



Meeting Date: 04/24/2020

DATE: April 22, 2020

TO: Honorable Chair and Members of the Board

FROM: Marie Peoples, Deputy County Manager/Incident Commander

SUBJECT: Discussion and update from Deputy County Manager/Incident Commander Dr. Marie Peoples and Northern Arizona University regarding the novel (new) coronavirus, COVID-19, and response efforts.

RECOMMENDED MOTION:

This is a presentation and discussion.

BACKGROUND:

The novel coronavirus, COVID-19, was first detected in Wuhan City, Hubei Province, China in December 2019, and the Centers for Disease Control (CDC) considers this virus to be a significant public health threat that has spread globally. On January 29th, 2020 the Coconino County COVID-19 Incident Command Team developed a Command and General Staff structure for the monitoring and preparedness measures surrounding COVID-19. On January 30th, 2020, the World Health Organization declared the COVID-19 illness a public health emergency of International concern and on January 31st, 2020 the United States Secretary of Health and Human Services declared a public health emergency due to the COVID-19 illness. On February 26th, 2020 the COVID-19 Incident Command Team expanded as resource needs increased in reference to COVID-19; to include enhanced communications to the public through press releases, public meetings, cooperater meetings and development of an informational website. On March 13, 2020 the Coconino County Health Emergency Operations Center was opened in reference to COVID-19 and the Joint Information Center was established for public information coordination related to COVID-19. The County continues to plan and prepare for event and facility closures, modified staffing plans, work-from-home programs, and enhanced communications to employees to ensure for effective Continuity of Operations of County Government through the activation of the County Continuity of Operations plan.

ALTERNATIVES:

The Board may choose not to have this update or discussion.

FISCAL IMPACT:

The pandemic has had an impact on the economy.

ATTACHMENTS:

- 1 – Staff Report
- 2 – Final COVID-19 Report
- 3 – Powerpoint 1
- 4 – Powerpoint 2



Coconino County Coronavirus Response Report

A preliminary report to the Coconino County COVID-19 Incidence Command Team
by Northern Arizona University, Center for Health Equity Research

April 14, 2020

Purpose:

The COVID-19 epidemic in the United States is growing with community-wide transmission occurring in every state. This report summarizes epidemiological data and recommendations to support public health officials and local government to navigate the rapidly evolving COVID-19 epidemic in Northern Arizona, and specifically in Coconino County. Data and recommendations presented are those available at the time of preparation of the report.

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Acknowledgements:

We thank the tireless efforts of the Coconino County COVID-19 Incident Command Team, a collaborative approach to fight COVID-19 in Coconino County. Many different departments have provided staff including: Health and Human Services, Emergency Management, County Management, Facilities Management, Probation, Parks and Recreation, Public Works, and many others. We are especially grateful to Incident Commander, Dr. Marie Peoples, the Surveillance Group, which gathers information using Public Health epidemiological information systems from Health Care Centers, providers, and facilities to identify COVID-19 cases and the Investigation and Monitoring Groups, who contacts positive COVID-19 cases, identifies individuals who may be exposed, and implements quarantine of those people. We also thank the front-line health providers and health system leadership who serve our community each day and actively contribute the necessary data the County requires to mitigate COVID-19 through epidemiological surveillance and contact tracing. A special thank you to Matt Ekoff MPH, KOMINOTE | COMMUNITY Consulting (K|CC) for his careful review and contribution to the People Experiencing Homelessness section.

Suggested Citation:

Coconino County Coronavirus Response PPT Report: A Preliminary Report to the Coconino County COVID-19 Incidence Command Team by the Northern Arizona University, Center for Health Equity Research. April 14, 2020. Flagstaff, Arizona.

Executive Summary

The COVID-19 epidemic in the United States is growing with community wide transmission occurring in every state. This report summarizes epidemiological data and recommendations to support public health officials and local government to navigate the rapidly evolving COVID-19 epidemic in Northern Arizona, and specifically in Coconino County. Data and recommendations presented are those available at the time of preparation of the report. Mitigation strategies are organized by major public and private sector partners and stakeholders and vulnerable population of our region. Each recommendation requires full development of a strategy and adaptation for the target audience.

According to the [National Coronavirus Response: A Road Map to Reopening](#) prepared by the American Enterprise Institute to effectively transition away from physical or social distancing as a primary tool for controlling current and future spread of COVID-19 and move to reopening and establishing protections to be able to lift all physical and social restrictions, a state can safely proceed when it has achieved the following triggers:

1. A sustained reduction in cases for at least 14 days
2. Hospitals in the state are safely able to treat all patients requiring hospitalization without resorting to crisis standards of care
3. The state is able to test all people with COVID-19 symptoms
4. The state is able to conduct active monitoring of confirmed cases and their contacts.

To achieve these goals, three main areas currently require strengthening:

1. Better data to identify areas of spread and the rate of exposure and immunity in the population;
2. Improvements in state and local health care system capabilities, public-health infrastructure for early outbreak identification, case containment, and adequate medical supplies; and
3. Therapeutic, prophylactic, and preventive treatments and better-informed medical interventions that give us the tools to protect the most vulnerable people and help rescue those who may become very sick

COVID-19 Cases and Testing

Coconino County confirmed its first case of COVID-19 on March 15, 2020. At the time of writing this report, according to the Arizona Department of Health Services COVID-19 Dashboard there are currently 270 cases and 22 deaths. Community transmission of COVID-19 is considered widespread with risk for infection increasing with some areas of heightened risk.

Approximately 867 COVID-19 tests have been administered in Coconino County by private and state laboratories, which equates to less than .01% of the population of Coconino County residents. Approximately 23% of tests conducted were positive for COVID-19 and 77% of tests were negative for COVID-19.

Stay-at-Home Advisories

The trigger for issuing a stay-at-home advisory in a US state is when **case counts are doubling every three to five days** (based on the current New York experience) or when state and local officials recommend it based on the local context (for example, growth on track to overwhelm the health system's capacity).

The trigger for issuing a recommendation to step down from a stay-at-home-advisory back to "slow the spread" is when the number of new cases reported in a state has declined steadily for 14 days (i.e., one incubation period) and the jurisdiction is able to test everyone seeking care for COVID-19 symptoms.

Health Systems Capacity

- **ICU availability** has fluctuated since the start of the COVID-19 pandemic, ranging from 0% to 90% of availability on any given day. Tuba City Regional has experienced low levels of availability. Flagstaff Medical Center (FMC) ICU availability has remained under 20% during the course of the pandemic. As of April 15, 2020, there was less than 20% adult ICU availability across all regional hospitals.
- **Adult ED availability** also fluctuates over time. Both FMC and Tuba City Regional ED availability has remained over 60%. Banner Page has experienced spikes in low availability.
- **Adult medical-surgical bed** availability has generally remained below 20% in all three hospitals with little fluctuation at FMC and Tuba City Regional. Banner Page has seen more fluctuation of the availability of their 6 med/surg beds.
- **Ventilator** availability has a slow downward trend from the end of March (60% availability) to mid-April (30% availability). On April 15, 2020, FMC had a 40% ventilator availability. Both Tuba City Regional and Banner Page hospitals have reported 100% availability in ventilators during the course of the pandemic.

Lifting Social Distancing Measures

Northern Arizona University researchers generated several time-based modeling scenarios to determine the best course for social distancing interventions to mitigate disease transmission and hospitalization in the Northern Arizona region. According to these time-based modeling scenario estimates, if existing physical and social distancing measures were lifted on April 30, 2020, current hospitalization percentages of COVID-19 patients would triple (or more) between April 30 and May 15, which could outpace the ability of local hospitals to manage the situation. **If social distancing remained in place through May 30, 2020, disease transmission would flatten the curve enough to keep hospitalizations roughly at their current rate through the beginning of July 2020.**

Until the triggers for relaxing Stay-at-Home ordinances are achieved and while community-wide transmissions remain high in Arizona and in the neighboring Northern Arizona counties and Native Nations, and based on exhaustive review of local, state and federal recommendations, we encourage Coconino County to formalize a regional taskforce inclusive of the Northern Arizona counties and Native Nations to leverage all existing resources to:

1. Maintain current Physical or Social Distancing protocols until May 30, 2020
1. Increase diagnostic testing capacity and build data infrastructure for rapid sharing of results
2. Ensure functioning of the Health Care Systems
3. Increase supply of personal protective equipment
4. Implement comprehensive COVID-19 surveillance systems
5. Massively scale contact tracing, isolation, and quarantine
6. Encourage the public to wear masks (not surgical masks or N95 masks)

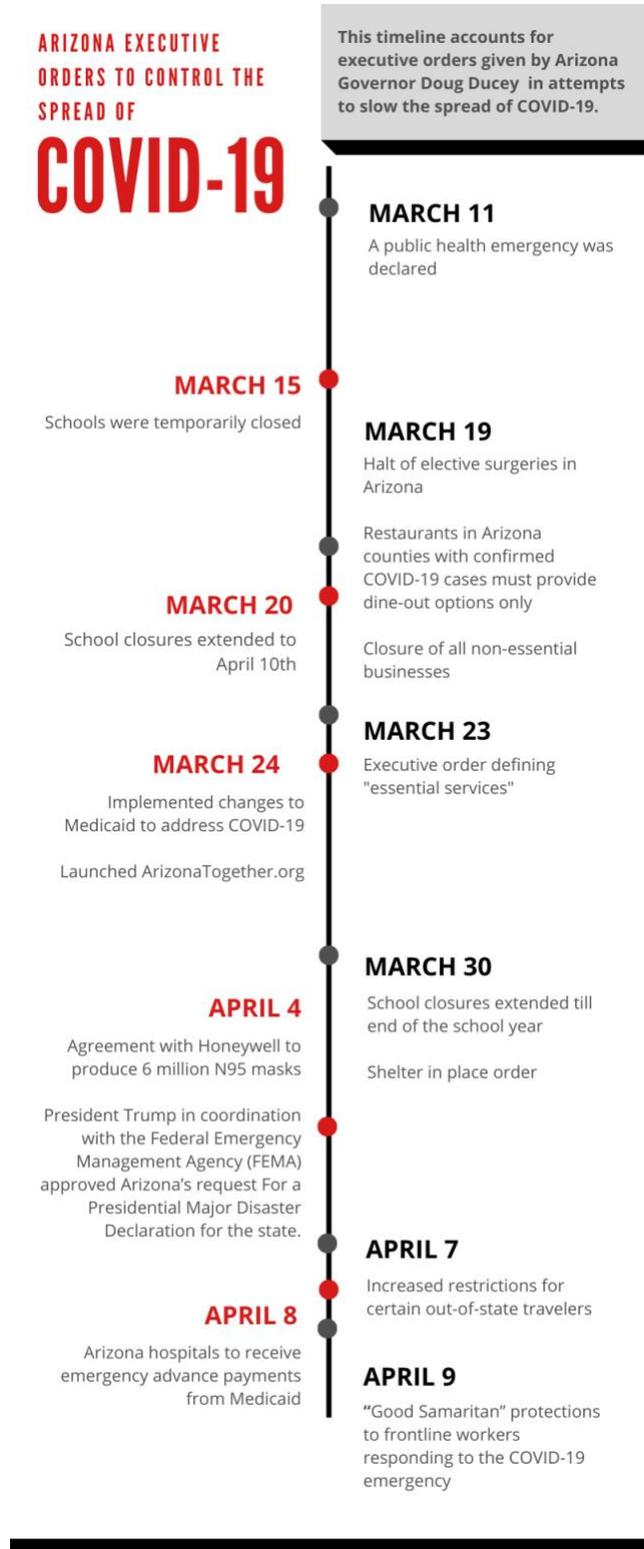
Details of these recommendations are outlined and include an exhaustive list of evidence-informed recommendations for COVID-19 mitigation by sector (housing, healthcare, transportation, labor and employment, education, social services) and for primary vulnerable populations of this region (people experiencing homelessness, justice involved, immigrant, individuals experiencing violence, etc.)

Disease Background

Pandemic of COVID-19. According to the Centers for Disease Control (CDC), the CDC is responding to a pandemic of respiratory disease spreading from person-to-person caused by a novel (new) coronavirus. The disease has been named “coronavirus disease 2019” (abbreviated “COVID-19”). Coronaviruses are a large family of viruses that are common in people and many different species of animals, including camels, cattle, cats, and bats. Rarely, animal coronaviruses can infect people and then spread between people such as with MERS-CoV, SARS-CoV, and now with this new virus (named SARS-CoV-2). This situation poses a serious public health risk. The federal government is working closely with state, local, tribal, and territorial partners, as well as public health partners, to respond to this situation. COVID-19 can cause mild to severe illness; most severe illness occurs in adults 65 years and older. The virus that causes COVID-19 is infecting people and spreading easily from person-to-person. On March 11, 2020, the COVID-19 outbreak was characterized as a pandemic by the World Health Organization.

Pandemic Planning is important to ensure effective local, federal and global responses to highly infectious diseases like COVID-19. A multi-sectoral approach, inclusive of public health, health care, education, business, transportation, not for profit, housing, and social service sectors among many others is required for effective planning. To ensure equity and the opportunity for all people to be included and considered, the process must be done in collaboration with community leaders and organizations, especially with and for those representing vulnerable populations, such as those identified at high risk. Among those considered at high risk for COVID-19 are those over the age of 65 years, those with underlying health conditions, or those occupying societal positions that increase their risk, such as low wage earners, people experiencing homelessness, immigrants, and families living in poverty. In coordination, stakeholders are best able to consider the characteristics of the local community and region and create a comprehensive plan to address COVID-19. The CDC provides additional guidance for local, federal and global pandemic planning ([CDC, 2016](#)). This working document was created by a team of epidemiologists and public health professionals in

Figure 1: Arizona Executive Order Timeline



coordination with Coconino County to support local public health officials in making evidence-informed decisions for community-wide spread of COVID-19.

Non-pharmaceutical interventions (NPI) are any measure that an individual or population of people could take to prevent the spread of disease without the use of medical intervention. For example, social distancing is an effective non-pharmaceutical intervention that recommends limiting person-to-person contact as much as possible to prevent the spread of infection. Another example of non-pharmaceutical intervention is legal intervention through executive orders. Governor Doug Ducey has issued several executive orders that include NPIs aimed to slow the spread of COVID-19 in Arizona (Figure 1).

Event Background

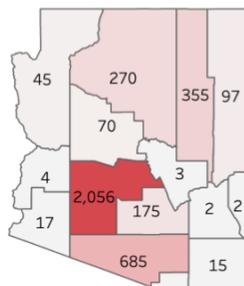
Arizona

Arizona confirmed its first case of COVID-19 on January 22, 2020. According to the Arizona Department of Health Services, there are currently 3,806 cases and 131 deaths as of April 14, 2020. Community transmission of COVID-19 is considered widespread with risk for infection increasing with some areas of heightened risk. COVID-19 cases are distributed evenly between males and females. The distribution of COVID-19 cases differs by age group. In Arizona, approximately, 36.7% of COVID-19 cases are 20-44 years of age, 18% are 45-54 years, 17% are 55-64 years and 24% are 65 years and older. Approximately 19% of cases are among non-Hispanic whites, and 7% of COVID-19 cases are among American Indian residents (Figure 2).

Figure 2: Arizona COVID-19 Case Snapshot [April 14, 2020]



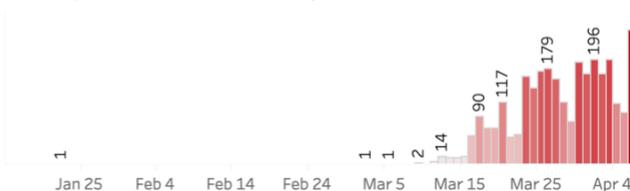
Select a county to filter the graphs below.



Counties with cases less than 10 will not have the graphs filtered.
Counties with less than 3 deaths will not be displayed in the filtered death counts.

COVID-19 Cases by Day

Date of specimen collection is used for day

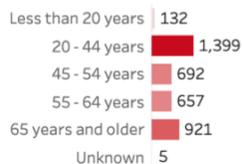


For recent weeks, all data may not be complete due to reporting lags.

COVID-19 Cases by Laboratory Type

ASPHL	Private Laboratory
175	3,631

COVID-19 Cases by Age Group

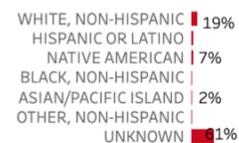


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COVID-19 Cases by Gender



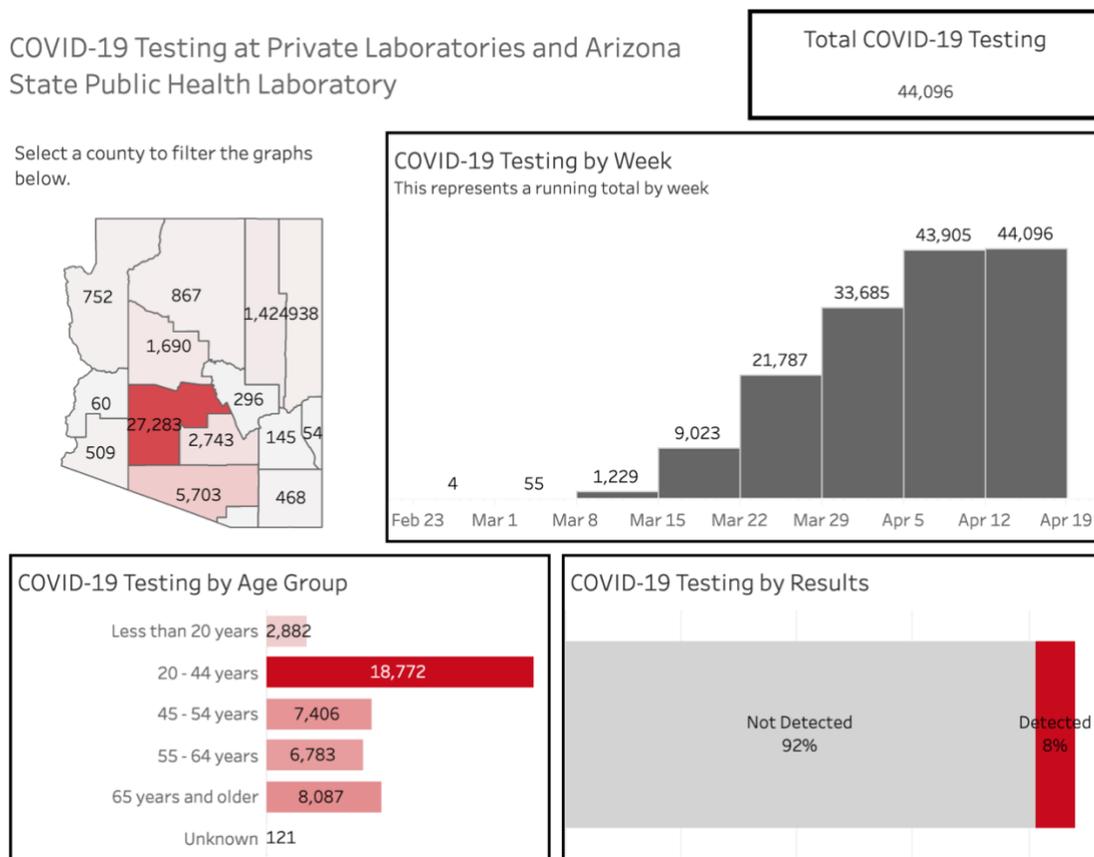
COVID-19 Cases by Race/Ethnicity



COVID-19 Testing in Arizona

Approximately 44,096 COVID-19 tests have been administered by private and state laboratories of Arizona with testing ramping up daily. Approximately 12% (n= 5, 671) of tests in Arizona were administered within five Northern Arizona counties: Apache, Coconino, Navajo, Mojave and Yavapai. Testing differs by age group, with 42% of tests among residents aged 20-44 years, and 18% of tests among residents aged 65 years and older (Figure 3). At this time, the rate of testing for COVID-19 is unknown due to the number of symptomatic people directed to stay at home who are uncounted. The county and regional ability to administer COVID-19 tests to all in need depends on state and federal resources for testing. Coconino County COVID-19 testing is limited to one Flagstaff location (Fort Tuthill) open 5 days per week (Monday- Friday), and two other locations (Williams and Tusayan/Grand Canyon) open one day per week.

Figure 3: Arizona COVID-19 Testing [April 14, 2020]



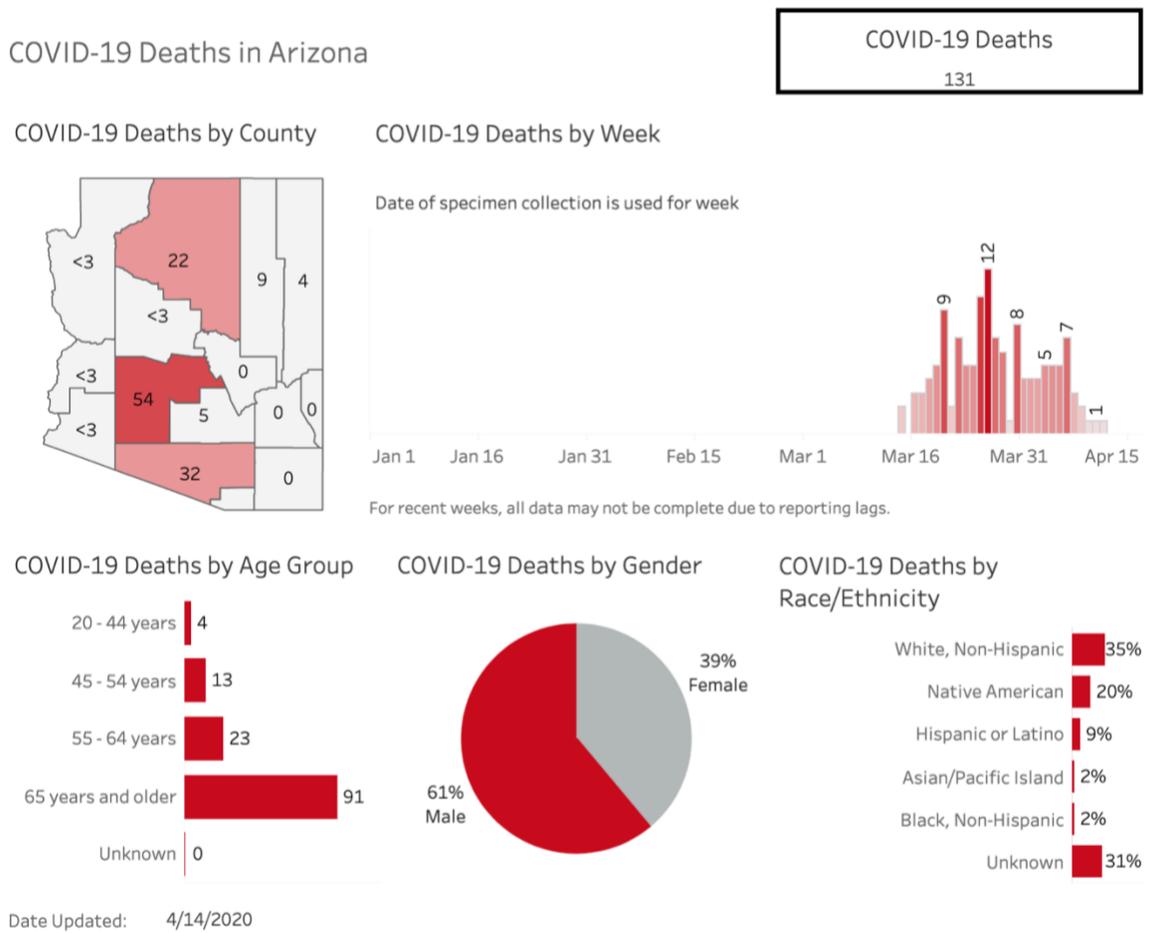
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COVID-19 Deaths in Arizona

In Arizona, 131 deaths related to COVID-19 have been reported. COVID-19 related death differs by sex, age and ethnicity. Majority of deaths related to COVID-19 were among male residents (61%), compared to 39% among female residents. Arizona residents aged 65 years and older account for 69% of COVID-19

related deaths, compared to 9% and 17.5% of deaths occurring among residents aged 45-54 and 55-64 years respectively. Less than 3% are among those aged 20-44-years. According to the CDC, among those diagnosed with COVID-19, 4-11% of adults 65-84 years old and 10-27% of adults 85 years old and older will die due to COVID-19 (CDC, 2020). Approximately 35% of COVID-19 deaths are among non-Hispanic Whites, 20% among American Indian, 9% among Hispanic and Latino, and 2% among Asian Pacific Islander; however, the race and/or ethnicity of approximately 31% of COVID-19 deaths are unknown. Approximately 31.4% of COVID-19 related deaths in Arizona occurred within the five Northern Arizona counties: Apache, Coconino, Navajo, Mojave and Yavapai (Figure 4).

Figure 4: Arizona COVID-19 Deaths [April 14, 2020]



Health System Capacity

Arizona hospital bed occupancy has fluctuated since COVID-19 onset. As of April 14, 2020, 50% of intensive care unit beds were occupied, 28% of emergency department beds were occupied, 60% of inpatient beds were occupied (Figure 5), and 25% of ventilators were in use (Figure 6).

According to the CDC, although adults 65 years and older are not the most infected group, they are the most likely to be hospitalized or die due to COVID-19 related symptoms. US public health officials estimate that 31-59% of adults 65-84 years old and 31-70% of adults 85 years old will require

hospitalization ([CDC, 3/21/2020](#)). It is estimated that 11-31% of adults 65-84 years old and 6-29% of adults 85 years old and older will require an admission to intensive care unit ([CDC, 3/21/2020](#)).

