolate infected people to prevent disease spread.** We must support every infected person so the virus stops with them, regardless of the setting. **Without follow-through with mandatory quarantine, the epidemic will continue to grow.**
- **All students who test positive must be removed from the campus environment for 14 days.**

#3 Case Investigation and Contact Tracing:

- Case Investigation and Contact Tracing is a key component to “box in” COVID-19 among NAU students, staff and faculty. A successful COVID-19 contact tracing program comprises [ten domains](#). These professionals are collectively responsible for calling students, faculty and staff with COVID-19, helping make care plans for students with COVID-19, identifying and collecting contact details of students with COVID-19 and their contacts, and connecting contacts with various services (including social support structures, testing, clinical care, etc.).
- As of June 27, 2020, Coconino County has conducted 690 case investigations (less than 40% of total cases) and is doing approximately 8-16 case investigations a day.
- **NAU may be required to establish its own system of case investigation and contact tracing in coordination with campus health, the county, and the state.**

Specifically, here are the tasks of the team members who will need to be involved:

Case Investigators:

1. Identify and notify cases of their confirmed or probable COVID-19 status. Provide instructions on isolation and treatment.
2. Interview cases and help them identify the people they were in contact with during their infectious period.

Contact Tracers:

3. Locate and notify contacts of their potential exposure, interview them to see if they have symptoms, offer testing if they do (and if they don't), and arrange for care if they are ill. Provide instructions on quarantine.
4. Monitor contacts and report daily on each person's symptoms and temperature for 14 days after the person's last contact with the patient while they were infectious.

COVID-19 Resource Care Coordinators

5. Provide support to those students in quarantine; the resource professional conducts a virtual needs check and connects at-risk COVID-19 positive patients and people in quarantine to community resources.

COVID-19 is a mandatory reportable disease to the ADHS through the Medical Electronic Disease Surveillance Intelligence System (MEDSIS), a secure web-based, centralized, person-based disease surveillance system for Arizona. MEDSIS is a statewide system hosted and supported by the ADHS for use by local health departments for disease surveillance, and for individuals and institutions responsible for reporting communicable diseases.

How Contact Tracing for COVID-19 Works

COVID-19

RESOLVE
Vital Strategies



Arizona Case Investigation and Contact Tracing Efforts are Patchwork

- In the absence of a standardized system set forth by ADHS, Counties and Tribes have largely developed their own systems for case investigation and contact tracing. On June 17, the through [Executive Order 2020-40](#) Governor Ducey announced expanded resources for contact tracing. On June 29, 2020, ADHS announced the standardization and centralization of this system through [SARA ALERT](#) but no printed or web based guidance for reference are available currently.
- It is our opinion that although a highly standardized and centralized system is a **pro** and would have been ideal in March, 2020, rolling it out in June, 2020, less than a month before University campuses classes begin is a **con** and may be disruptive to existing local efforts and infrastructure and may stall the ability for local health departments to identify, intervene and track clustered outbreaks locally, especially on the University campus.
- For an on campus return of approximately 15,000-20,000 students in a largely rural area ideally NAU may be required to establish its own system in coordination with campus health and the county health department to ensure timely and locally controlled testing, case investigation and contact tracing, quarantine and re-testing of its student until ADHS and Counties work out details of data analytics and timely data sharing, including COVID-19 cases and contacts coordination.
- According to the [Association of State and Territorial Health Officials](#) (ASTHO) 1:1000 individual-to-tracer ratio are needed with a 1:10 supervisor to contact tracer ratio. University of Arizona has invested \$550,000 to establish this system. A general staffing plan includes:
 1. Supervisors - Case Investigators and Contact Tracers 2-3
 2. Case Investigators and Contact Tracers: 27 – 30
 - Tier 1: Entry level, “lay,” and paraprofessional contact investigators
 - Tier 2: Professional disease investigation specialists (DIS) and DIS supervisor/trainers
 3. Resource Care Manager (for those in quarantine) 3-5
 4. Data Manager) 1-2
 5. IT Specialists 1-2
 6. Data Analyst 2-3

7. Volunteer Coordinator/Trainer 1-2
8. Licensed medical provider 1-2

In the face of the current upsurge in COVID-19 cases and those predicted for August and September 2020, it will be difficult to protect the public health of the NAU and Flagstaff communities without adhering to Lowest Risk CDC Recommendations for Institutions of Higher Learning – remote synchronous learning.

Doing so will enable the state and local health departments and regional and local health care systems to recover from the current surge in cases, and provide the time required to develop infrastructure that can effectively ‘box in’ the virus on the NAU campus. From a public health perspective, this is safest way to move toward bringing faculty, students, and staff back to campus for the Spring 2021 semester.