Figure 5 Hospital Bed Use and Availability in Arizona [April 14, 2020]

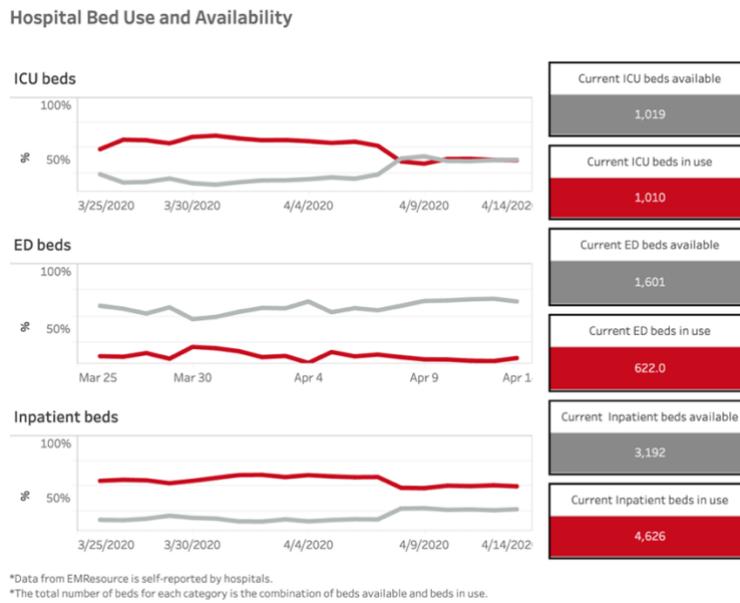
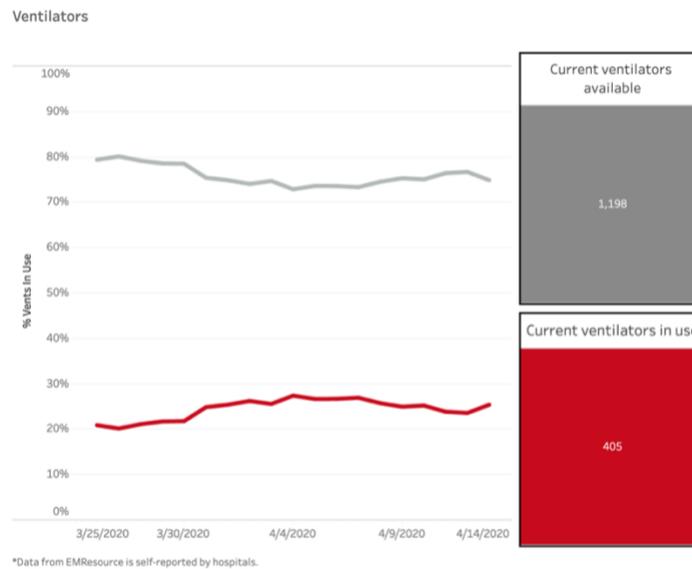


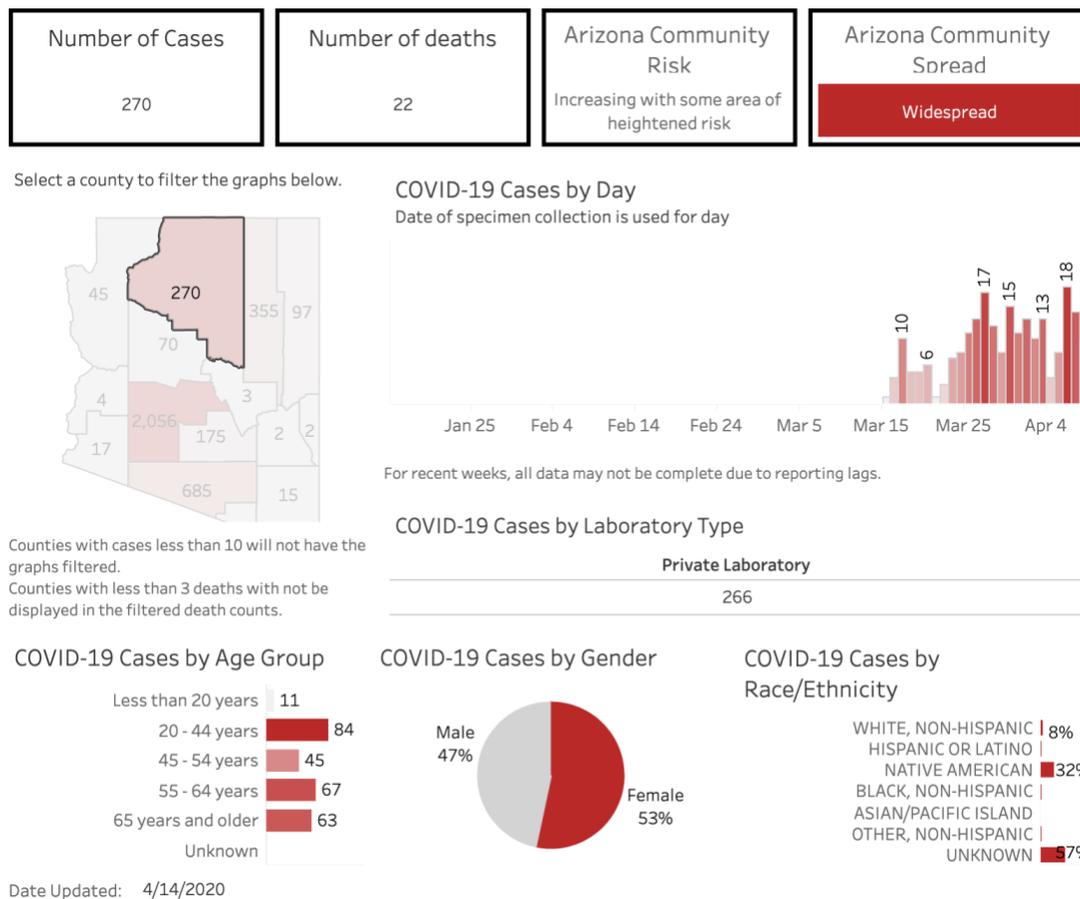
Figure 6 Ventilators in Use and Availability in Arizona [April 14, 2020]



Coconino County

Coconino County confirmed its first case of COVID-19 on March 15, 2020. According to the Arizona Department of Health Services, there are currently 270 cases and 22 deaths as of April 14, 2020. Community transmission of COVID-19 is considered widespread with risk for infection increasing with some areas of heightened risk. COVID-19 cases are distributed somewhat evenly between males and females. The distribution of COVID-19 cases differs by age group. In Coconino County, approximately, 31% of COVID-19 cases are among residents aged 20-44 years, 16% among 45-54 years, 25% among 55-64 years, and 23% among 65 years and older. Approximately 8% of cases are among non-Hispanic Whites and 32% of COVID-19 cases are among American Indian residents, nearly one quarter higher than the state COVID-19 case rate for American Indians.

Figure 7: Coconino County COVID-19 Case Snapshot [April 14, 2020]



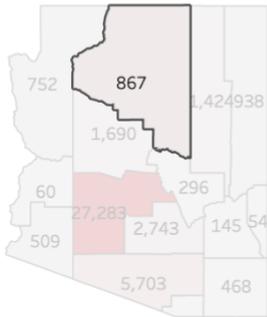
COVID-19 Testing

Approximately 867 COVID-19 tests have been administered in Coconino County by private and state laboratories in Arizona with tests increasing daily. Less than 0.01% of the population of 143,476 Coconino County residents have been tested. Approximately 23% of the total 867 tests conducted were positive for COVID-19, 77% were negative. Testing rates differed by age group with 39% among those 20-44 years and 19% among 65 years and older.

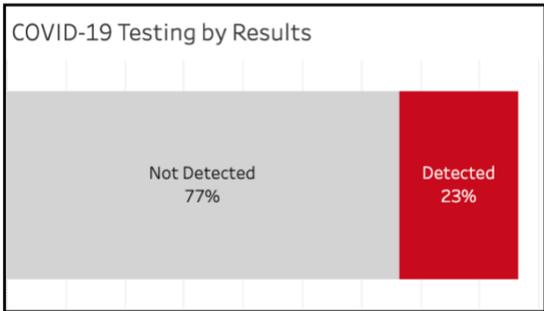
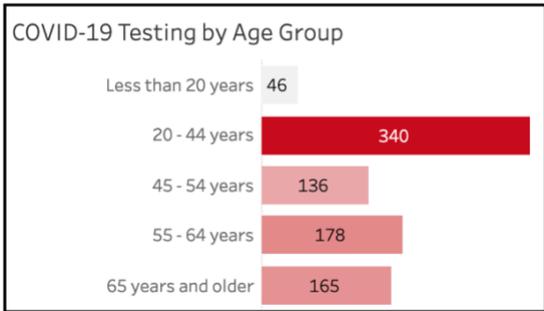
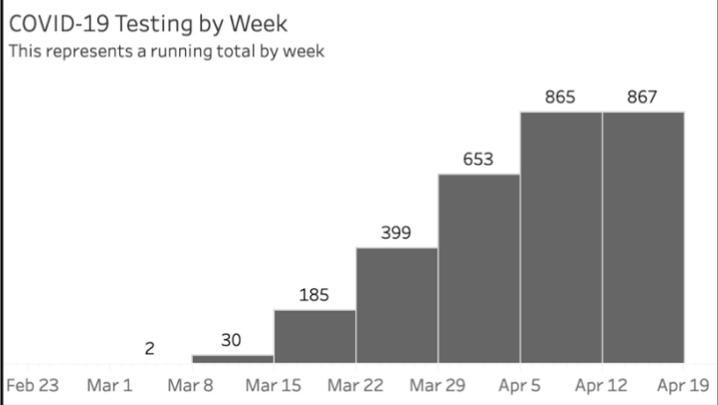
Figure 8: Coconino County COVID-19 Testing [April 14, 2020]

COVID-19 Testing at Private Laboratories and Arizona State Public Health Laboratory

Select a county to filter the graphs below.



Total COVID-19 Testing
867



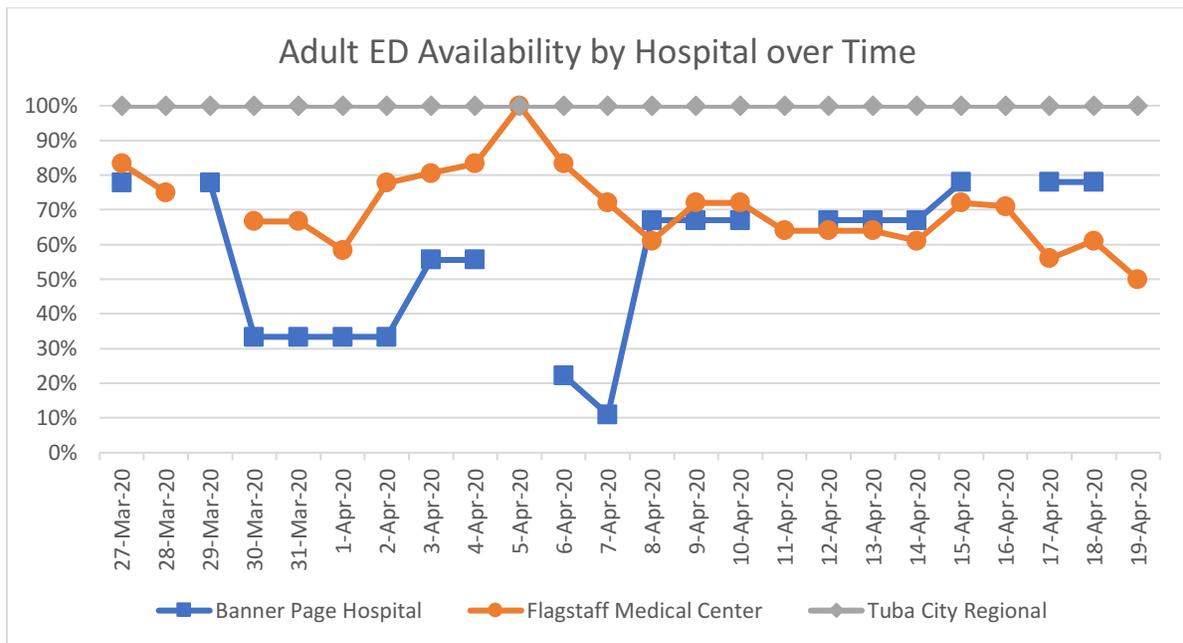
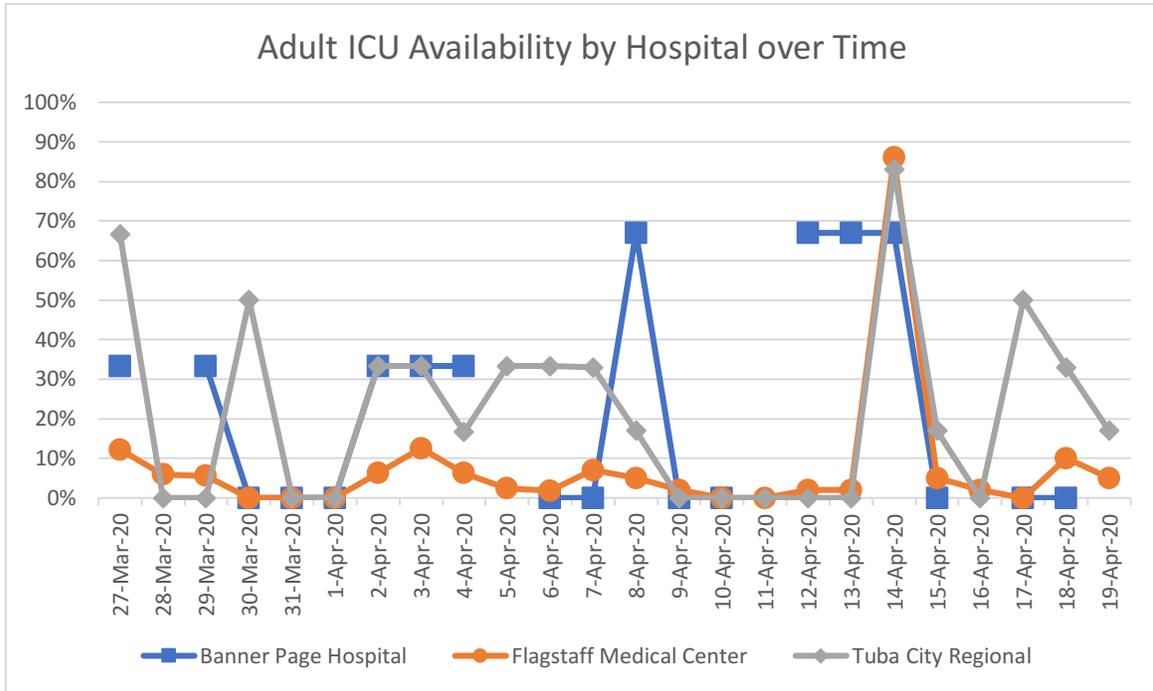
Date Updated: 4/14/2020

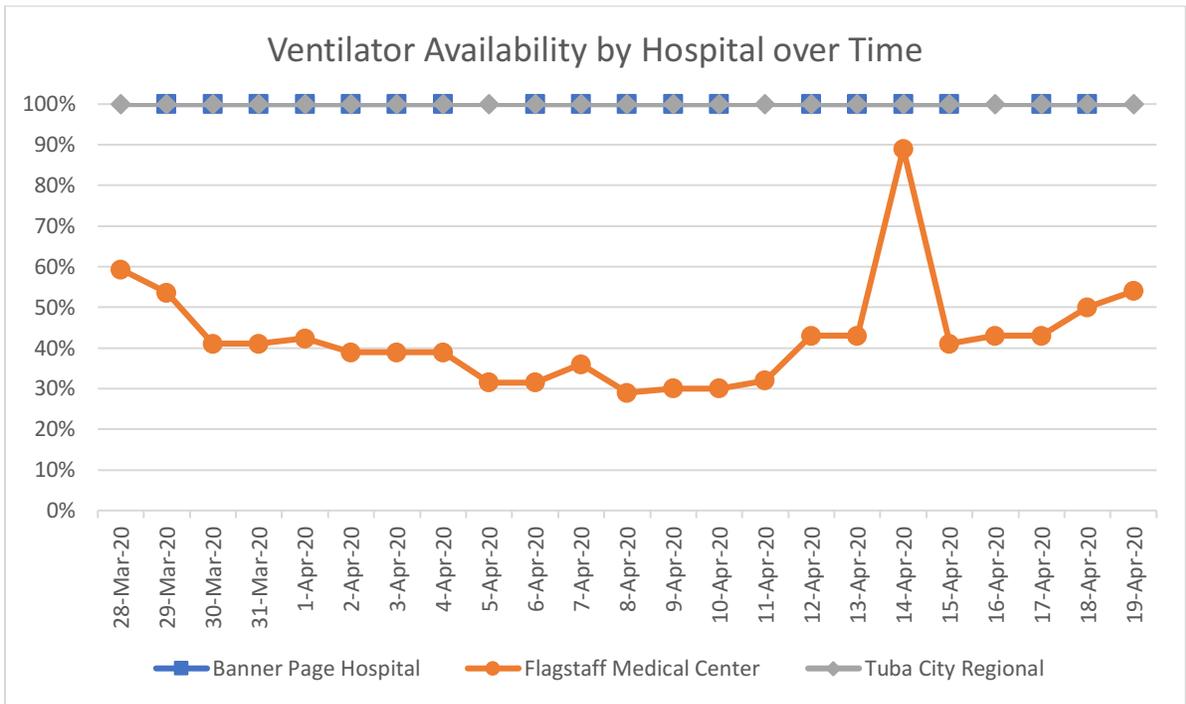
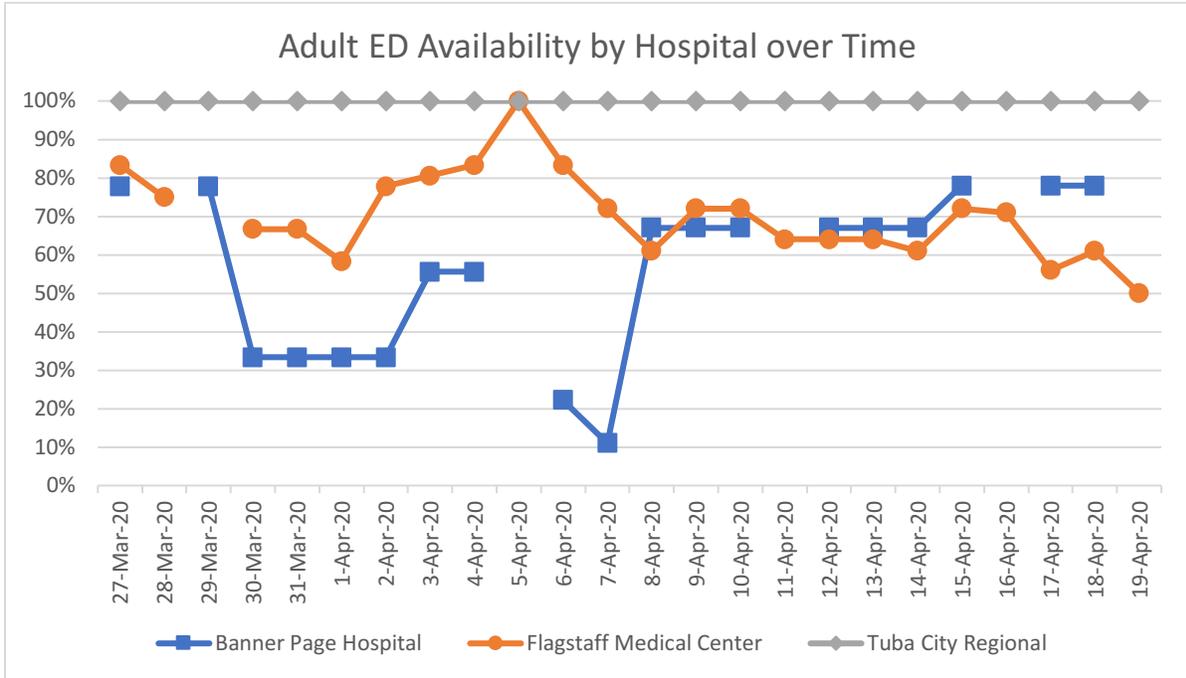
Northern Arizona Health System Capacity

As of April 14, 2020, and in collaboration with the Coconino County COVID-19 Surveillance Team, epidemiologists from the Northern Arizona University (NAU) College of Health and Human Services tracked adult Intensive Care Unit (ICU), Emergency Department (ED), Adult Medical-Surgical, and ventilator availability overtime and across three major health systems in the Northern Arizona region, including Flagstaff Medical Center (FMC), Banner Page Hospital, and Tuba City Regional Medical Center.

- **ICU availability** has fluctuated since the start of the COVID-19 pandemic, ranging from 0% to 90% of availability on any given day. Tuba City Regional has experienced low levels of availability. FMC ICU availability has remained under 20% during the course of the pandemic. As of April 15, 2020, there was less than 20% adult ICU availability across all regional hospitals.
- **Adult ED availability** also fluctuates over time. Both FMC and Tuba City Regional ED availability has remained over 60%. Banner Page has experienced spikes in low availability.
- **Adult medical- surgical bed** availability has generally remained below 20% in all three hospitals with little fluctuation at FMC and Tuba City Regional. Banner Page has seen more fluctuation of the availability of their 6 med/surg beds.

- **Ventilator** availability has a slow downward trend from the end of March (60% availability) to mid-April (30% availability). On April 15, 2020, FMC had a 40% ventilator availability. Both Tuba City Regional and Banner Page Hospital have reported 100% availability in ventilators during the course of the pandemic.





Regional COVID-19 Patient Epidemiological Profile Northern Arizona Health

As of April 14, 2020, and in collaboration with the Coconino County COVID-10 Surveillance Team, epidemiologists from the Northern Arizona University (NAU), College of Health and Human Services conducted local epidemiologic surveillance of approximately 64 COVID-19 patients. Drawing on data from daily reports from the Coconino County Surveillance team and regional health systems, NAU researchers characterized the demographics and disease characteristics of individuals contacted by the Coconino COVID-19 Monitoring Team.

Demographics

As of April 14, 2020, 64 persons had a documented positive test for COVID-19 in Coconino County. The mean age of people with a positive test for COVID-19 was 46 years (standard deviation [SD], 20), and the age range for positive cases was from 8 months to 86 years. Of the 64 cases, 41% were American Indian, 30% White, 6% Hispanic, 8% other race/ethnicity, and 16% unknown race/ethnicity.

Figure 9 Coconino County COVID-19 Case Data – Demographics [April 14, 2020]



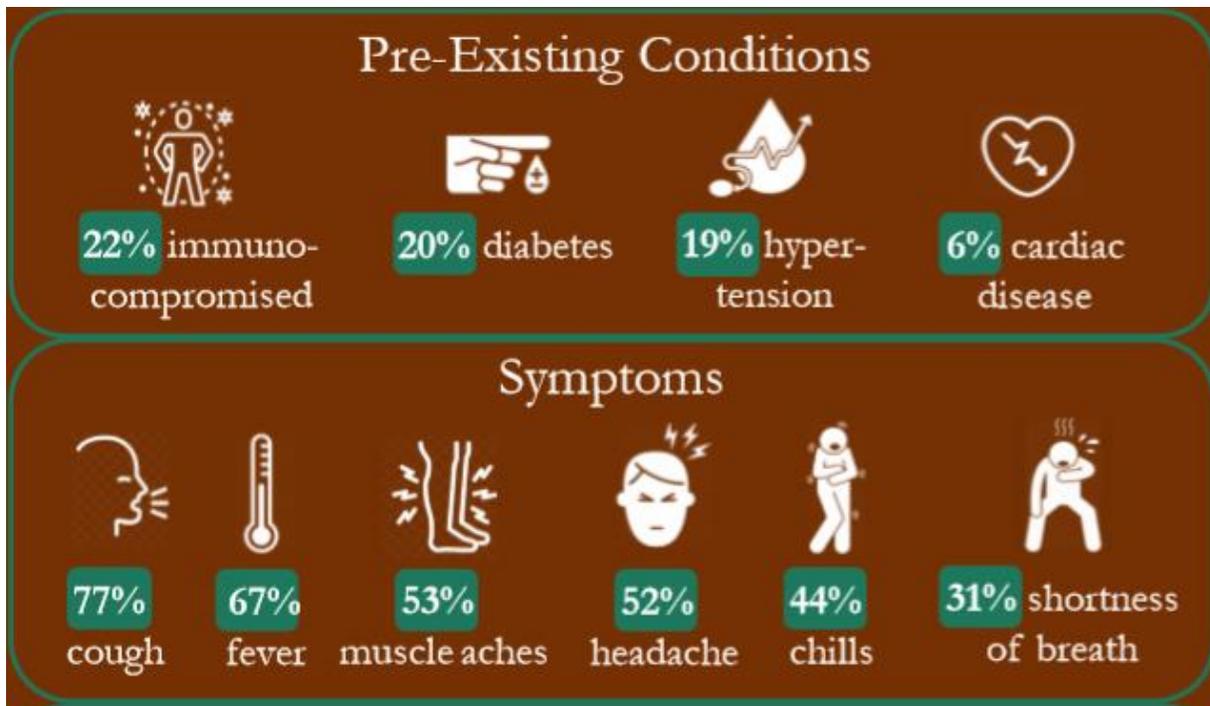
Living and Work History

Approximately 45% of cases resided in Flagstaff, 47% in Page, and 8% in other cities. 92% of cases lived at home, 3% lived in a dorm, and 2% were homeless. 73% of cases did not work in a high-risk occupation. Of cases, 23% are retired/not working/unemployed, 17% are healthcare providers, 6% work in healthcare but are not healthcare providers, 9% work in construction/landscaping, 8% work at a grocery store or other retail job, 8% work at restaurants, 5% are students, and the remainder (23%) work in other varied professions.

Contact History

30% of cases reported previous close contact with someone else who was positive for COVID-19, 28% reported close contact with someone else who was indeterminate for COVID-19, and 9% reported having a family member who was indeterminate for COVID-19.

Figure 10: Coconino County COVID-19 Case Data- Symptoms and Conditions [April 14, 2020]



Comorbidities and Pre-existing Conditions

Of cases who provided medical information, 14 (22%) were immunocompromised, 13 (20%) had a diagnosis of diabetes, 12 (19%) had hypertension, 4 (6%) had cardiac disease, 1 (2%) had chronic liver disease, 1 (2%) had chronic kidney disease, 1 (2%) was pregnant, and 11 (20%) had some other pre-existing health condition.

Symptoms, Diagnoses and Outcomes

The most commonly reported symptoms among cases were cough (77%), fever (67%), muscle aches (53%), headache (52%), chills (44%), shortness of breath (34%), diarrhea (23%), sore throat (23%), a diagnosis of pneumonia (16%), upper or lower respiratory congestion (11%), fatigue (9%), vomiting (9%), lack of smell and/or taste (8%), a diagnosis of adult respiratory distress syndrome (5%), abdominal pain/cramping (5%), chest tightness (5%), weakness (3%), lightheadedness (2%), loss of appetite (2%), sweating (2%), and dry mouth (2%).

Medical Resources Utilized and Outcome

Out of the 64 cases, 18 (28%) were hospitalized, and three (5%) were transported by ambulance. Out of the 18 hospitalized cases with available information, 11 (61%) were admitted to the ICU, 6 (33%) were intubated, and no hospitalized patients received extracorporeal membrane oxygenation (ECMO).

Out of the total 64 cases, 5 (8%) died.

COVID-19 Modelling Scenarios

Researchers in Ecological and Epidemiological Informatics, School of Informatics, Computing, and Cyber Systems (SICCS) at Northern Arizona University are leading the development of a system for generating epidemiologic model-based scenarios that forecast how SARS-CoV-2 might spread in Northern Arizona regions in the coming months. In consultation with NAU epidemiologists and Coconino County COVID-19 Surveillance Team and regional health systems, the SICCS team aims to model disease progression and the related health system burden due to COVID-19 for the Northern Arizona region.

Disease modeling is used to predict virus transmission, and forecast the impact of public health intervention scenarios, such as social distancing measures, on disease transmission and current regional hospitalization percentages. Based on this model, public health interventions that create social distancing such as stay-at-home orders, school and university closures, limiting small and large group gatherings, and eliminating restaurant and bar dine-in, have reduced COVID-19 hospitalization percentages by approximately 60% on average across the Northern Arizona region and have been effective at reducing viral transmission of COVID-19 overall.

NAU researchers generated several time-based modeling scenarios to determine the best course for social distancing interventions to mitigate disease transmission and hospitalization in the Northern Arizona region. Scenarios project the change in hospitalization rates if social distancing interventions are maintained until April 30 (a 45-day intervention), May 15 (a 60-day intervention), or May 30 (a 75-day intervention), but then return to normal contact (i.e., back to “business as usual”).

According to these time-based modeling scenario estimates (Figure 11), if existing physical and social distancing measures were lifted on April 30, 2020, current hospitalization percentages of COVID-19 patients would **triple** (or more) between April 30 and May 15, which could outpace the ability of local hospitals to manage the situation.

If social distancing remained in place through May 30, 2020, disease transmission would flatten the curve enough to keep hospitalizations roughly at their current rate through the beginning of July 2020.

While the model provides scenarios, researchers do not yet have adequate data from current hospitalizations to judge the accuracy of these scenarios. However, these outcomes are in line with other modeling projections across the globe. Additionally, the model utilizes three data points to compare, shown in the right-hand columns of the figure. These data are the total number of COVID-19 inpatients across the three main hospitals in Coconino County.

Figure 11 COVID-19 Model-Based Scenarios for Disease Progression and Health System Burden

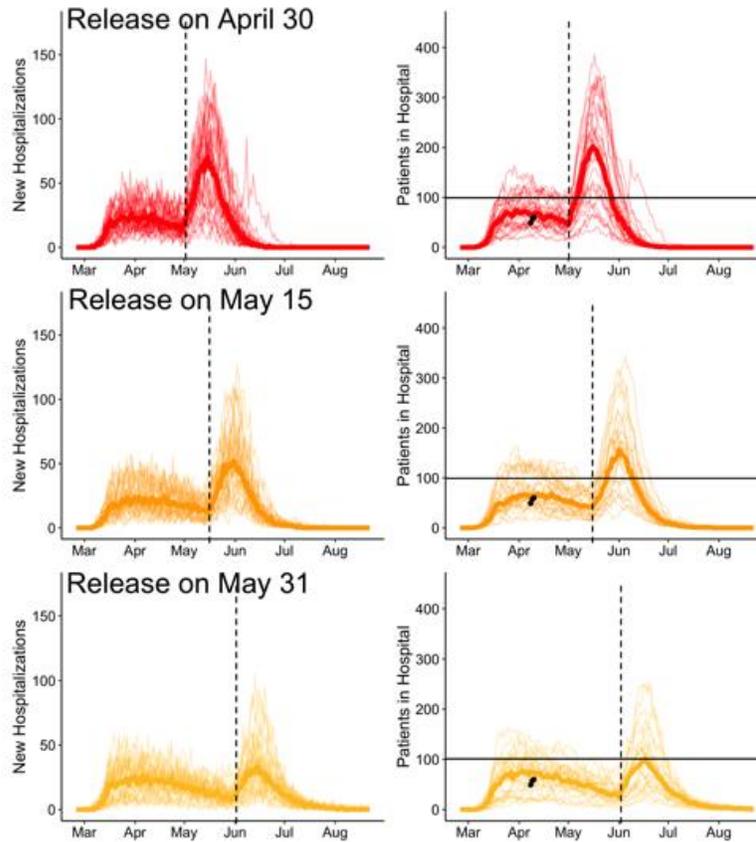


Figure 4. Effects of releasing restrictions after 45, 60, and 75 days on new hospitalizations per day and the total number of COVID-19 patients in hospitals at any given time. The vertical dashed lines show the date of release. The heavy colored lines represent the median expectation from our model, while the fainter lines represent distinct realizations of our model. The black data points in the second column represent the total number of COVID-19 inpatients reported at Banner Page, Tuba City, and Flagstaff Medical Center. Only three data points have been reported to our group so far.

Take home messages:

1. A release of all restrictions at the end of April is likely to result in the sustained and rapid spread of the virus. The hospital system across northern Arizona could have 200+ COVID-19 inpatients in mid-May.
2. Sustaining all restrictions until May 30 could substantially flatten the curve and we may not see much change from the current hospitalization numbers, assuming hospitalized patients stay an average of 3-5 days.
3. Assuming that tourism does not cause a substantial increase in flux of contagious individuals, we could see a burn-out by mid August.

Recommendations

The COVID-19 epidemic in the United States is growing with community wide transmission occurring in every state. This report summarizes epidemiological data and recommendations to support public health officials and local government to navigate the rapidly evolving COVID-19 epidemic in Northern Arizona, and specifically in Coconino County. Data and recommendations presented are those available at the time of preparation of the report. Mitigation strategies are organized by major public and private sector. Each recommendation requires full development of a strategy and adaptation for the target audience.

According to the [National Coronavirus Response: A Road Map to Reopening](#) prepared by the American Enterprise Institute we are currently in Phase 1: Slow the Spread of COVID-19. To effectively transition away from physical or social distancing as a primary tool for controlling current and future spread of COVID-19 and move to reopening and establishing protections to be able to lift all restrictions, a state can safely proceed when it has achieved the following triggers:

1. A sustained reduction in cases for at least 14 days
2. Hospitals in the state are safely able to treat all patients requiring hospitalization without resorting to crisis standards of care
3. The state is able to test all people with COVID-19 symptoms
4. The state is able to conduct active monitoring of confirmed cases and their contacts.

None of these metrics have been met at the Arizona state, a Coconino County or a Northern Arizona inclusive of the counties and Native Nations in the region.

To achieve these goals, three main areas currently require strengthening:

1. Better data to identify areas of spread and the rate of exposure and immunity in the population;
2. Improvements in state and local health care system capabilities, public-health infrastructure for early outbreak identification, case containment, and adequate medical supplies; and
3. Therapeutic, prophylactic, and preventive treatments and better-informed medical interventions that give us the tools to protect the most vulnerable people and help rescue those who may become very sick

Until the triggers for relaxing Stay-at-Home ordinances are achieved and community-wide transmission remains high in Arizona and in the neighboring Northern Arizona counties and Native Nations, we recommend the following specific steps to successfully transition out of Phase 1 of the COVID-19 epidemic in our region. To maximize resources and standardize efforts across Northern Arizona counties and Tribes, we recommend coordination among local, tribal, state government, and private and public sector partners and stakeholders.

Maintain Physical Distancing

- Closing community gathering spaces such as schools, shopping centers, dining areas, museums, and gyms statewide (places where people congregate indoors);
- Promoting telework for nonessential employees statewide;
- Urging the public to limit unnecessary domestic or international travel;
- Canceling or postponing meetings and mass gatherings;
- Shutting dining areas but encouraging restaurants to provide takeout and delivery services if possible;
- Issuing stay-at-home advisories in hot spots where transmission is particularly intense (i.e., when case counts are doubling in a city or locality every three to five days); and
- Monitoring community adherence to physical distancing and stay-at-home advisories, adjusting risk messaging as appropriate, and identifying alternative incentives for compliance if needed.

Increase diagnostic testing capacity and build data infrastructure for rapid sharing of results

- Increase diagnostic testing capacity for: 1) Hospitalized patients (rapid diagnostics are needed for this population); 2) Health care workers and workers in essential roles (those in community-facing roles in health and public safety); 3) Close contacts of confirmed cases; and
- Outpatients with symptoms. (This is best accomplished with point-of-care diagnostics in doctors' offices with guidelines that encourage widespread screening and mandated coverage for testing.)

Implement Comprehensive COVID-19 Surveillance Systems

- Widespread and rapid testing at the point of care using cheaper, accessible, and sensitive point-of-care diagnostic tools that are authorized by the Food and Drug Administration (FDA);
- Serological testing to gauge background rates of exposure and immunity to inform public health decision-making about the level of population-based mitigation required to prevent continued spread in the setting of an outbreak; and
- A comprehensive national sentinel surveillance system supported by and coordinated with local public health systems and health care providers.

Massively Scale Contact Tracing, Isolation and Quarantine

- Surge the existing public health workforce to conduct case finding and contact tracing;
- Enable rapid reporting to state, local, and federal health authorities, through the public health workforce and electronic data sharing from health care providers and labs; and
- Develop and field a technological approach to enable rapid data entry, reporting, and support for isolation and quarantine.

Evidence-Informed Guidance for Slowing the Spread of COVID-19

The following tables summarize the known evidence and or local, state and federal recommendations, policies and practices for mitigating COVID-19 by major public and private sectors (health care, businesses and workplaces, transportation, schools and universities, etc.). Information has been prepared for public officials and elected officials to make evidence-informed decisions. Each recommendation or policy requires full development and can be formatted to meet various public and private sector audiences.

What Everyone Needs to Do		
Individuals	Households	COVID-19 Households
<p>Self-Quarantine Stay at home and shelter in place (NACO 2020).</p> <p>Limit close contact with others as much as possible (about 6 feet) (CDC, 3/27/2020)</p> <p>All individuals should limit community movement and adapt to disruptions in routine activities (e.g., school and/or work closures) according to guidance from local officials (CDC, 3/12/2020).</p> <p>Implement personal protective measures (e.g., stay home when sick, handwashing, respiratory etiquette, clean frequently touched surfaces daily) (CDC, 3/12/2020)</p> <p>Individuals at increased risk of severe illness should consider staying at home and avoiding gatherings or other situations of potential exposures, including travel (CDC, 3/12/2020)</p> <p>Appropriate Mask Usage The CDC has updated their guidelines to advise all individuals to wear a mask while in public settings where other social distancing measures are difficult to maintain (e.g. grocery stores and pharmacies), especially in areas of significant community-based transmission (CDC, 4/3/2020) Due to the lack of availability of N95 respirators the CDC recommends wearing cloth face coverings in public settings to slow the spread of the virus and help people who unknowingly have the virus from transmitting it to others and has released templates for how to make cloth masks at home (CDC, 4/13/2020)</p> <p>Prepare</p>	<p>Create a household plan of action in case of illness in the household or disruption of daily activities due to COVID-19 in the community (CDC, 3/12/2020)</p> <p>Create a list of local organizations you and your household can contact in case you need access to information, healthcare services, support, and resources (CDC, 3/12/2020)</p> <p>Know about emergency operation plans for schools/workplaces of household members (CDC, 3/12/2020)</p> <p>Consider members of the household that may be at greater risk such as older adults and people with severe chronic illnesses (CDC, 3/12/2020)</p> <p>Disinfect with alcohol solutions with at least 70% alcohol (CDC, 3/27/2020)</p>	<p>If someone in your family has tested positive for COVID-19, keep the entire household at home and contact your medical provider) (ADHS, 2020)</p> <p>Keep separate bedroom and bathroom for a person who is sick (CDC, Cleaning and Disinfecting Your Home, 2020).</p> <p>The person who is sick should stay separated from other people in the home (as much as possible) (CDC, 3/28/2020)</p> <p>If you have a separate bedroom and bathroom, only clean the area around the person who is sick when needed, such as when the area is soiled. This will help limit your contact with the person who is sick (CDC, 3/28/2020)</p> <p>If shared bathroom, the person who is sick should clean and disinfect after each use. If this is not possible, the caregiver should wait as long as possible before cleaning and disinfecting (CDC, 3/28/2020)</p> <p>The person who is sick should eat (or be fed) in their room if possible (CDC, 3/28/2020)</p> <p>Handle any used dishes, cups/glasses, or silverware with gloves. Wash them with soap and hot water or in a dishwasher (CDC, 3/28/2020)</p> <p>Clean hands after taking off gloves or handling used items (CDC, Cleaning and Disinfecting Your Home, 2020). If possible, dedicate a lined trashcan for the sick person. Use gloves when removing garbage bags, and handling and disposing of trash. Wash hands afterwards (CDC, 3/28/2020)</p>

<p>Know where to find local information on COVID-19 and local trends of COVID-19 cases (CDC, 3/12/2020)</p> <p>Consider 2-week supply of prescription and over-the-counter medications, food and other essentials. Know how to get food delivered if possible (CDC, 3/12/2020)</p> <p>Establish Communication Establish ways to communicate with others (e.g. family, friends, co-workers) (CDC, 3/12/2020)</p> <p>Establish plans to telework, what to do about childcare needs, how to adapt to cancellation of events (CDC, 3/12/2020)</p> <p>Create an emergency contact list including family, friends, neighbors, carpool drivers, healthcare providers, teachers, employers, the local public health department, and other community resources (CDC, 3/12/2020)</p>		
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Essential Businesses

Facility	Confirmed COVID-19 Case
<p>Policy Changes Employers that do not currently offer sick leave to some or all of their employees may want to draft non-punitive “emergency sick leave” policies (CDC, 3/22/2020)</p> <p>Employers should not require a positive COVID-19 test result or a healthcare provider’s note for employees who are sick to validate their illness, qualify for sick leave, or to return to work. Healthcare provider offices and medical facilities may be extremely busy and not able to provide such documentation in a timely manner (CDC, 3/22/2020)</p> <p>Limit Person-To-Person Contact Implementing flexible worksites (e.g. telework) (CDC, 3/22/2020)</p> <p>Implementing flexible work hours (e.g. staggered shifts) (CDC, 3/22/2020)</p> <p>Increasing physical space between employees at the worksite (CDC, 3/22/2020)</p> <p>Increasing physical space between employees and customers (e.g. drive through, partitions) (CDC, 3/22/2020)</p> <p>Implementing flexible meeting and travel options (e.g. postpone non-essential meetings or events) (CDC, 3/22/2020)</p>	<p>Pre-Screen: Employers should measure the employee’s temperature and assess symptoms prior to them starting work. Ideally, temperature checks should happen before the individual enters the facility (CDC, 4/8/2020)</p> <p>Regular Monitoring: As long as the employee doesn’t have a temperature or symptoms, they should self-monitor under the supervision of their employer’s occupational health program (CDC, 4/8/2020)</p> <p>Wear a Mask: The employee should wear a facemask at all times while in the workplace for 14 days after last exposure. Employers can issue facemasks or can approve employee-supplied cloth face coverings in the event of shortages (CDC, 4/8/2020)</p> <p>Social Distance: The employee should maintain 6 feet and practice social distancing as work duties permit in the workplace (CDC, 4/8/2020)</p> <p>Disinfect and Clean workspaces: Clean and disinfect all areas such as offices, bathrooms, common areas, shared electronic equipment routinely. (CDC, 4/8/2020)</p>

<p>Discourage handshaking (CDC, 3/22/2020)</p> <p>Discourage workers from using other workers’ phones, desks, offices, or other work tools and equipment, when possible. If necessary, clean and disinfect them before and after use (CDC, 3/22/2020)</p> <p>Improve Sanitation and Cleanliness</p> <p>Provide no-touch disposal receptacles (CDC, 3/22/2020)</p> <p>Provide soap and water in the workplace. If soap and water are not readily available, use alcohol-based hand sanitizer that is at least 60% alcohol. If hands are visibly dirty, soap and water is recommended over hand sanitizer. Ensure that adequate supplies are maintained (CDC, 3/22/2020)</p> <p>Place hand sanitizers in multiple locations to encourage hand hygiene (CDC, 3/22/2020)</p> <p>Place posters that encourage hand hygiene to help stop the spread at the entrance to your workplace and in other workplace areas where they are likely to be seen (CDC, 3/22/2020)</p>

Non-Essential Workplaces and Businesses			
Facilities	Employees	Patrons	Confirmed COVID-19 Cases
<p>Maintain awareness of employees that are at higher risk for serious illness (CDC, 3/22/2020)</p> <p>Maintain flexible policies that permit employees to stay home to care for a sick family member or take care of children due to school and childcare closures (CDC, 3/22/2020)</p> <p>Employers that do not currently offer sick leave to some or all of their employees may want to draft non-punitive “emergency sick leave” policies (CDC, 3/22/2020)</p> <p>Connect employees to employee assistance program (EAP) resources (if available) and community resources as needed (CDC, 3/22/2020)</p> <p>Provide financial compensation for lost income and employment, as this will likely facilitate adherence to the prescribed public health measures</p>	<p>Minimize face-to-face contact between employees or assign work tasks that allow them to maintain a distance of 6 feet from other workers, customers and visitors, or to telework if possible (CDC, 3/22/2020)</p> <p>Avoid using other employees’ phones, desks, offices, or other work tools and equipment. Try to clean and disinfect before and after use (CDC, 3/22/2020)</p> <p>Increase physical space between employees and customers by practice social distancing by avoiding gatherings and maintaining distance (about 6 feet) from others (CDC, 3/22/2020)</p> <p>Postpone all non-essential meetings or events (CDC, 3/22/2020)</p> <p>Use videoconferencing or teleconferencing when possible (CDC, 3/22/2020)</p>	<p>Increase physical space between employees and customers by practice social distancing by avoiding gatherings and maintaining distance (about 6 feet) from others (CDC, 3/22/2020)</p> <p>Deliver services or products remotely when applicable (CDC, 3/22/2020)</p>	<p>Provide disposable wipes so that commonly used surfaces can be wiped down by employees before each use (CDC, 3/22/2020)</p> <p>Clean and disinfect frequently touched objects and surfaces daily (CDC, 3/22/2020)</p> <p>Ensure hand hygiene supplies are readily available throughout the building (CDC, 3/22/2020)</p> <p>Educate employees on proper handwashing and hygiene practices (CDC, 3/22/2020)</p> <p>Any employee that appears sick should immediately be separated from other employees, customers and visitors and sent home (CDC, 3/22/2020)</p> <p>Employers should inform fellow employees of their possible exposure to COVID-19 in the workplace but maintain confidentiality as required by the Americans</p>

<p>(ECDC, 2020 RRA-7th Update)</p> <p>Provide emergency no-interest loans for small businesses and non-profits impacted by COVID-19 (CTGov 3/26/2020)</p> <p>Close all nail salons, beauty shops (Evans, Saltzburg, & Solomon, 2020)</p> <p>Clean surfaces frequently, after each guest (OSHA, 2020)</p> <p>Employers should not require a positive COVID-19 test result or a healthcare provider's note for employees who are sick to validate their illness or qualify for sick leave (CDC, 3/22/2020)</p> <p>Implement plans to continue essential business functions in case of higher than usual absenteeism (CDC, 3/22/2020)</p>			<p>with Disabilities Act (ADA) (CDC, 3/22/2020)</p> <p>Employees who are well but who have a sick family member at home with COVID-19 should notify their supervisor (CDC, 3/22/2020)</p>
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Indoor and Outdoor Entertainment and Recreation		
Facilities	Employees	Patrons
<p>All restaurants in Arizona counties with confirmed COVID-19 cases are required to provide dine-out options only (ADHS, 2020)</p> <p>All bars, movie theaters, and gyms in counties with confirmed COVID-19 cases are required to close (ADHS, 2020)</p> <p>Close all indoor recreation facilities (Evans, Saltzburg, & Solomon, 2020)</p> <p>Create hand-sanitizing stations (Bach, 2020)</p> <p>Close popular parks, playgrounds, splash pads, athletic courts, and drinking fountains until advised by the local health department (Bach, 2020)</p>	<p>Restrict popular outdoor recreation centers (i.e. Rangers limit number of people on hiking trails) (Bach, 2020)</p> <p>Clean all indoor recreation facilities (Evans, Saltzburg, & Solomon, 2020)</p>	<p>Advise people to enjoy outdoor activities within their neighborhood while practicing social distancing (Bach, 2020)</p> <p>Stay updated on local recommendations</p>

Employment and Labor	
Employees	Employers

<p>Any individual that is not eligible for regular compensation or extended benefits under state or federal law or pandemic emergency unemployment compensation is eligible for benefits from the federal government in the amount that they would have been entitled to if covered under the state plan. The CARES Act provides coverage for generally any reason that an employee may be out of work related to COVID-19, including caring for someone diagnosed with the virus or not being able to go to work because of a quarantine. Persons with the ability to telework for pay and those receiving sick leave or other paid leave benefits are ineligible. (JDSUPRA, 2020)</p>	<p>Pass emergency rules regarding unemployment benefits. Ensure speedy and efficient provision of unemployment benefits to affected individuals in situations that may not otherwise be covered. Streamline the process for receiving benefits, provide timely payment, provide employment resources, and provide benefits for employees whose hours have been reduced. (Coronavirus Aid, Relief, and Economic Security Act (CARES Act) (S.3548) (JDSUPRA, 2020))</p> <p>Among other requirements (including forbidding the business from outsourcing jobs for two years) the Act specifically says that a business that receives a loan under this program (1) must agree that it “will not abrogate existing collective bargaining agreements for the term of the loan and two years after completing repayment” and (2) “that the recipient will remain neutral in any union organizing effort (JDSUPRA, 2020)</p> <p>Provide financial compensation for lost income and employment, as this will likely facilitate adherence to the prescribed public health measures (ECDC, 2020 RRA-7th Update)</p>
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Childcare, Schools, and Universities

Employees	Students	Facilities	Confirmed COVID-19 Cases
<p>Staff at increased risk for severe illness should have a plan to stay home if there are school-based cases or community spread (CDC, 3/12/2020).</p> <p>Enforce regular hand washing with safe water and soap, alcohol rub/hand sanitizer or chlorine solution (CDC, 3/12/2020)</p> <p>Promote social distancing by spacing desks at least 1 meter apart (WHO, 2020)</p> <p>Where possible, rearrange desks to maximize the space between students. Turn desks to face in the same direction (rather than facing each other) to reduce transmission caused from virus-containing droplets (CDC, 3/18/2020)</p>	<p>General Recommendations</p> <p>Parents of children at increased risk for severe illness should discuss with their health care provider whether those students should stay home in case of school or community spread (CDC, 3/12/2020)</p> <p>Preschool and School Age Children</p> <p>Have children sit further apart from one another, they should keep enough space to not touch their friends (WHO, 2020)</p> <p>Make sure to listen to children’s concerns and answer their questions in an age-appropriate manner; don’t overwhelm them with too much information (WHO, 2020)</p> <p>Focus on good health behaviors, such as covering coughs and sneezes with the elbow and washing hands (WHO, 2020)</p> <p>Introduce the concept of social distancing (standing further away from friends, avoiding</p>	<p>Internal Changes</p> <p>Implement distance learning if feasible (CDC, 3/12/2020)</p> <p>Cancellation of school-associated congregations or events (e.g. assemblies, sports games) (CDC, 3/12/2020)</p> <p>Dismissal for school and extracurricular activities as needed for cleaning and contact tracing (CDC, 3/12/2020)</p> <p>Clean and disinfect school surfaces daily, at minimum (CDC, 3/12/2020)</p> <p>Schools should provide non-punitive sick leave options to allow staff to stay home when ill (CDC, 3/12/2020)</p> <p>Consider regular health checks of students and staff/faculty (CDC, 3/18/2020)</p> <p>Alter schedules to reduce mixing (e.g. stagger recess, entry/dismissal times) (CDC, 3/12/2020)</p> <p>Collaborative Efforts</p>	<p>Establish procedures for how to re-house roommates of those that are sick (CDC, 3/18/2020)</p> <p>Encourage staff and students to stay home when sick and notify school administrators of illness (CDC, 3/12/2020)</p>

	<p>large crowds, not touching people if you do not need to, etc.) (WHO, 2020)</p> <p>Help children understand the basic concepts of disease prevention and control (WHO, 2020)</p> <p>Universities</p> <p>Use of existing infrastructure and services (e.g. Blackboard, Skype, Zoom) to support efficient transition of classes from in-person to distance-based formats (CDC, 3/18/2020)</p> <p>Ensure continuity of safe housing and meal programs (CDC, 3/18/2020)</p>	<p>School administrators should work with the Arizona Department of Education to provide breakfast and lunch services for Arizona students (CDC, 3/12/2020)</p> <p>Work with social service systems to ensure continuity of critical services that may take place in schools such as health screenings, feeding programs or therapies for children with special needs (WHO, 2020)</p>
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Transportation	
Facilities	Patrons
<p>Arizona MVD are limiting services to appointment only. Expiration dates between March 1 and Sept 1, 2020 on Arizona driver licenses are extended by 6 months (Ducey, 3/19/2020)</p>	<p>Bus riders are asked to board from the rear door to enhance the distance between operators and passengers (Service impacts due to COVID-19, 2020).</p> <p>Sit several rows back to keep bus drivers healthy (WA Department of Transportation, 2020)</p> <p>Adhere to 6 foot social distancing guidelines when possible (WA Department of Transportation, 2020)</p> <p>Facemasks are most useful when worn by sick people who are coughing or sneezing to help prevent the spread of respiratory viruses to others (CDC, 3/27/2020)</p> <p>To the extent possible, avoid touching high-touch surfaces in public places (e.g. elevator buttons, door handles, handrails, handshaking with people) (CDC, 3/27/2020)</p> <p>Use a tissue or your sleeve to cover your hand or finger if you must touch something (CDC, 3/27/2020)</p> <p>Wash your hands often with soap and water for at least 20 seconds or use hand sanitizer that contains at least 60% alcohol (CDC, 3/27/2020)</p> <p>Avoid touching your eyes, nose and mouth (CDC, 3/27/2020)</p> <p>Cover your cough or sneeze into your elbow (Service impacts due to COVID-19, 2020).</p> <p>Stay home when you are sick (Service impacts due to COVID-19, 2020).</p>

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Public Safety and Law Enforcement		
Facility	Employees	Confirmed COVID-19 Cases
<p>Per Arizona Supreme Court Order: All in-person court proceedings are to be conducted in each of the county's court rooms, under conditions that protect the health and safety of all participants including: Limiting in-person courtroom contact as much as possible; Following CDC social distancing recommendations; Limiting any required in-person proceedings to attorneys, parties, victims, witnesses, jurors, court personnel, and other necessary persons; Liberally granting continuances and additional accommodations to parties, witnesses, attorneys, jurors and others with business before the courts who are at a high risk of illness from COVID-19 (Bruntinel, 2020)</p> <p>Per Arizona Supreme Court Order, all in-person court operations limited to the greatest extent possible for 30 days [beginning March 18]. (Bruntinel, 2020)</p> <p>Law Enforcement Agencies should have infection control policies and procedures in place, including describing a recommended sequence for safely donning and doffing PPE. Provide all employees with job- or task-specific education and training on preventing transmission of infectious agents, including refresher training (Maricopa County Department of Public Health, 2020)</p> <p>Ensure an adequate supply of or access to EPA-registered hospital grade disinfectants (see above for more information) for adequate decontamination of transport vehicles and their contents (Maricopa County Department of Public Health, 2020)</p> <p>Law enforcement agencies should develop a system to regularly monitor all employees for fever and any respiratory symptoms after a possible COVID-19 exposure (i.e. employees could be expected to monitor their temperature and any symptoms twice a day or before working a shift.)</p>	<p>Law enforcement officials should focus on ensuring that residents are aware of local and state ordinances and social-distancing practices related to COVID-19, rather than enforcement. (PAGov 3/27/2020)</p> <p>Follow the COVID-19 Business Guidance for routine internal social distancing practices (Maricopa County Department of Public Health, 2020)</p> <p>Officers should have an adequate supply of PPE (Maricopa County Department of Public Health, 2020)</p> <p>Law enforcement who must make contact with individuals confirmed or suspected to have COVID-19 should follow Maricopa County Department of Public Health's guidance for EMS (Maricopa County Department of Public Health, 2020)</p> <p>Local authorities may allow law enforcement officers to issue a summons instead of making an arrest for misdemeanors, with some exceptions, to reduce movement in and out of jails. (Harris, 2020)</p> <p>Provide all employees with job- or task-specific education and training on preventing transmission of infectious agents, including refresher training (Maricopa County Department of Public Health, 2020)</p> <p>Ensuring sick time policies are understood by employees (Maricopa County Department of Public Health, 2020)</p>	<p>If employees have had known exposure to COVID-19, allow employees without symptoms to continue to work after consultation with their occupational health program. Use your monitoring system to ensure exposed employees are monitored daily for 14 days after the last exposure. If the Law Enforcement agency has a sufficient supply, employees who were not wearing recommended PPE during the COVID-19 exposure could be asked to wear a facemask while at work for 14 days after the exposure (Maricopa County Department of Public Health, 2020)</p>

<p>(Maricopa County Department of Public Health, 2020)</p> <p>Reinforce that employees should not report to work when ill (Maricopa County Department of Public Health, 2020)</p> <p>Do not require a negative COVID-19 test for employees to return to work (Maricopa County Department of Public Health, 2020)</p> <p>Utilizing telework policies when possible (Maricopa County Department of Public Health, 2020)</p>		
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<p style="text-align: center;">Correctional and Detention Facilities Justice Involved Individuals</p>	
<p style="text-align: center;">Employees (CDC, 4/29/2020)</p>	<p style="text-align: center;">Facility</p>
<p>Staff cleaning an area where a COVID-19 case has spent time</p> <ul style="list-style-type: none"> • Gloves • Gowns/ coveralls <p>Staff handling laundry or used food service items from a COVID-19 case or case contact</p> <ul style="list-style-type: none"> • Gloves • Gowns/ coveralls <p>Staff present during a procedure on a confirmed or suspected COVID-19 case that may generate respiratory aerosols (see CDC infection control guidelines)</p> <ul style="list-style-type: none"> • N95 respirator • Gloves • Gown/ coveralls • Eye protection <p>Staff having direct contact with (including transport) or offering medical care to confirmed or suspected COVID-19 cases (see CDC infection control guidelines)</p> <ul style="list-style-type: none"> • N95 respirator • Gloves • Gown/coveralls • Eye protection <p>Staff performing temperature checks on any group of people (staff, visitors, or incarcerated/detained persons), or providing medical care to asymptomatic quarantined persons</p> <ul style="list-style-type: none"> • Face mask • Gloves • Gown/ coveralls • Eye protection <p>Incarcerated/detained persons in a work placement cleaning area where a COVID-19 case has spent time</p> <ul style="list-style-type: none"> • Gowns/ coveralls • Gloves <p>Incarcerated/detained persons in a work placement handling laundry or used food service items from a COVID-19 case or case contact</p>	<p>Coordinate with local law enforcement and court officials (virtual court or use social distancing measures) (CDC, 4/29/2020)</p> <p>Develop information-sharing systems with partners (CDC, 4/29/2020)</p> <p>Post signage throughout the facility communicating the following: symptoms of COVID-19 and hand hygiene instructions, signs to report symptoms to staff, advisory to staff to stay home or leave the facility as soon as possible if symptoms develop (CDC, 4/29/2020)</p> <p>Ensure that sufficient stocks of hygiene supplies, cleaning supplies, PPE, and medical supplies are on hand and available, and have a plan in place to restock as needed if COVID-19 transmission occurs within the facility (CDC, 4/29/2020)</p> <p>Provide a no-cost supply of soap to incarcerated/detained persons, sufficient to allow frequent hand washing (CDC, 4/29/2020)</p> <p>Measures to limit outside visitors and limit the contact between the residents of confined settings, such as long-term care facilities and prisons (ECDC, 2020 RRA-7th Update)</p> <p>Implement social distancing strategies for employees and inmates (CDC, 4/29/2020)</p> <p>Limit the number of operational entrances and exits to the facility (CDC, 4/29/2020)</p>

<ul style="list-style-type: none"> Gowns/ coveralls Gloves <p>Incarcerated/detained persons who are confirmed or suspected COVID-19 cases, or showing symptoms of COVID-19</p> <ul style="list-style-type: none"> Face mask 	
Local Public Health Resources	
Facilities	Community Served
<p>Public health organizations should disseminate information on appropriate hand washing techniques (ECDC, 2020 RRA-7th Update)</p> <p>Determine methods to streamline contact tracing through simplified data collection and surge if needed (resources including staffing through colleges and other first responders, technology, etc.) (CDC, 3/12/2020)</p>	<p>Prioritize contact tracing to those in high-risk settings (e.g. healthcare professionals or high-risk settings based on vulnerable populations or critical infrastructure) (CDC, 3/12/2020)</p> <p>Encourage HCP to more strictly implement phone triage and telemedicine practices (CDC, 3/12/2020)</p>
Confirmed COVID-19 Cases	<p>Monitoring close contacts should be done by jurisdictions to the extent feasible based on local priorities and resources (CDC, 3/12/2020)</p> <p>Continue COVID-19 testing of symptomatic persons; prioritize testing of high-risk individuals when capacity is limited (CDC, 3/12/2020)</p>

People Experiencing Homelessness (PEH)		
Facilities	Employees	Individuals Who Are or At Risk of Homelessness
<p>Posting signs at entrances and in strategic places providing instruction on hand hygiene, respiratory hygiene, and cough etiquette. (CDC, 3/24/2020)</p> <p>Providing educational materials about COVID-19 for non-English speakers, as needed. (CDC, 3/24/2020)</p> <p>In general sleeping areas (for those who are not experiencing respiratory symptoms), ensure that beds/mats are at least 3 feet apart, and request that all clients sleep head-to-toe (CDC, 3/24/2020)</p> <p>Use physical barriers to protect staff who will have interactions with clients with unknown infection status (CDC, 3/24/2020)</p> <p>Consider putting a wipeable cover on common area electronics (CDC, 3/27/2020)</p> <p>Clean and disinfect clothes hampers with sanitizing solution (CDC, 3/27/2020)</p> <p>Open outside doors and windows to increase air circulation (CDC, 3/27/2020)</p>	<p>Wear disposable gloves while handling laundry and wash hands after removing gloves (CDC, 3/27/2020)</p> <p>If staff are handling client belongings, they should use disposable gloves (CDC, 3/24/2020)</p> <p>Linens, eating utensils and dishes belonging to those who are sick do not need to be cleaned separately, but should not be shared without thorough washing (NYC Health Department, 2020)</p> <p>Instruct cleaning staff to avoid “hugging” laundry before washing it to avoid self-contamination (NYC Health Department, 2020)</p>	<p>Individuals experiencing homelessness are exempt from this section [stay at home order], but are strongly urged to obtain shelter, and governmental and other entities are strongly urged to make such shelter available as soon as possible and to the maximum extent practicable (and to use COVID-19 risk mitigation practices in their operation) (Environment, 2020).</p> <p>Additional CDC recommendations</p> <p>The Coronavirus Response Package (The CARE Act) is a bill that would provide \$4 billion in Emergency Solutions Grants to help prevent an outbreak among sheltered and unsheltered people experiencing homelessness and very low-income households (earning less than 50% of Area Median Income) who are at risk of homelessness (National Low Income Housing Coalition, 2020)</p> <p>The CARE Act funds can also be used for eviction prevention assistance, including rapid rehousing, housing counseling, and rental deposit assistance will mitigate the adverse impacts of the pandemic (National Low Income Housing Coalition, 2020)</p>

<p>Ensure that waiting areas, TV rooms and reading rooms have adequate ventilation (e.g. open windows if practical) (NYC Health Department, 2020)</p> <p>Coordination of health system with shelter and social service systems serving individuals experiencing homelessness who are positive for COVID-19 to limit positive PEH from entering shelter population (e.g. entrance to alternative quarantine/low acuity care location) (CDC, 4/20/2020)</p>		<p>The bill suggests these funds may be used for temporary emergency shelters, waiving federal habitability and environmental review standards. Funds may also be used to cover staff costs, training, and hazard pay (National Low Income Housing Coalition, 2020)</p>
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Housing and Rent			
Federal Coronavirus Aid, Relief, and Economic Security Act (CARES Act) (S.3548)	Renters	Homeowners and Landlords	Facilities
<p>Provides more than \$12 billion in funding for Housing and Urban Development programs (National Low Income Housing Coalition, 2020)</p> <p>Institutes a moratorium on foreclosures for all federally backed mortgages, including those covered by HUD, USDA, FHA, VA, Fannie Mae, and Freddie Mac, for 60 days beginning on March 18, 2020. (National Low Income Housing Coalition, 2020)</p> <p>Under the bill, a borrower with a federally backed mortgage experiencing financial hardship due to coronavirus may also request a forbearance for up to 180 days, which may be extended for another 180 days at the request of the borrower (National Low Income Housing Coalition, 2020)</p> <p>The law allows multifamily housing owners with a federally-backed mortgage to request a forbearance for up to 30 days, which can be extended by another 60 days at the request of the borrower, on the condition that they agree not to evict tenants or charge tenants' late fees (National Low Income Housing Coalition, 2020)</p>	<p>Executive Order 2020-14 by Gov. Ducey enacts a temporary moratorium [120 days, beginning March 24] on all evictions for tenants on the basis of unpaid rent due to wage loss resulting from COVID-19 (Ducey 3/27/2020)</p> <p>Arizona Department of Housing establishes a Rental Eviction Prevention Assistance Program to provide rent assistance to those facing a loss of income due to COVID-19. [\$5 million] (Ducey 3/27/2020)</p> <p>Provide a six-month period to pay deferred rent. No late fees may be charged on rent that is deferred (City of Portland, Oregon 2020)</p> <p>Postpone all landlord-tenant hearings and trials for 30 days (City of Portland, Oregon 2020)</p> <p>Public utilities (water, electric, gas) may temporarily suspend service disconnections for non-payment and extend services without late fees. (City of Portland, Oregon 2020)</p>	<p>The Federal Housing Administration (FHA) to implement an immediate <u>foreclosure and eviction moratorium</u> for single-family homeowners with FHA-insured mortgages for the next 60 days. [Beginning March 18] (US Department of Housing and Urban Development, 3/18/2020)</p> <p>FHA continues to encourage servicers to offer its suite of loss mitigation options to distressed borrowers, including those that could be impacted by COVID-19, to help prevent them from going into foreclosure. These include short and long-term forbearance options, mortgage modifications, and other mortgage payment relief options available based on the borrower's individual circumstances (US Department of Housing and Urban Development, 3/18/2020)</p> <p>Financial institutions should provide 90-day grace period for mortgage payments,</p>	<p>Social distancing measures affecting multiple people can include mandatory quarantine of all inhabitants of buildings or residential areas. (ECDC, 2020 RRA-7th Update)</p>

<p>The bill also institutes a moratorium on filings for evictions for renters in homes covered by a federally-backed mortgage for 120 days of enactment (National Low Income Housing Coalition, 2020)</p> <p>The bill provides a temporary moratorium on evictions for most residents of federally subsidized apartments, including those supported by HUD, USDA or Treasury (Low Income Housing Tax Credit developments). The bill also institutes a moratorium on filings for evictions for renters in homes covered by federally-backed mortgages for 120 days of enactment (National Low Income Housing Coalition, 2020)</p>		<p>refrain from reporting late payments to credit agencies for those receiving relief, waive or refund fees and charges for customers requesting assistance and institute a moratorium on initiating foreclosure sales or evictions (Newsom, 2020)</p>
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Personal Violence and Safety	
How to Take Care of Yourself	Facility
<p>Create a safety plan</p> <p>Practice self-care</p> <p>Reach out for help</p> <p>Contact the National Domestic Violence Hotline</p> <p>Call 1-800-799-7233 and TTY 1-800-787-3224 (National Domestic Violence Hotline, 2020)</p>	<p>Keep shelters and hotline open for domestic violence victims. While practicing social distancing. Having employees sit every other booth or in different rooms if possible. If available, have employees work remotely.</p> <p>Practicing social distancing at shelter</p> <p>Clean commonly touched surfaces at the shelters</p> <p>Offer free soap to people in the shelter</p> <p>Set up touch-free hand sanitizer stations</p> <p>Hang up signs and symptoms of COVID-19</p> <p>Have areas for people that could have COVID-19</p>

Social Support and Caring for Others		
How to Support Others	How to Take Care of Yourself	Medical Professionals
<p>Utilize video chats and phone calls to stay in touch (CDC, 3/23/2020)</p> <p>If an individual is well, picking up groceries for an elder or high-risk person (while practicing social distancing) (CDC, 3/23/2020)</p> <p>Communication is used to ensure the continued provision of essential services and supplies to everyone who is subjected to the measures (e.g. food,</p>	<p>Connect with others. Talk with people you trust about your concerns and how you are feeling (CDC, 3/23/2020)</p> <p>Utilize video chats and phone calls to stay in touch (CDC, 3/23/2020)</p> <p>Call your healthcare provider if stress gets in the way of your daily activities for several days in a row (CDC, 3/23/2020)</p>	<p>Offer online or call mental health support sessions (CDC, 3/23/2020)</p> <p>Officially acknowledging and promoting gestures of solidarity and mutual support that have spontaneously emerged in communities under quarantine (ECDC, 2020 RRA-7th Update)</p>

<p>medication and access to healthcare) (ECDC, 2020 RRA-7th Update)</p> <p>Encouraging people to engage in physical activity, whether in their homes or, alone, outside (ECDC, 2020 RRA-7th Update)</p> <p>Coordinating with and supporting civil society and religious groups who work with vulnerable groups, such as the elderly, people with underlying health conditions, disabled people, people with mental health problems, homeless people, people living in abusive household settings, and undocumented migrants (ECDC, 2020 RRA-7th Update)</p>		
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Faith-Based and Social Services	
Facility	Employees
<p>Cancel community and faith-based gatherings of any size and move to video/audio events when possible (CDC, 3/12/2020)</p> <p>Sanitize the building. Including bathrooms, chairs, doorknobs, podiums, and commonly touched surfaces (CDC, 3/12/2020)</p> <p>Review and update emergency plans for the organization, especially consideration for individuals at increased risk of severe illness (CDC, 3/12/2020)</p> <p>Clean frequently touched surfaces at organization gathering points daily (CDC, 3/12/2020)</p> <p>Ensure hand hygiene supplies are readily available in building (CDC, 3/12/2020).</p>	<p>Monitor local information.</p> <p>Encourage staff and members to stay home and notify organization administrators of illness when sick (CDC, 3/12/2020)</p> <p>Encourage personal protective measures among organization/members and staff (e.g. stay home when sick, handwashing, respiratory etiquette) (CDC, 3/12/2020)</p>

Immigrant Eligibility for Public Programs		
What's Available	Immigrant Eligibility	Public Charge Implications
<p>The Families First Act provides funding for COVID-19 testing for the uninsured and gives states the option to provide testing to certain uninsured individuals through their Medicaid programs.</p> <p>The CARES Act also increases and extends funding for Community Health Centers (CHCs).</p>	<p>Neither the CARES Act nor the Families First Act alters Medicaid eligibility for immigrants.</p> <p>Some states have defined testing and treatment for suspected COVID-19 as emergency services covered by their Emergency Medicaid programs. Emergency Medicaid is available regardless of immigration status, but</p>	<p>USCIS has announced that testing, prevention, or treatment for COVID-19 will NOT be used against immigrants in a public charge test. Immigrant families should seek the care they need during this difficult time.</p>

<p>Under existing law, individuals who lose health coverage (due to job loss, for example), may qualify for a special enrollment period in the Marketplaces, including the federal Healthcare.gov Marketplace. Some state-based marketplaces have elected to generally allow enrollment during the COVID crisis.</p>	<p>applicants must meet their state's other Medicaid eligibility requirements. In states that have not expanded Medicaid, for example, a non-pregnant adult without disabilities or children may not be eligible for services.</p> <p>CHCs provide primary and preventive health care to everyone regardless of their immigration status or ability to pay.</p> <p>Immigrants who are lawfully present may be eligible to buy subsidized health insurance in the Marketplace.</p>	<p>For more information : Protecting Immigrant Families</p>
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Cash Assistance

More information: See Pg. 11 of this [Policy Brief on Key Provisions of COVID-19 Relief Bills](#) (NILC)

<p>What's Available</p> <p>Under the CARES Act, most individuals earning less than \$75,000 are eligible for a one-time cash payment of \$1,200. Married couples will each receive a check and families will get \$500 per child.</p>	<p>Immigrant Eligibility</p> <p>To be eligible for a cash rebate, individual filers and their spouse if filing jointly must have valid Social Security Numbers (SSNs). However, there is an exception for spouses filing jointly where at least one spouse was in armed forces last tax year and at least one spouse has a valid SSN. Children claimed as dependents for the \$500 rebate must have valid SSNs.</p>	<p>Public Charge Implications</p> <p>The stimulus payment is a tax credit. The public charge regulation is clear that tax credits are NOT considered in a public charge determination.</p>
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Food Assistance

[USDA, States Must Act Swiftly to Deliver Food Assistance Allowed by Families First Act](#) (CBPP)
[Overview of Immigrant Eligibility for Federal Programs](#) (NILC)
[COVID-19 Updates](#) (FRAC)

<p>What's Available under The Families First Act:</p> <p>SNAP</p> <p>Allows states to provide emergency supplemental SNAP benefits up to the maximum monthly benefit amount to many</p>	<p>Immigrant Eligibility</p> <p>Only certain non-citizens are eligible for SNAP, such as asylees, refugees, and some green card holders (see below). Parents who are not eligible for SNAP can apply for their eligible household members, such as U.S. citizen children.</p>	<p>Public Charge Implications</p> <p>Receipt of traditional, federally-funded SNAP benefits may be included in a public charge determination. Because of eligibility restrictions, few individuals who are eligible for SNAP are also subject</p>
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<p>participating SNAP households to address temporary food needs.</p> <p>School Meals</p> <p>Establishes a new program – called Pandemic EBT or “P-EBT” – that allows states to provide meal-replacement benefits for households with children who attend a school that has closed and who would otherwise receive free or reduced-price meals. Monthly benefits of up to \$125 per child will be loaded onto an EBT card.</p> <p>Other Nutrition Programs</p> <p>Provides additional funding for WIC, The Emergency Food Assistance Program (TEFAP), and home-delivered meal program.</p>	<p>P-EBT is available regardless of immigration status.</p> <p>Households do not have to be enrolled in SNAP in order to be eligible.</p> <p>WIC, TEFAP, and home-delivered meals are available regardless of immigration status.</p>	<p>to a public charge determination.</p> <p>Pandemic EBT (P-EBT) is not considered in a public charge test.</p> <p>WIC, TEFAP, and home-delivered meals are not included in the public charge test.</p>
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Unemployment Insurance

More Information: [Immigrant Workers’ Eligibility For Unemployment Insurance](#) (NELP)

What’s Available	Immigrant Eligibility	Public Charge Implications
<p>The CARES Act expands Unemployment Insurance (UI) in several ways:</p> <ul style="list-style-type: none"> • A completely new program, Pandemic Unemployment Assistance (PUA), was created to cover workers normally ineligible for regular UI (such as independent contractors) and will also cover many kinds of situations where individuals are unable to work due to the public health crisis. • An additional 13 weeks of extended UI benefits are available for employees unemployed or underemployed due to COVID-19. • In states that agree, \$600 will be added to employees’ maximum weekly benefit under both UI and the new PUA program through 7/31/2020. <p>For states that agree to waive the normal seven day waiting period, the federal</p>	<p>For regular UI benefits: Immigrants generally must be work-authorized at the time they file for UI benefits, during the base period used to calculate the benefit amount, and during the entire period they are receiving benefits.</p> <p>The U.S. Department of Labor (DOL) has not yet clarified the eligibility criteria that will apply to the new UI programs created by the CARES Act. It is possible that the DOL will apply a more restrictive set of eligibility criteria, such as those used in the Disaster Unemployment Assistance Program (DUA).</p>	<p>UI is NOT considered in public charge determinations.</p>

government will pay the full cost of the first week of benefits.		
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More information:

- [Update on Access to Health Care for Immigrants and Their Families \(NILC\)](#)
- [Overview of Immigrant Eligibility for Federal Programs \(NILC\)](#)

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WELCOME THANK YOU FOR INVITING US!

NAU Epidemiology Team
Coconino County Board of Supervisors Meeting
Special Session on COVID-19



OUR GOALS

1. Synthesize data and knowledge to contribute to informed decision-making.
2. Build lasting partnerships based on trust, mutual understanding, and high-quality research.
3. Assist our northern Arizona communities through these difficult times.

TWO RELATED PRESENTATIONS

1. Using data and models to estimate how the novel coronavirus might spread in northern Arizona. How might this impact our regional hospital systems?
 - **Joe Mihaljevic, PhD**

2. Developing a data-driven, public health plan. Where do we go from here?
 - **Samantha Sabo, DrPH MPH**

FORECASTING THE IMPACT OF THE CORONAVIRUS ACROSS NORTHERN ARIZONA

Joe Mihaljevic, PhD
24 April 2020

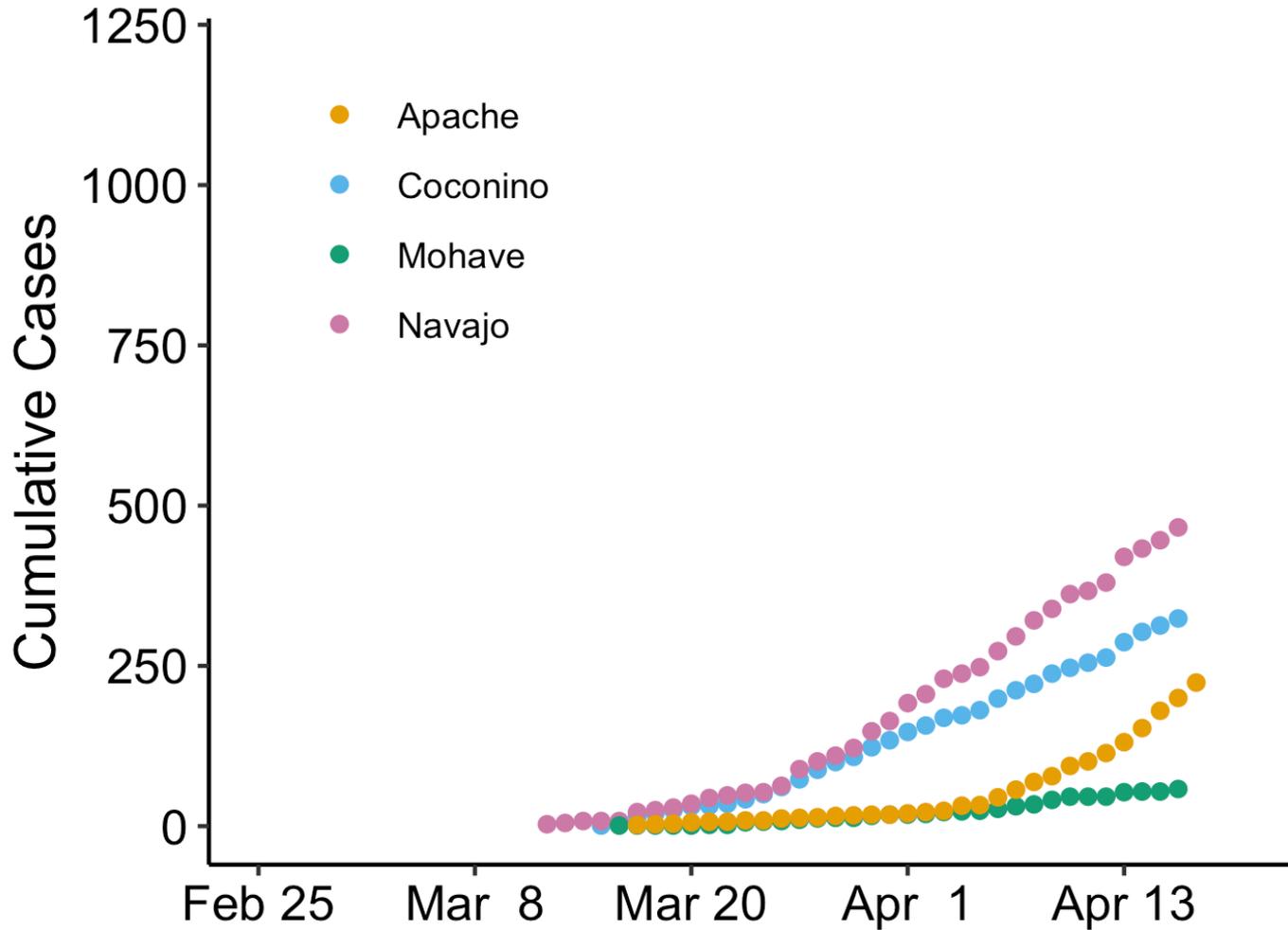
Coconino County Board of Supervisors
Special Session on COVID-19

Collaborators: Eck Doerry PhD, Crystal Hepp PhD, Samantha Sabo DrPH MPH, Ricky Camplain PhD, Brettania O'Connor PhD, Meghan Warren PT MPH PhD, Julie Baldwin PhD, Paul Keim PhD

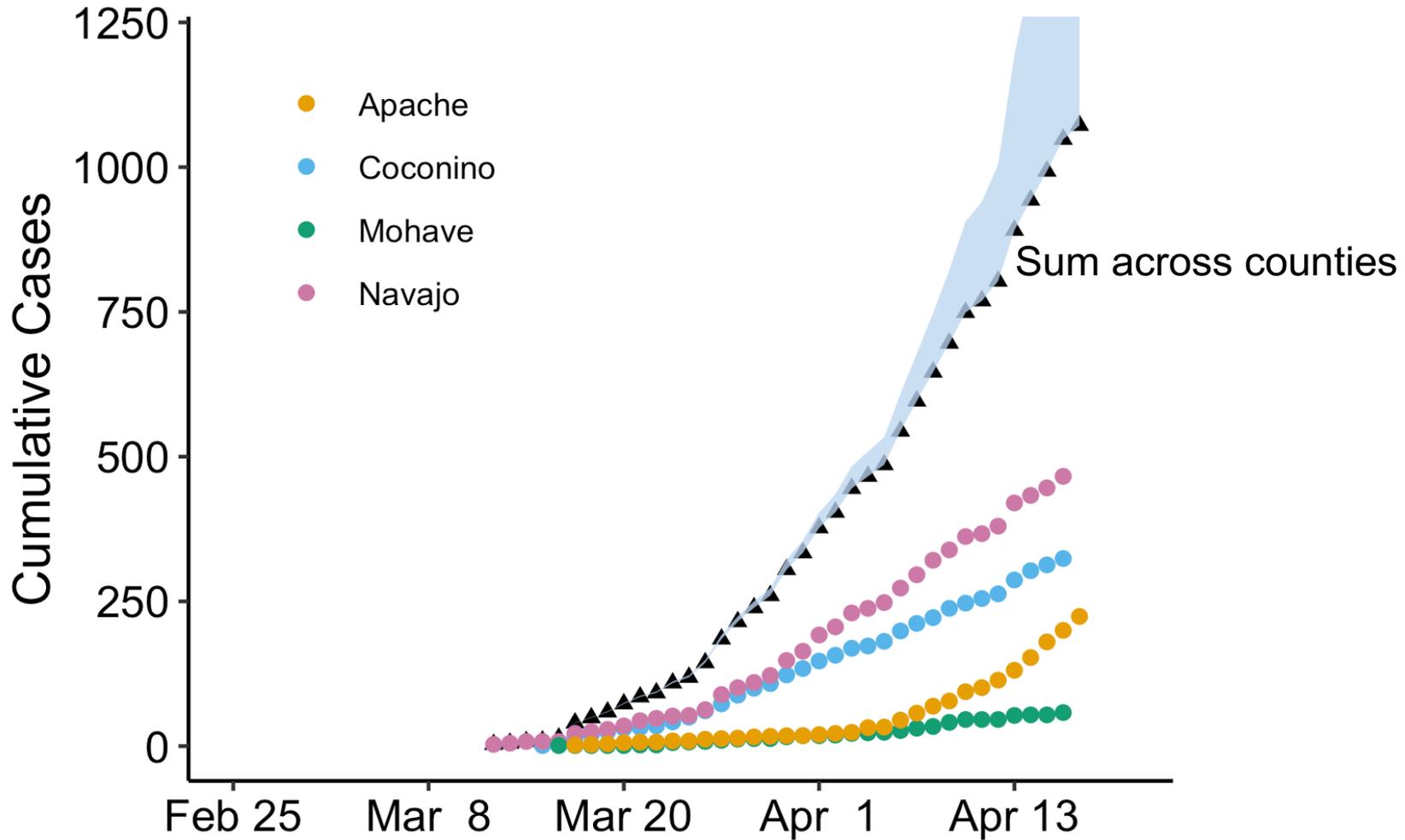


School of Informatics, Computing,
and Cyber Systems

RECORDED CASES NORTHERN ARIZONA



RECORDED CASES NORTHERN ARIZONA



GOALS

1. Create a model that describes how the virus spreads
 - **Customize the model to our region in northern Arizona.**

2. Rapidly deploy model output for public health and healthcare stakeholders
 - **Build a web portal for our partners to engage with our results**
 - **Deploy weekly updates that are refined by data**

MODELS ARE USEFUL.
MODELS CAN GUIDE DECISION-MAKING.

MODELS ARE USEFUL.
MODELS CAN GUIDE DECISION-MAKING.

BUT...

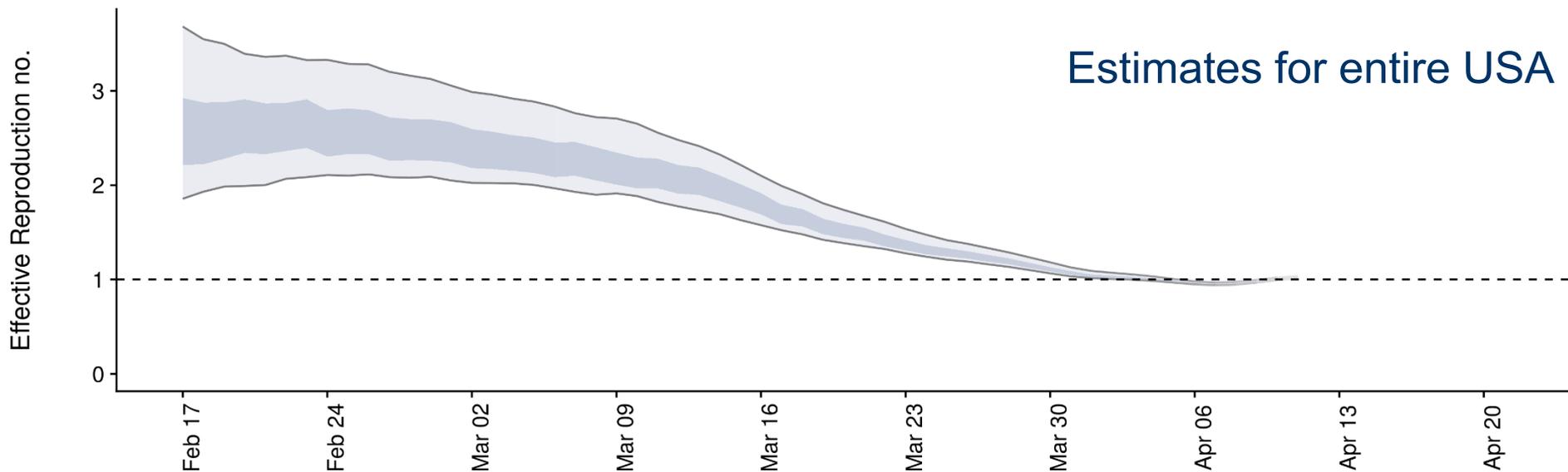
MODELS ARE UNCERTAIN.

**IN THE FACE OF UNCERTAINTY, WE ARE
FORCED TO MAKE HARD DECISIONS THAT
AFFECT PEOPLES' LIVES.**

USEFUL OUTCOMES OF MODELING

USEFUL OUTCOMES OF MODELING

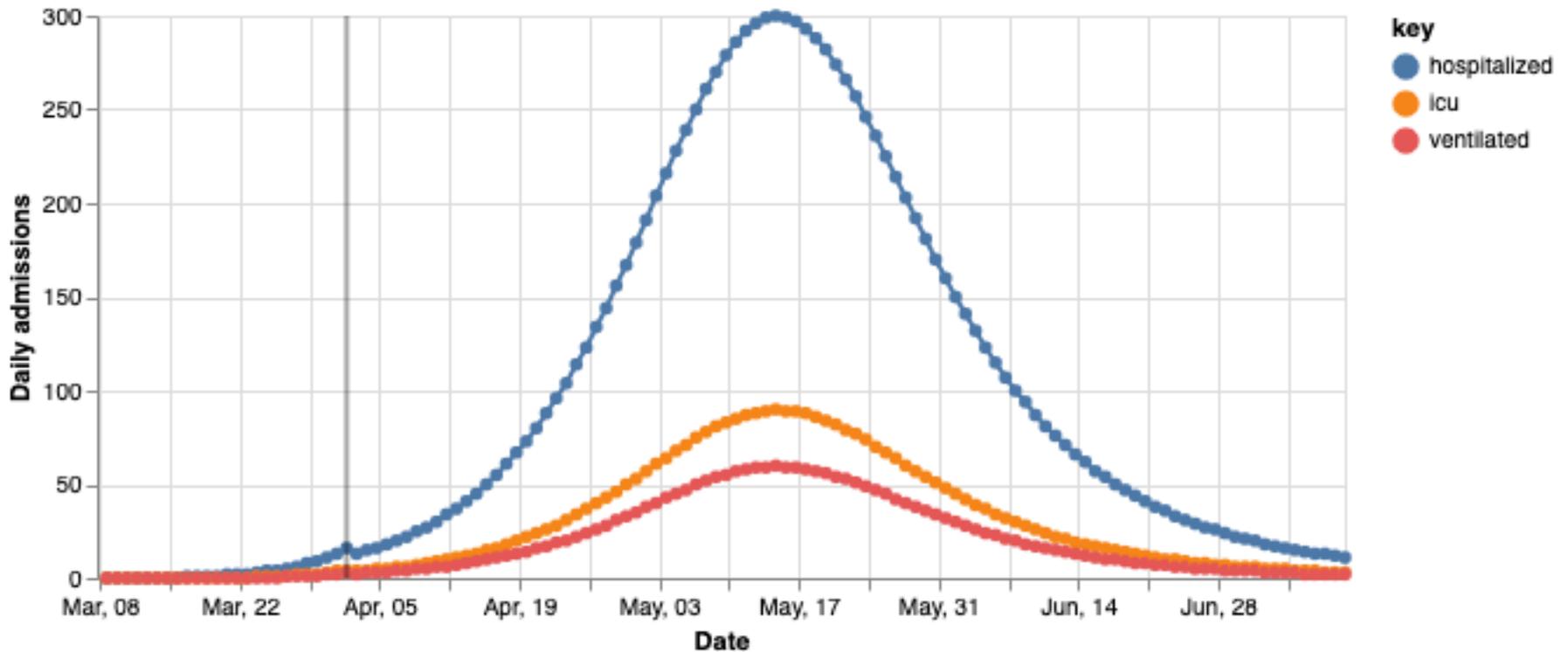
1. Calculate the reproductive number (R-naught)
 - Estimate speed of spread and whether interventions are slowing the spread



Centre for the Mathematical Modelling of Infectious Diseases at the London School of Hygiene & Tropical Medicine.

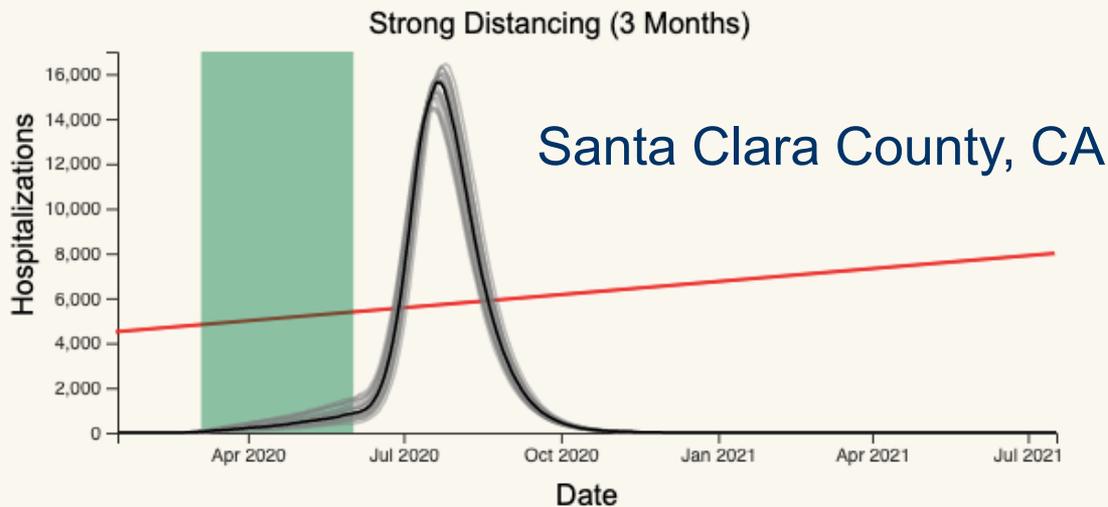
USEFUL OUTCOMES OF MODELING

2. Forecast hospital burden.

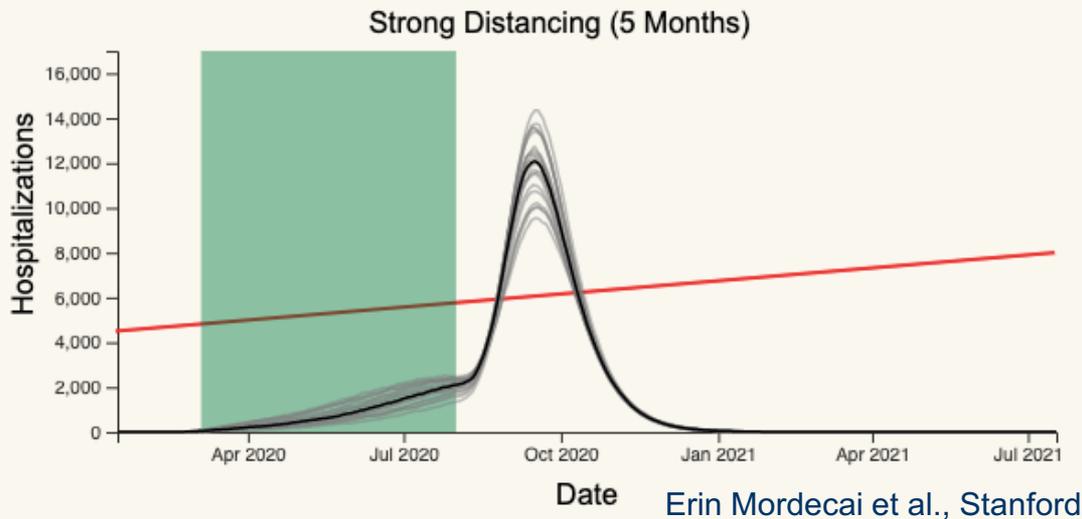


COVID-19 Hospital Impact Model for Epidemics (CHIME) - PennState

USEFUL OUTCOMES OF MODELING

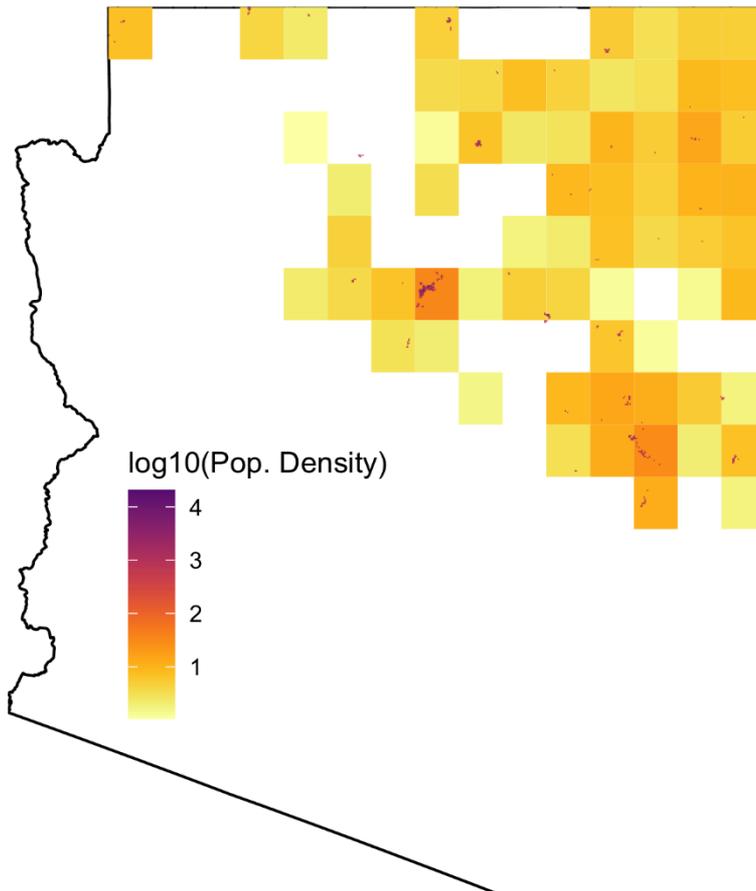


3. Simulate interventions.
 - How will reduced contact rates affect hospitalizations?



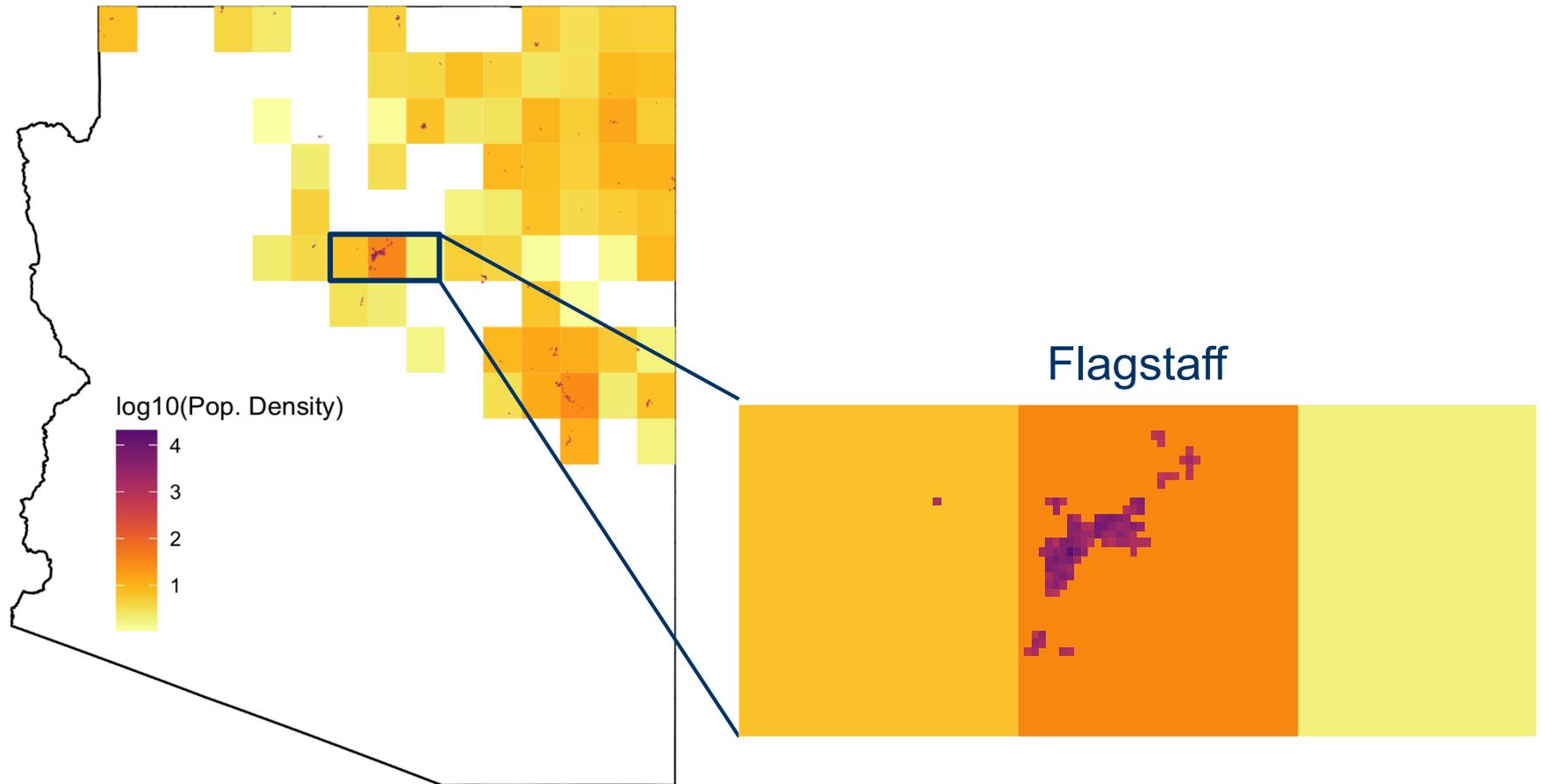
**WE ARE APPLYING ALL OF THESE MODELING
APPROACHES TO NORTHERN ARIZONA**

SPATIALLY-INFORMED OUTBREAK DYNAMICS



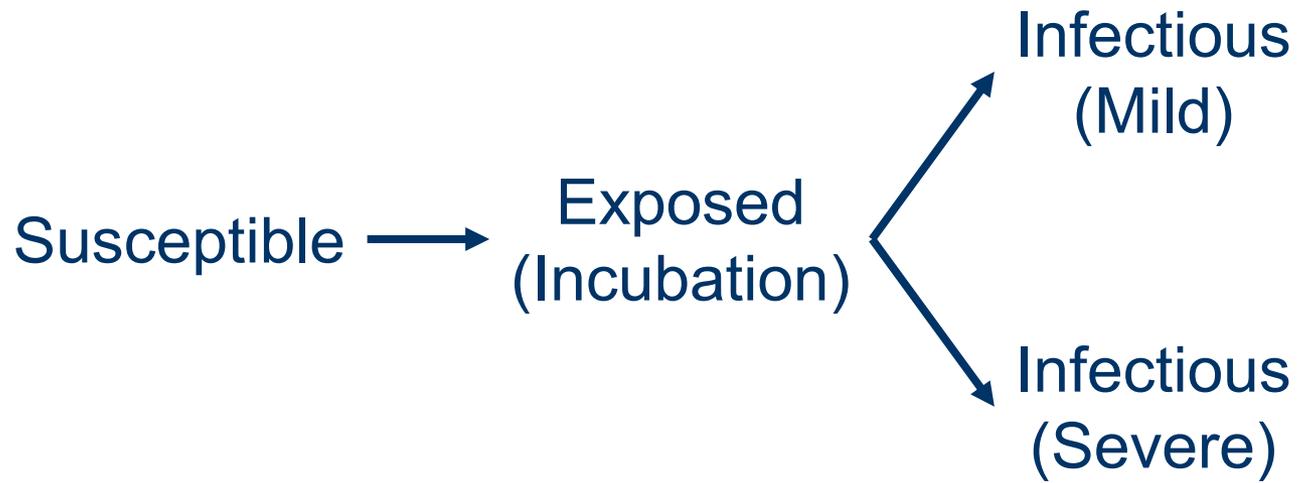
- There are few major hospitals that service all of northern Arizona, a population of **360,000 residents**.
- The **population density** is highly variable across the region.
- Some populations are more **isolated** than others.
- **Low density** and **isolation** can slow the spread of the virus.

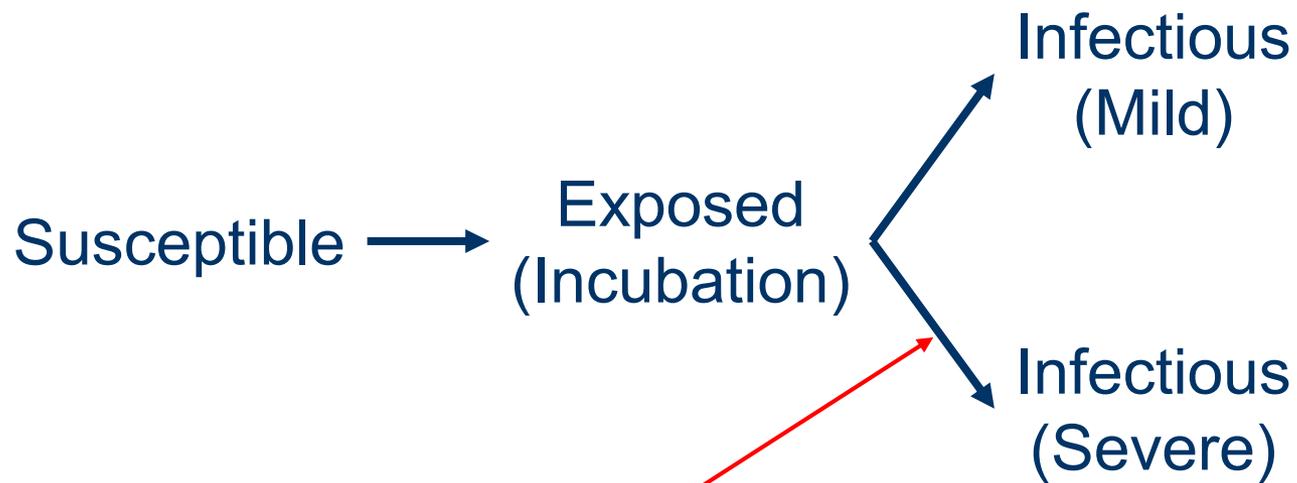
SPATIALLY-INFORMED OUTBREAK DYNAMICS



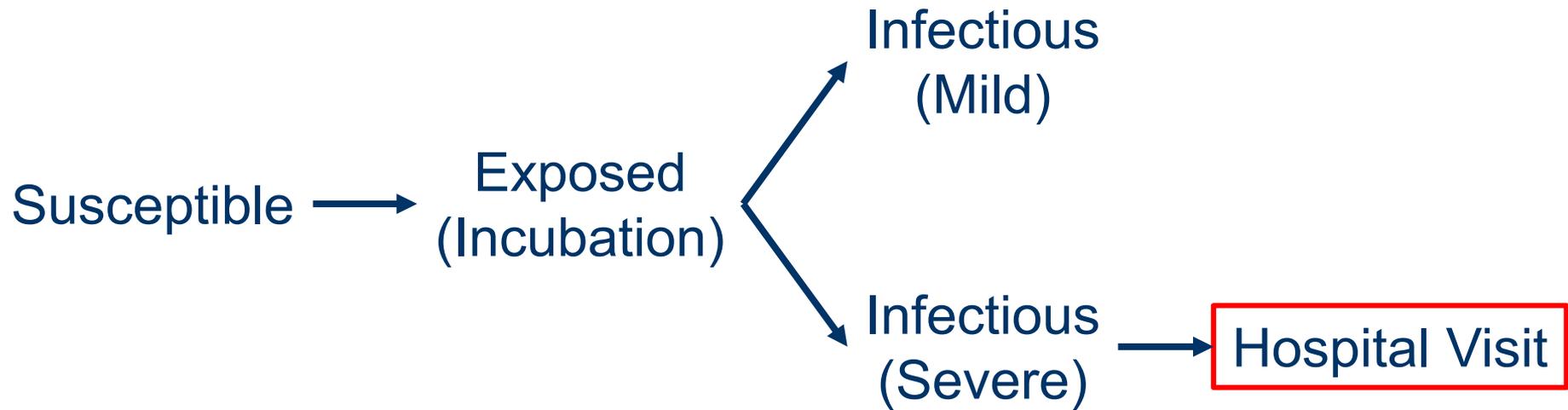
BASIC MODEL STRUCTURE

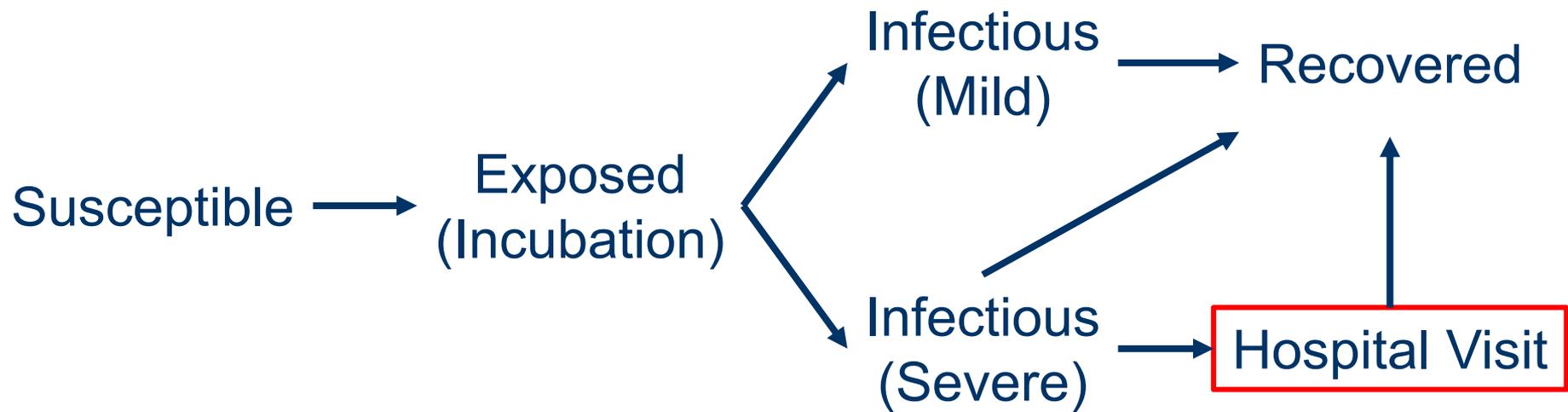


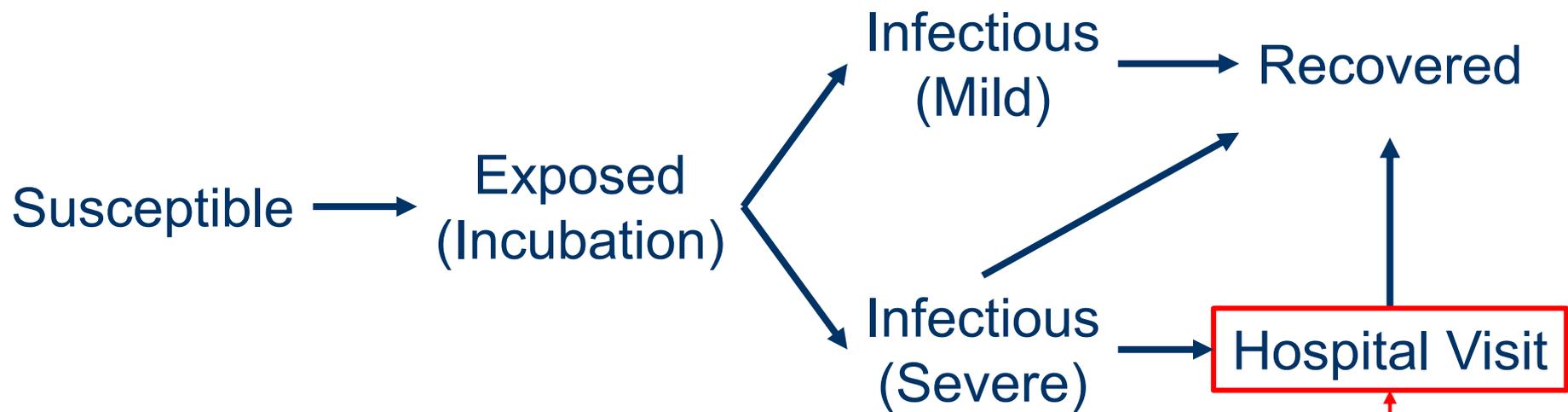




Assume 20% severe enough to potentially visit hospital



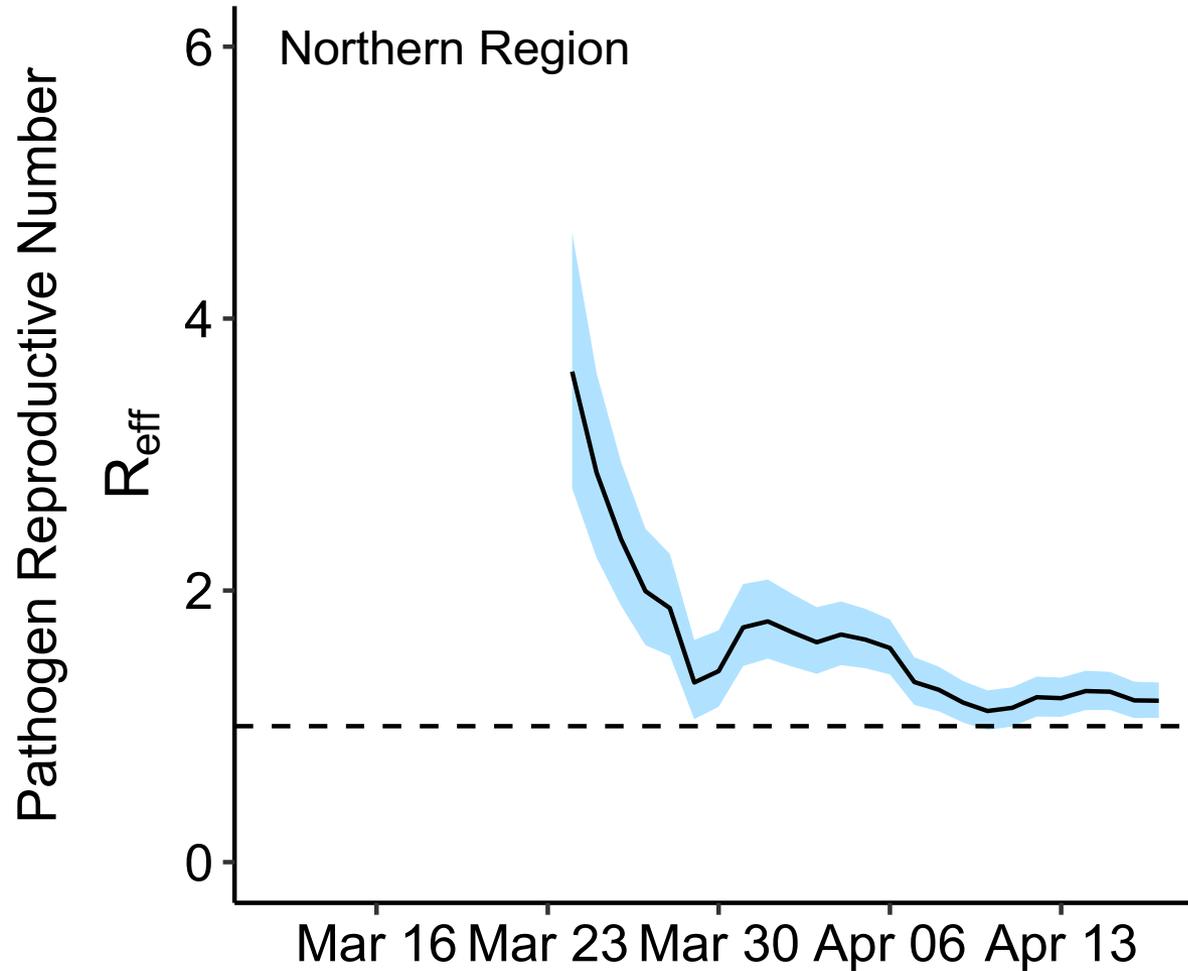




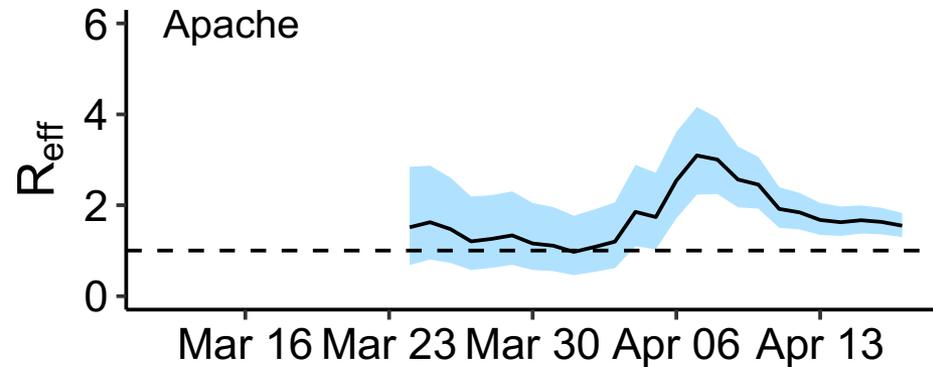
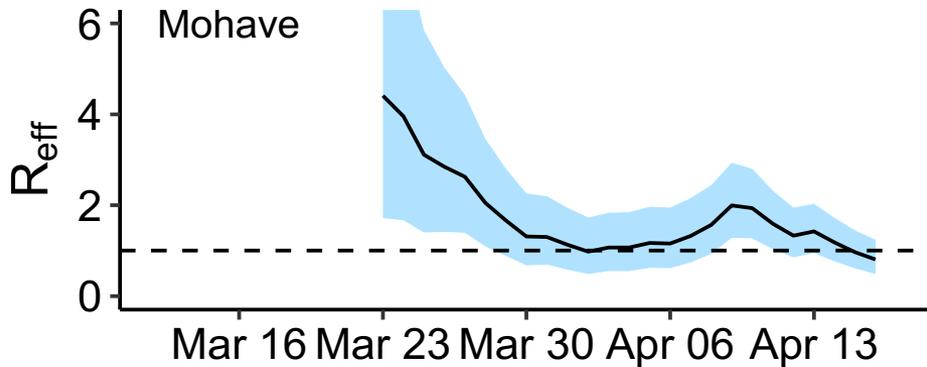
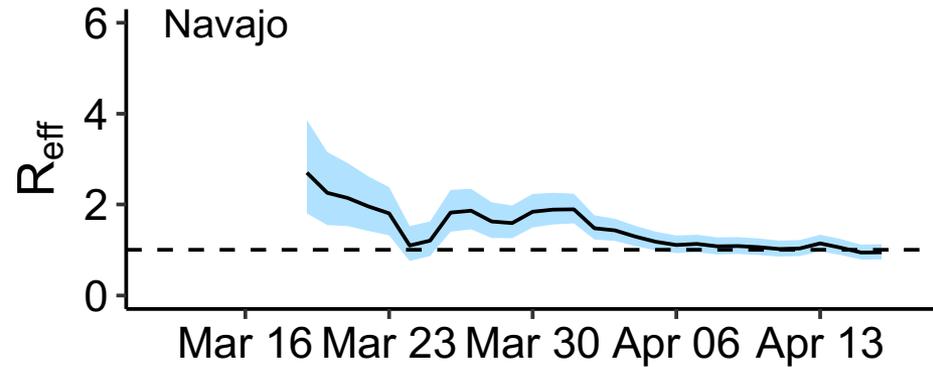
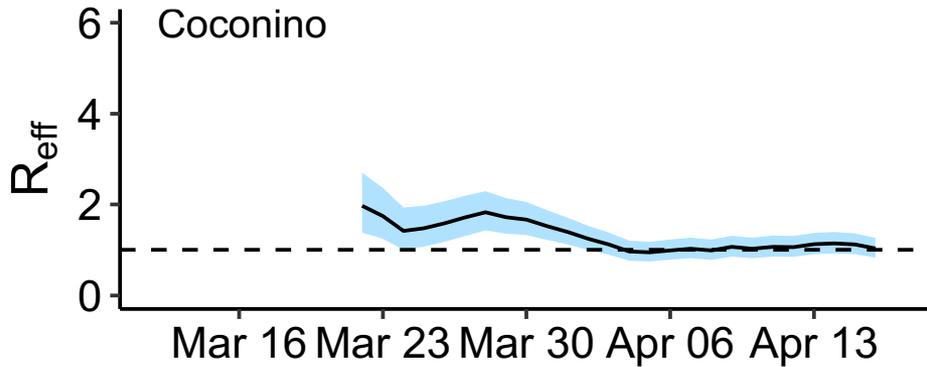
About 4% of cases actually visit hospital

1. HAVE CURRENT INTERVENTIONS BEEN WORKING?

INTERVENTIONS ARE WORKING. BUT REGIONALLY VARIABLE.



INTERVENTIONS ARE WORKING. BUT REGIONALLY VARIABLE.



INTERVENTIONS ARE WORKING.

WE ARE SLOWING THE VIRUS.

**WHAT HAPPENS IF WE REMOVE
INTERVENTIONS NOW?**

A COMMON MISCONCEPTION

“WE HAVE REACHED THE PEAK.”

THE FACT IS...

THERE CAN BE MULTIPLE PEAKS.

**IF WE STOP NOW, THE VIRUS IS
BOUND TO SPREAD MORE, UNLESS
WE HAVE ON-THE-GROUND
METHODS TO LIMIT SPREAD.**

(MORE ON THIS BY DR. SABO)

EASING RESTRICTIONS TOO SOON CAN MEAN MULTIPLE LOCKDOWNS

From the Business Insider:

- **Travelers are already bringing the virus back into Asian countries that have controlled domestic spread, leading to new restrictions in Hong Kong, Singapore, and Taiwan.**

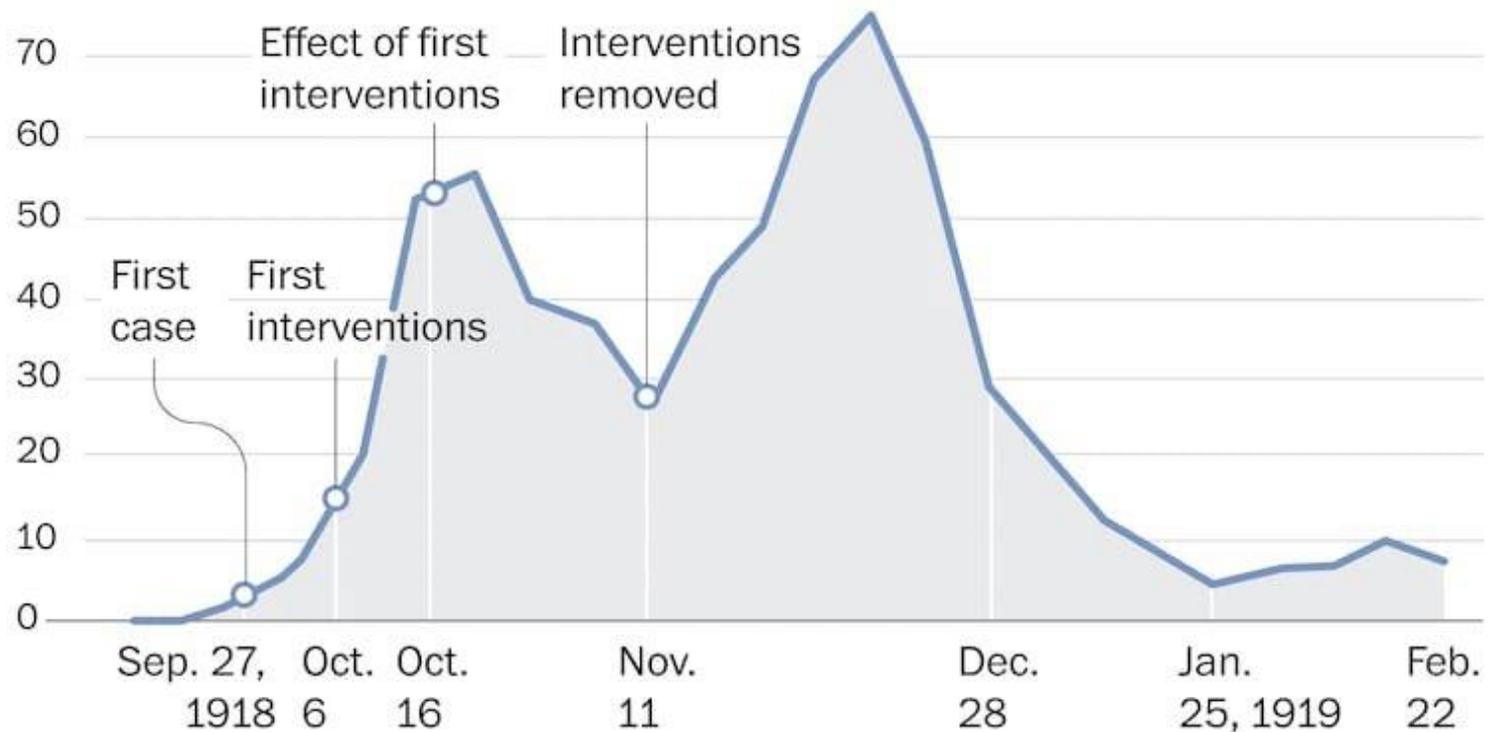
- **To control new waves of infections, countries and cities may need to impose additional lockdowns.**

<https://www.businessinsider.com/countries-lift-lockdowns-face-new-waves-covid-19-2020-3>

SPANISH FLU 1918 – MULTIPLE PEAKS

Denver's 'double-humped' curve in 1918

Data in excess of deaths* caused by the 1918 pandemic strain of influenza in Denver, per 100,000 population.

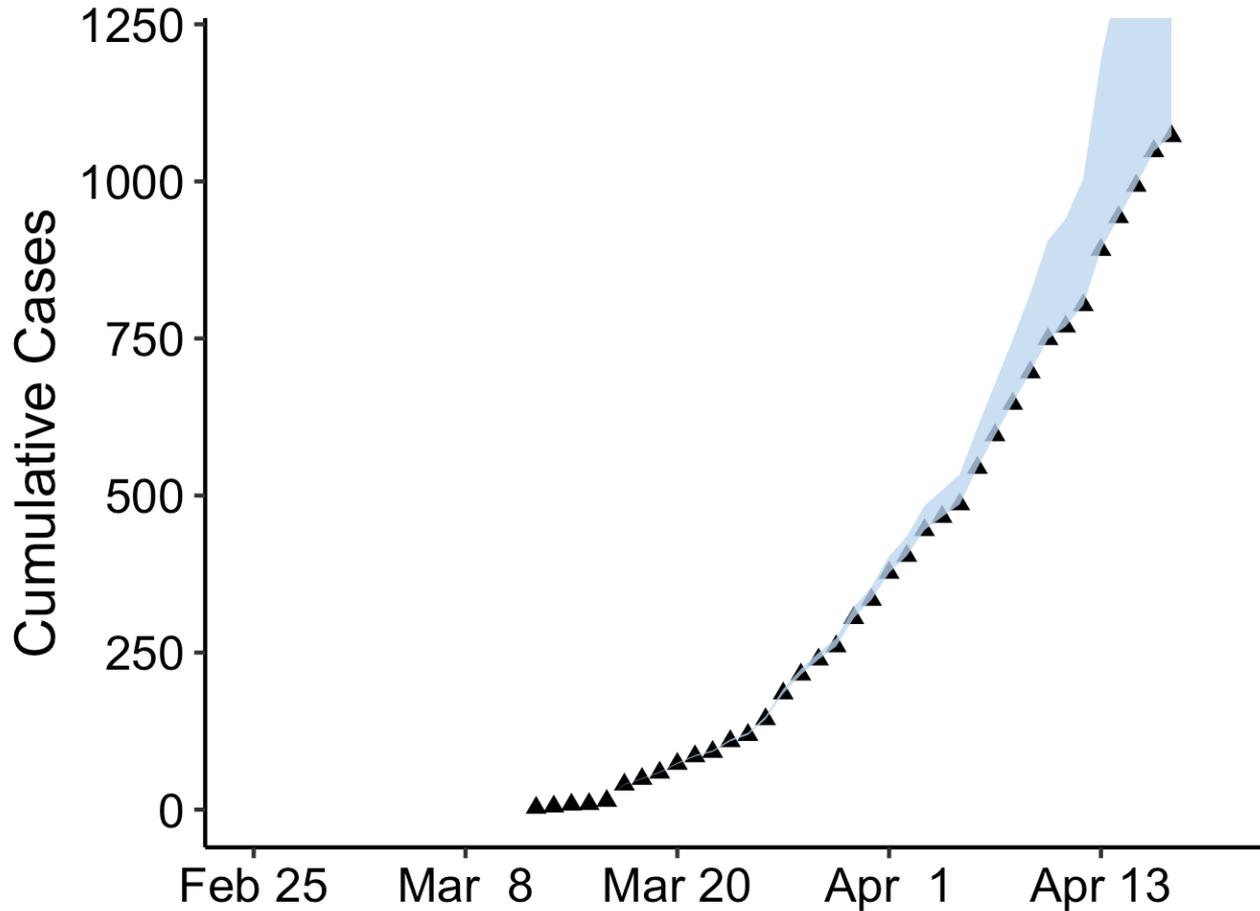


*Number of deaths caused by the flu in 1918 exceeding the typical death rate from seasonal influenza in previous years.

2. SIMULATING FUTURE SCENARIOS FOR NORTHERN ARIZONA

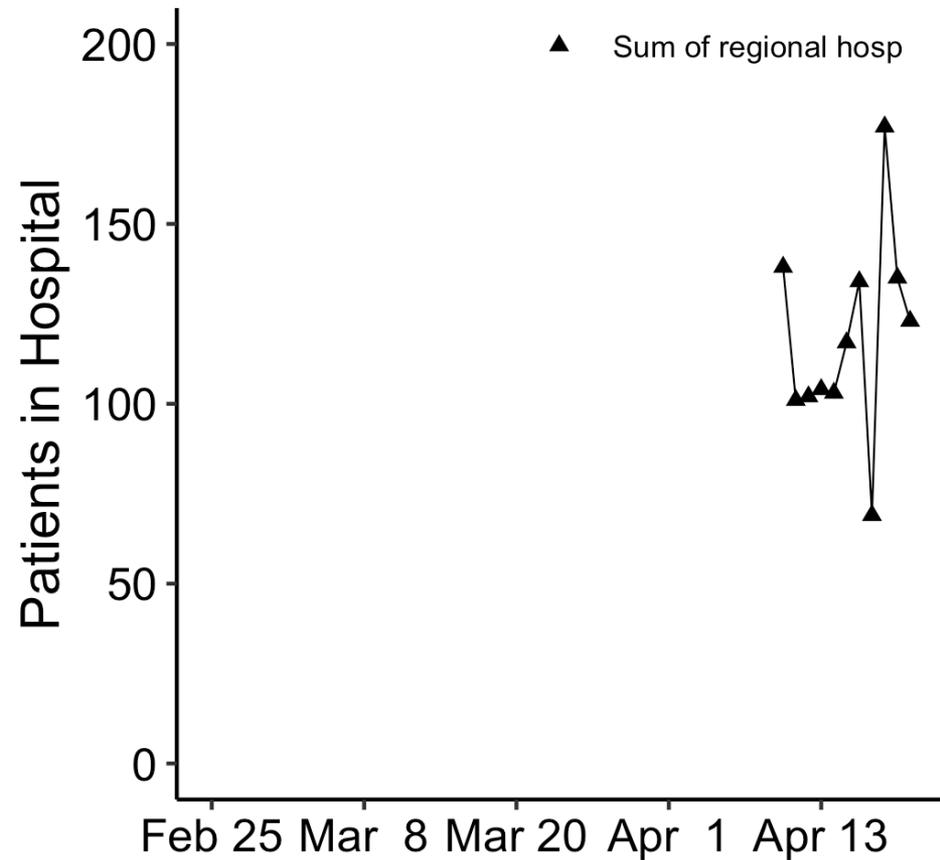
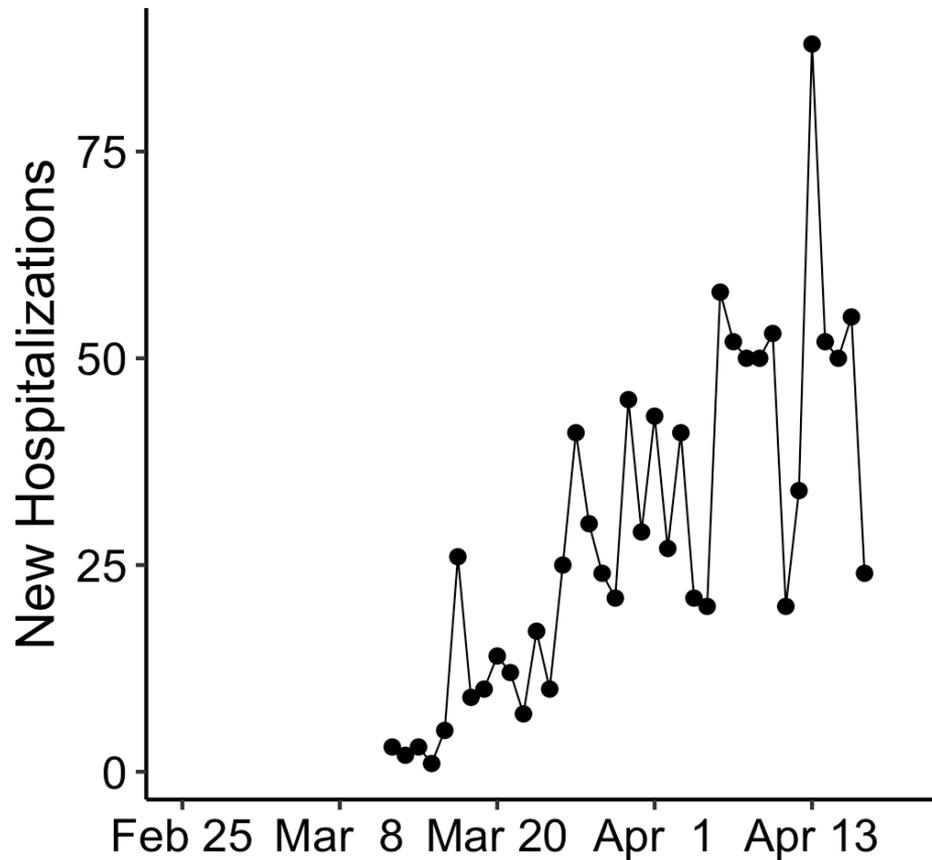
WE CAN CALIBRATE OUR MODEL BY COMPARING TO DATA

Compare to cumulative recorded cases



WE CAN CALIBRATE OUR MODEL BY COMPARING TO DATA

Compare to daily cases and hospitalization data



A PROBLEM:

WE ARE STILL LIMITED BY DATA.

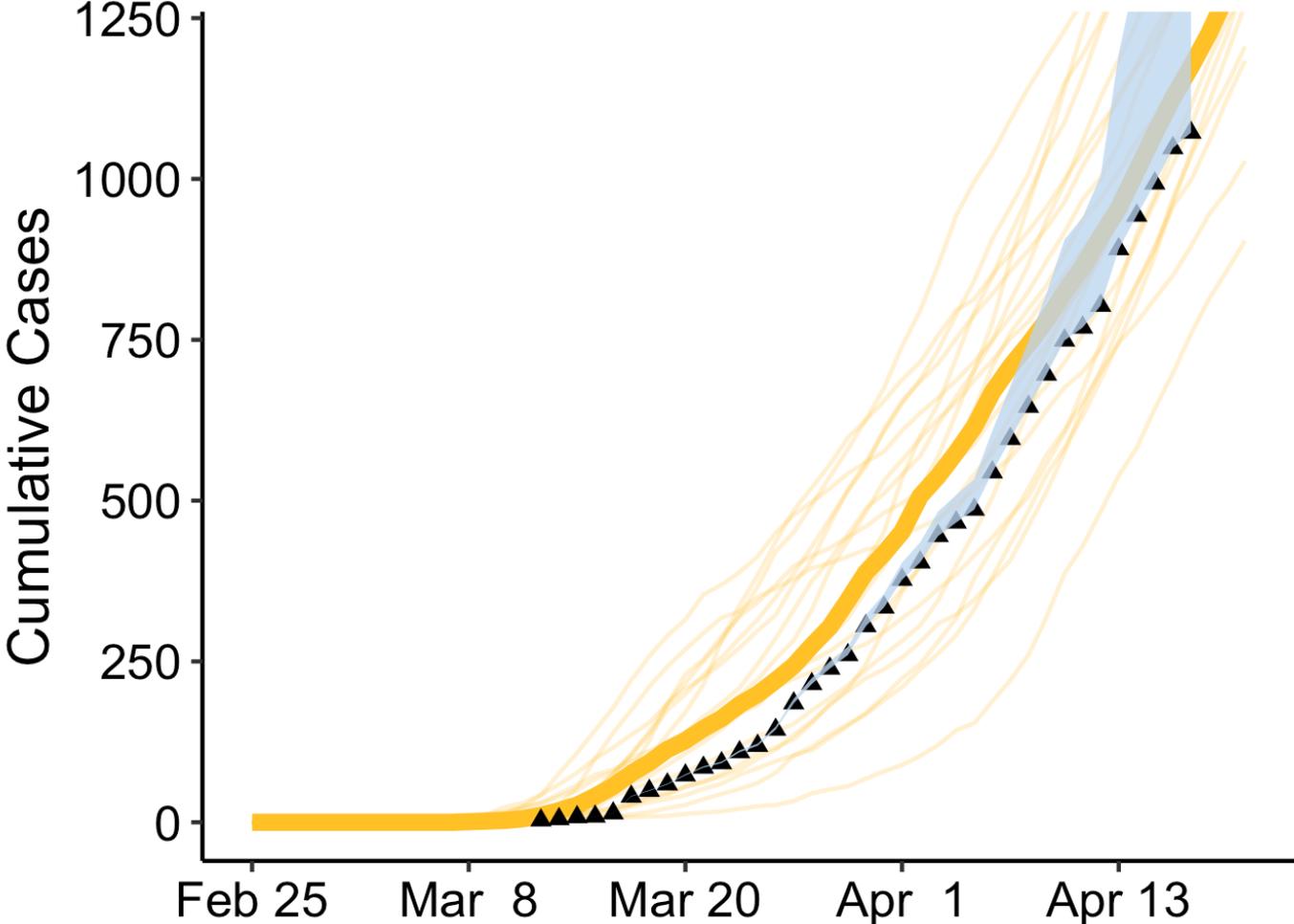
**SEVERAL POTENTIAL OUTCOMES
(OF DIFFERENT SEVERITY) MATCH
CURRENT DATA TRENDS.**

WE HAVE HIGH UNCERTAINTY.
BUT WE WILL SHOW POSSIBILITIES.

**WHAT IF WE REMOVE ALL
RESTRICTIONS ON MAY 1, 2020?
(45 DAYS OF STAY-AT-HOME)**

**RETURNING TO
“BUSINESS AS USUAL”**

FIRST, MATCH TO CASE COUNTS



OPTIMISTIC PROJECTIONS:

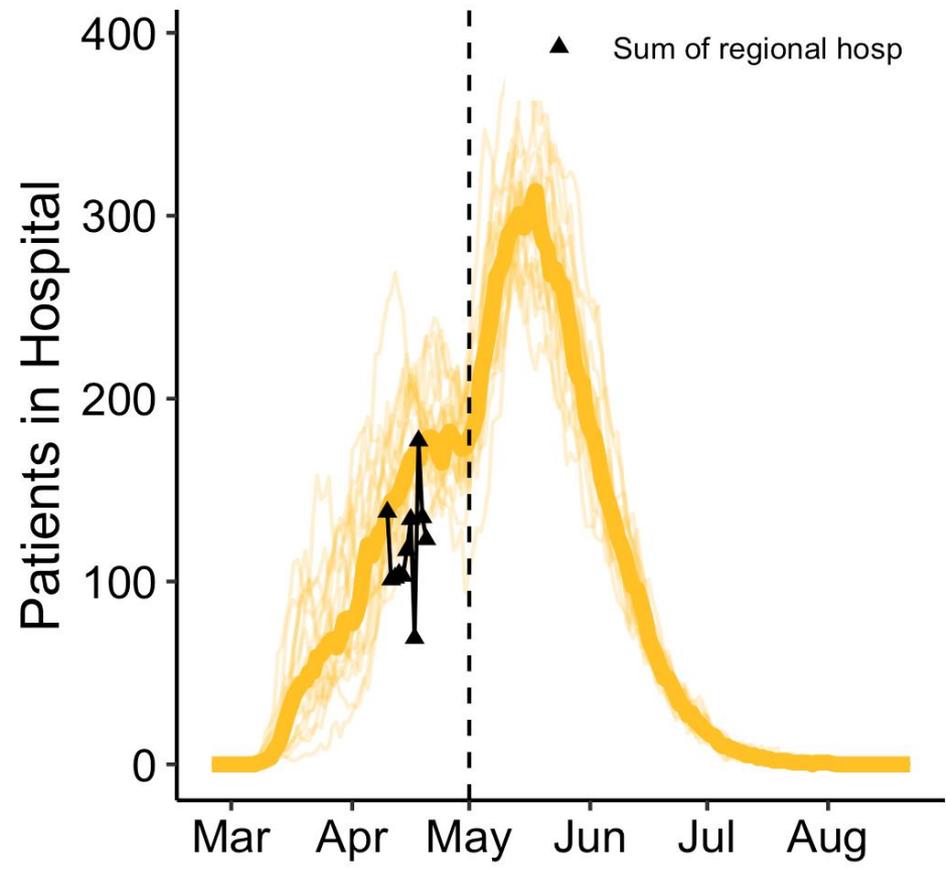
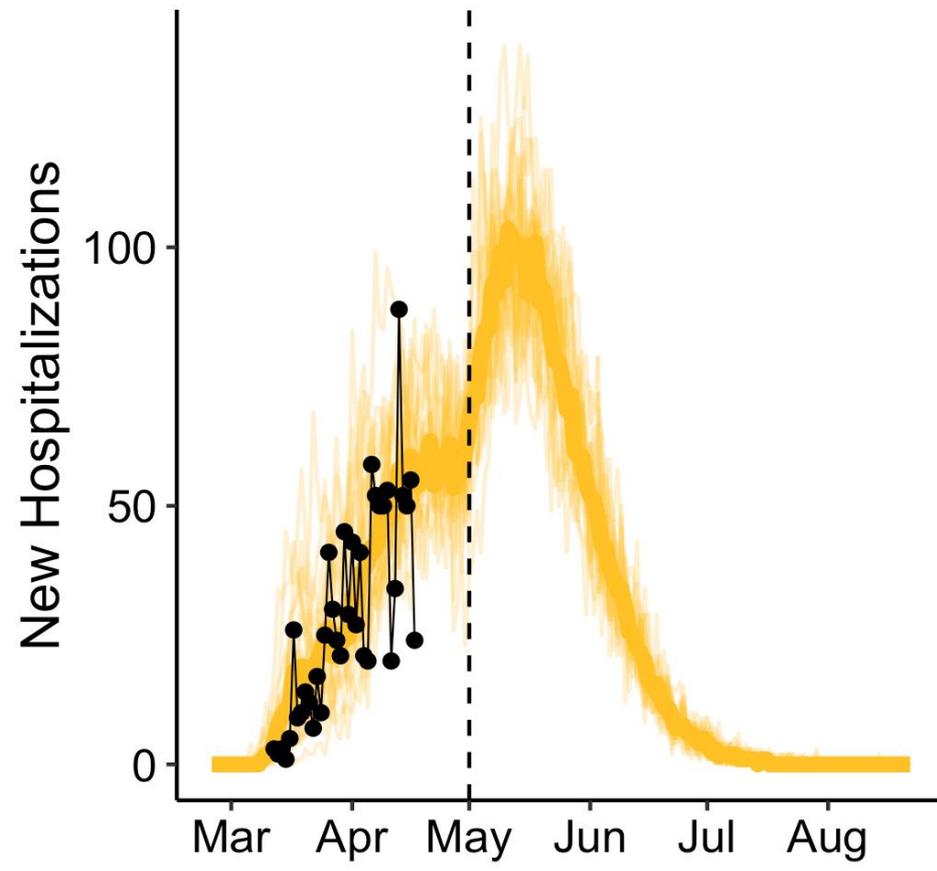
LOW POPULATION DENSITY

AND

SPATIAL ISOLATION

SLOW AND REDUCE THE SPREAD OF THE VIRUS.

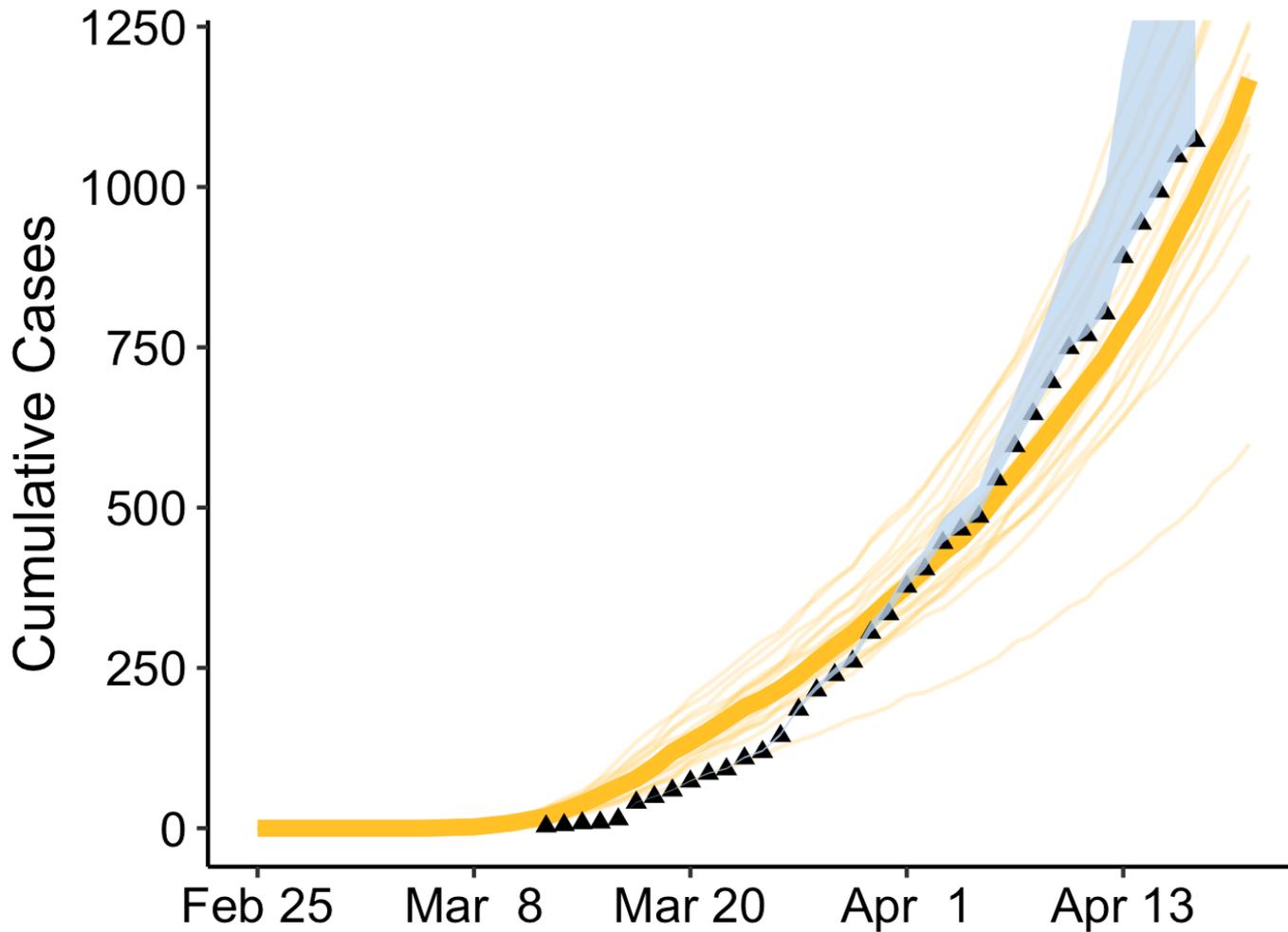
OPTIMISTIC PROJECTIONS: SECOND PEAK WITH 3X HOSPITAL VISITS



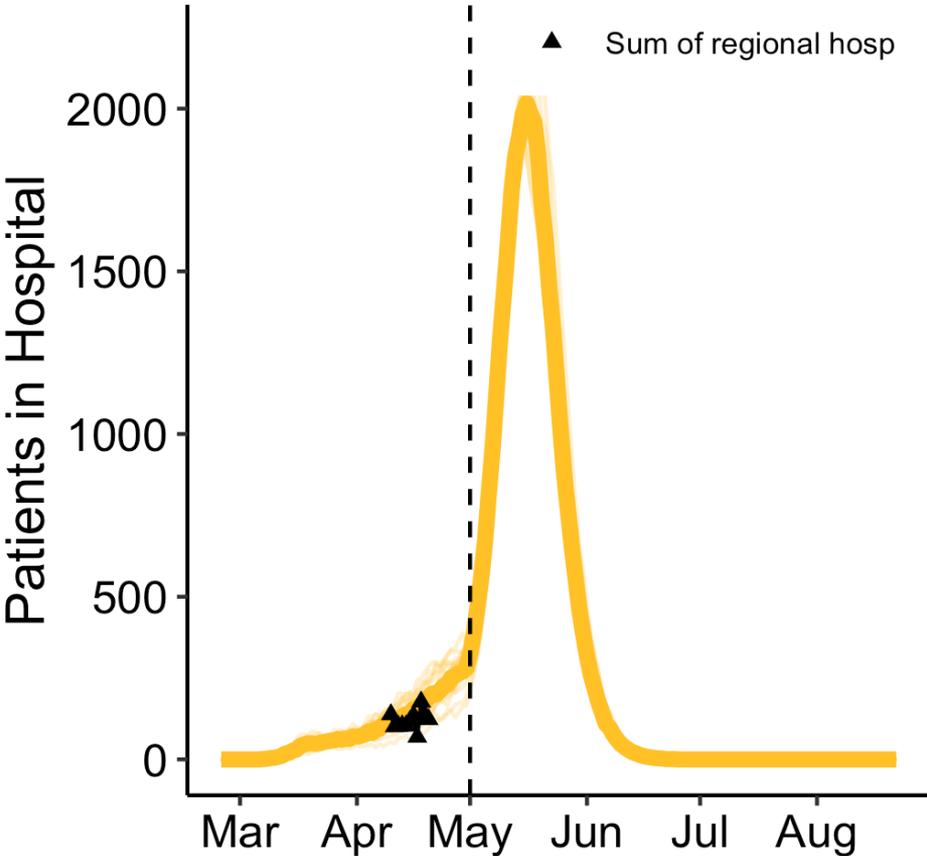
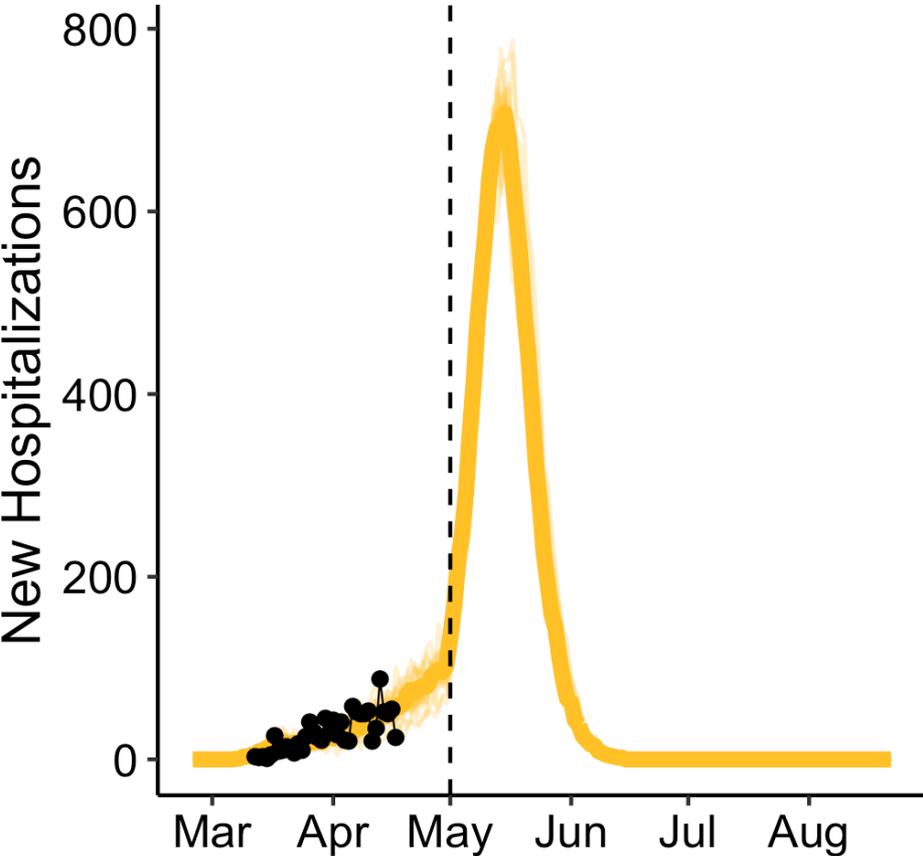
LESS OPTIMISTIC:

**THE VIRUS QUICKLY REACHES EVERY
CORNER OF OUR REGION.**

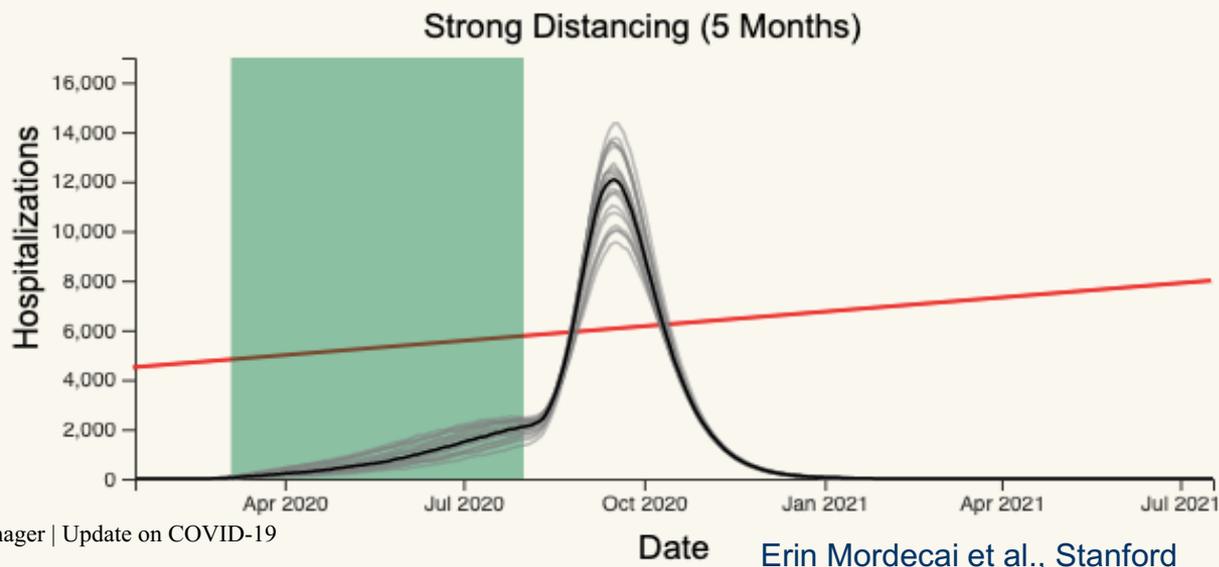
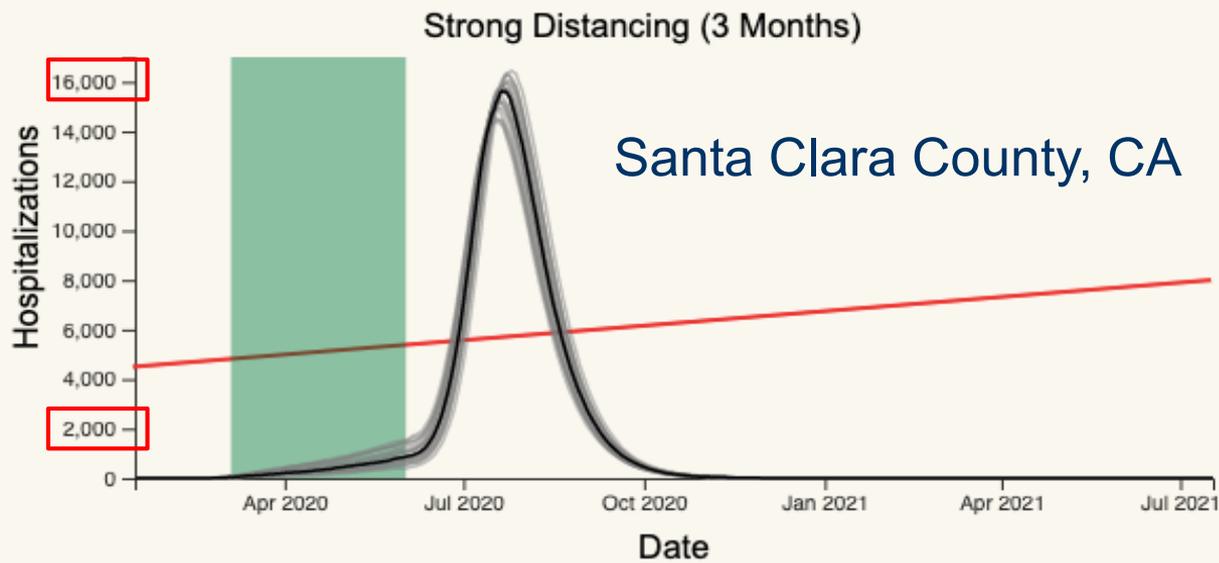
LESS OPTIMISTIC: STILL MATCHES CURRENT TRAJECTORY...



LESS OPTIMISTIC PROJECTIONS: SECOND PEAK WITH 20X HOSPITAL VISITS

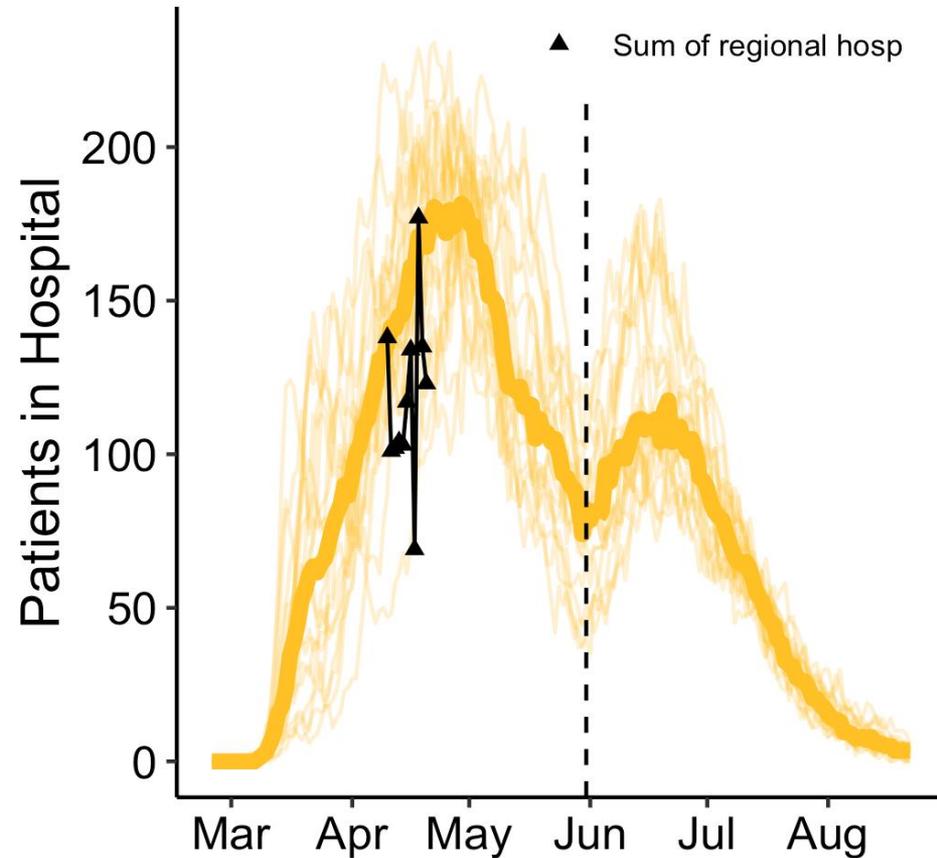
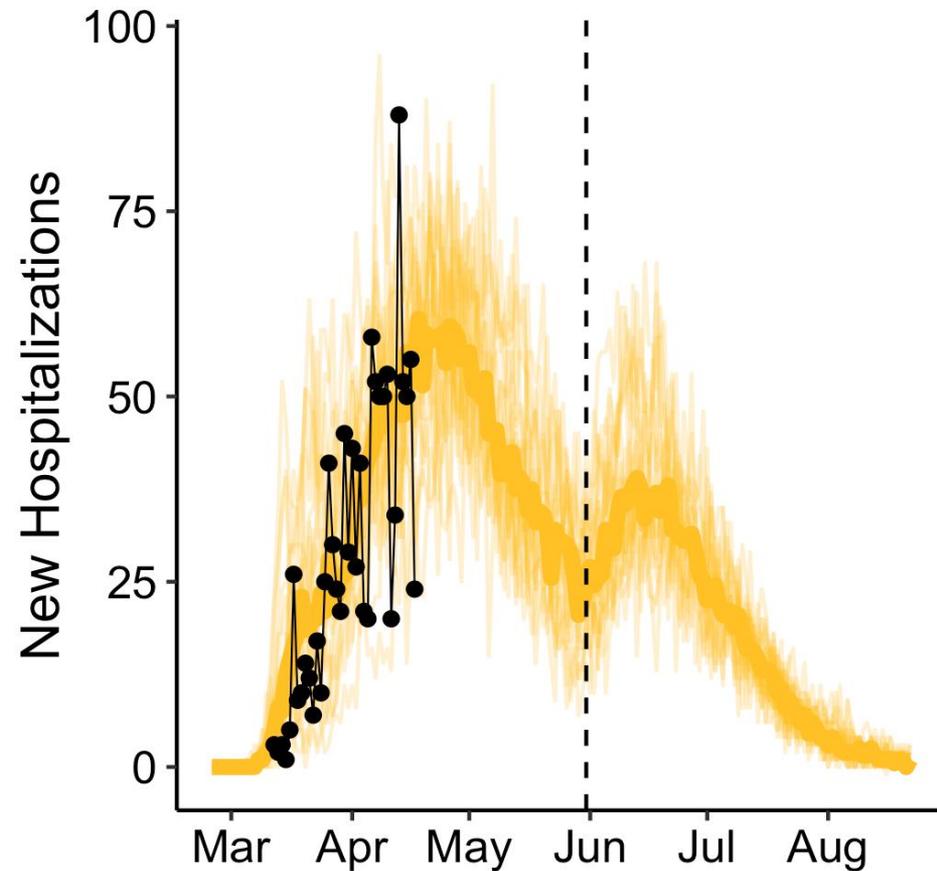


IF YOU RECALL...

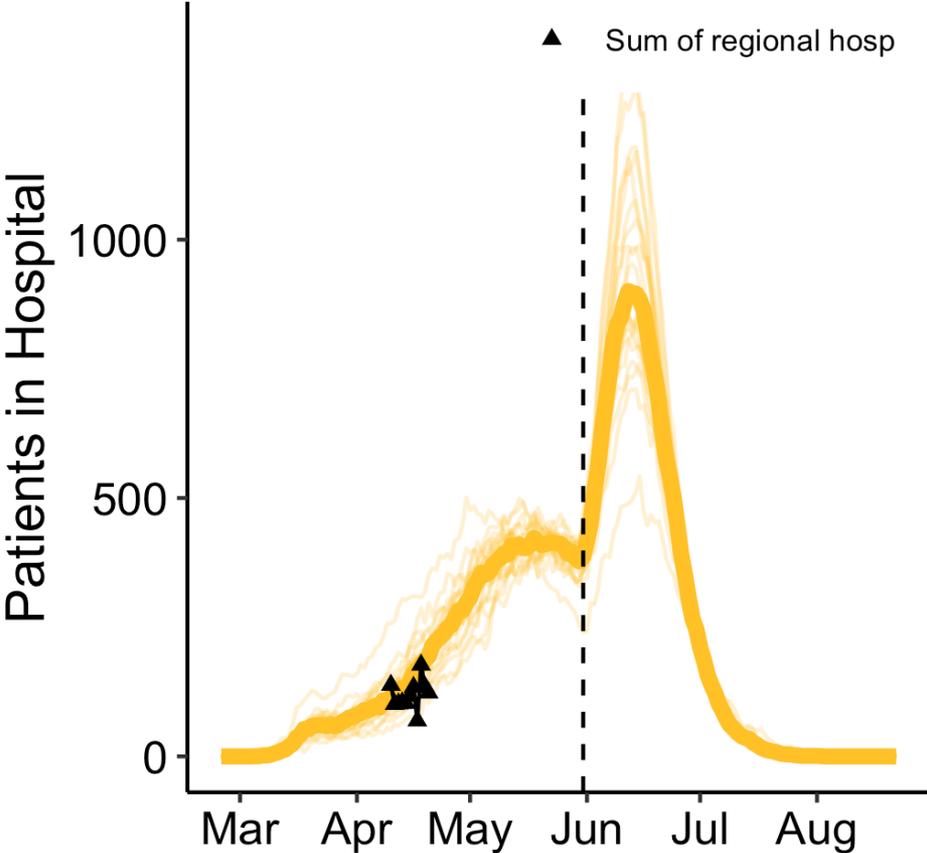
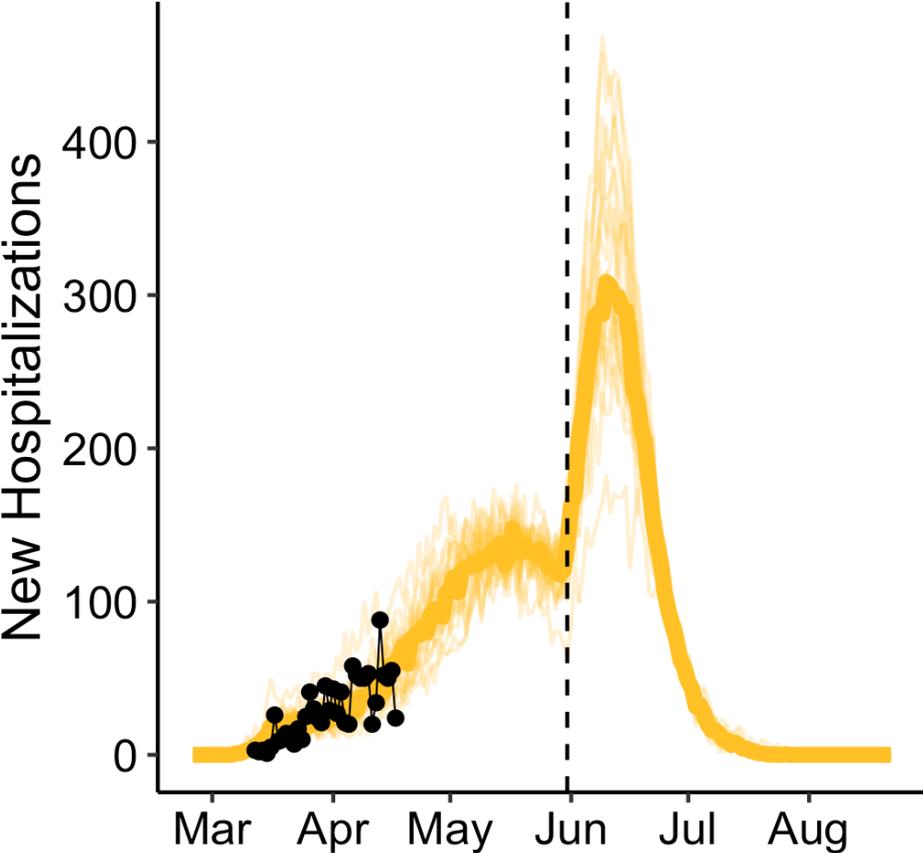


**WHAT IF WE REMOVE ALL
RESTRICTIONS ON MAY 31, 2020?
(75 DAYS OF STAY-AT-HOME)**

OPTIMISTIC PROJECTIONS: SECOND PEAK SMALLER THAN FIRST PEAK



LESS OPTIMISTIC PROJECTIONS: SECOND PEAK WITH 10X HOSPITAL VISITS



**THESE ARE A LIMITED NUMBER OF
SCENARIOS.**

**WE HAVE CREATED AN INTERACTIVE
TOOL TO “PLAY” WITH OUR MODEL
AND SIMULATE ALTERNATIVE
SCENARIOS.**

WEB APPLICATION DEMO

MOVING FORWARD

We need data streams:

- **Locations of early cases across counties (data request approved by ADHS)**
 - Collaboration between counties initiated
- **Ideally we would know which cases are sent to which hospitals, to build “catchment” areas**
- **Collaboration and partnerships with Tribal Nations**



COCONINO COUNTY CORONAVIRUS RESPONSE REPORT

Samantha Sabo DrPH, MPH and Ricky Camplain PhD
Center for Health Equity Research

Coconino County Board of Supervisors
Special Session on COVID-19
April 24, 2020
Virtual Teams Meeting



Center for Health Equity Research

Our Mission

Collaborate with communities to **build foundations and environments** that support health and wellbeing.

Our Vision

Be a **trusted partner** and leader in **research and action** to attain the highest level of health for all people.

GOALS FOR THE PRESENTATION

- 1. Review Coconino County Coronavirus Response Report**
- 2. Describe the Phases of the COVID-19 Pandemic**
 - **Focus on Phase I : Slow the Spread**
- 3. Assess Triggers for Lifting Social Distancing**
 - **A review of local, state and regional data**
- 4. Know the Thresholds for Transitioning to Phase II: Reopen, State by State**
 - **Evidence informed strategies for slowing the spread of COVID-19 by sector and population**



Coconino County Coronavirus Response Report

A preliminary report to the Coconino County COVID-19 Incidence Command Team
by Northern Arizona University, Center for Health Equity Research

April 14, 2020

Purpose:

The COVID-19 epidemic in the United States is growing with community-wide transmission occurring in every state. This report summarizes epidemiological data and recommendations to support public health officials and local government to navigate the rapidly evolving COVID-19 epidemic in Northern Arizona, and specifically in Coconino County. Data and recommendations presented are those available at the time of preparation of the report.

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ACKNOWLEDGEMENTS

We thank the Coconino County COVID-19 Incident Command Team, a collaborative approach of several departments and partners organized to fight COVID-19 in Coconino County.

We are especially grateful to :

- ❖ COVID-19 Incident Commander, Dr. Marie Peoples
- ❖ COVID-19 Surveillance Group
- ❖ COVID-19 Investigation and Monitoring Groups
- ❖ Front-line health providers and health system leadership who serve our community and actively contribute data the County requires to mitigate COVID-19 through epidemiological surveillance and contact tracing.

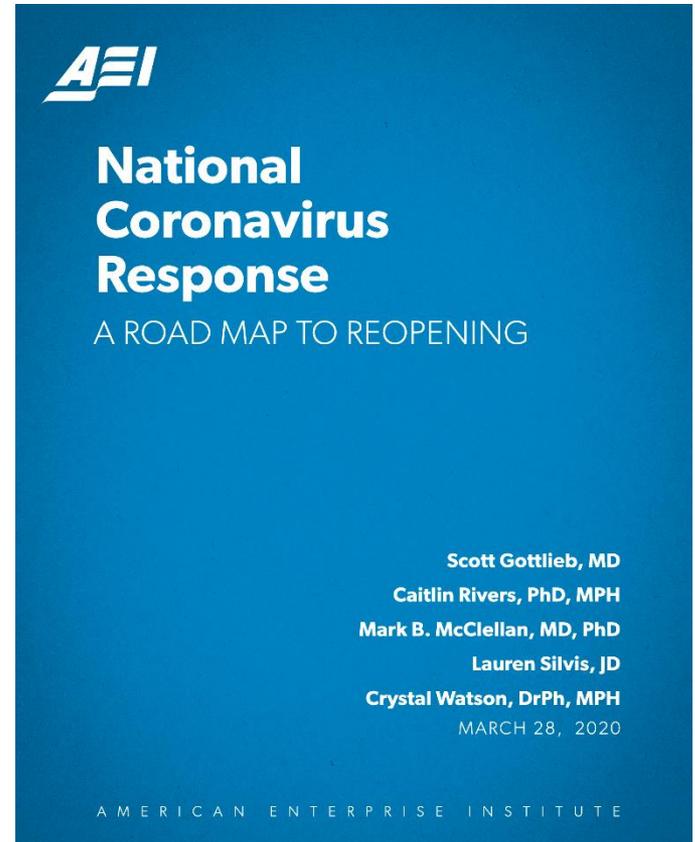
PHASES OF COVID-19 PANDEMIC

Phase I : Slow the Spread

Phase II: Reopen, State by State

Phase III: Establish Protection Then Lift All Restrictions

Phase IV: Rebuild Our Readiness for the Next Pandemic



CURRENTLY IN PHASE I : SLOW THE SPREAD

Phase I: “Slow the Spread”

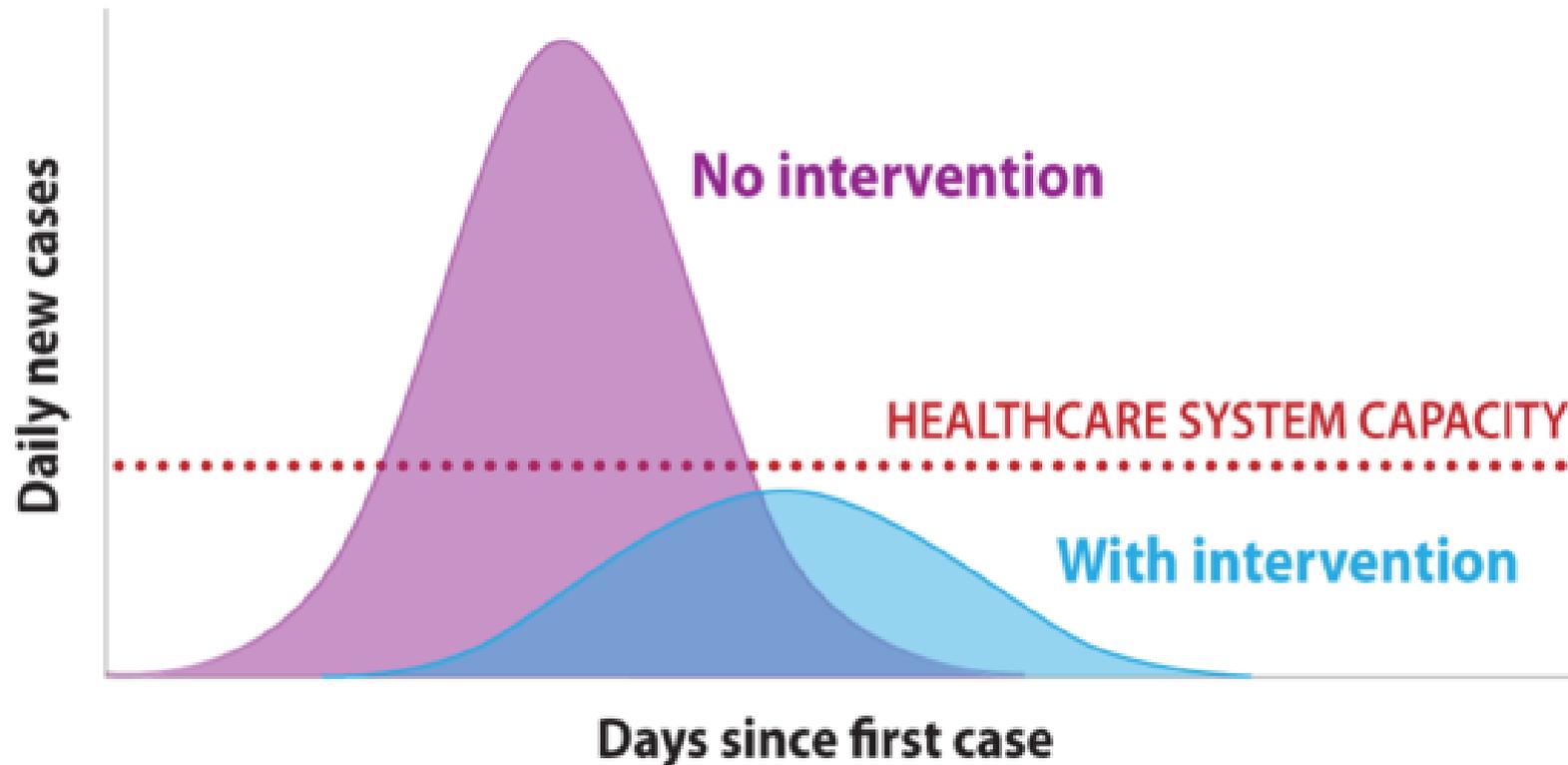
Goals

The goal of Phase I is to save lives by:

1. Slowing the transmission of SARS-CoV-2 across the United States by reducing the effective reproduction number of infections,
2. Increasing testing capacity to accommodate the ability to test everyone with symptoms and their close contacts, and
3. Ensuring the health care system has the capacity to safely treat both COVID-19 patients and others requiring care.

FLATTENING THE CURVE

A look at the importance of slowing the spread of a virus, so that the rate of infection doesn't outpace the resources to fight against it.



TRIGGERS FOR SLOWING THE SPREAD

Triggers for issuing a recommendation for:

❖ Stay-at-Home Advisories

- Case counts are doubling every three to five days or when state and local officials recommend it based on the local context (for example, growth on track to overwhelm the health system's capacity).
 - Depends not only on our county but on our region and our neighboring counties and tribes.

❖ Slow the Spread

- Number of new cases reported in a state has declined steadily for 14 days (i.e., one incubation period) and the jurisdiction is able to test everyone seeking care for COVID-19 symptoms.
 - Depends not only on our county but on our region and our neighboring counties and tribes.

PHASE I: TRIGGERS FOR LIFTING SOCIAL DISTANCING

To transition away from physical or social distancing as a primary tool for controlling current and future spread of COVID-19 :

- 1. A sustained reduction in cases in the state for at least 14 days**
- 2. Hospitals in the state are safely able to treat all patients requiring hospitalization without resorting to crisis standards of care**
- 3. The state is able to test all people with COVID-19 symptoms**
- 4. The state is able to conduct active monitoring of confirmed cases and their contacts.**

PHASE I : SLOW THE SPREAD

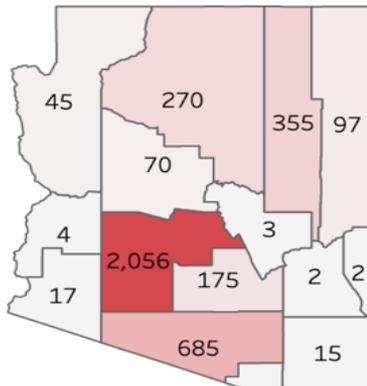
TRIGGER #1

**A SUSTAINED REDUCTION IN CASES IN THE
STATE FOR AT LEAST 14 DAYS**

COVID-19 CASES : ARIZONA

<p>Number of Cases</p> <p>3,806</p>	<p>Number of deaths</p> <p>131</p>	<p>Arizona Community Risk</p> <p>Increasing with some area of heightened risk</p>	<p>Arizona Community Spread</p> <p>Widespread</p>
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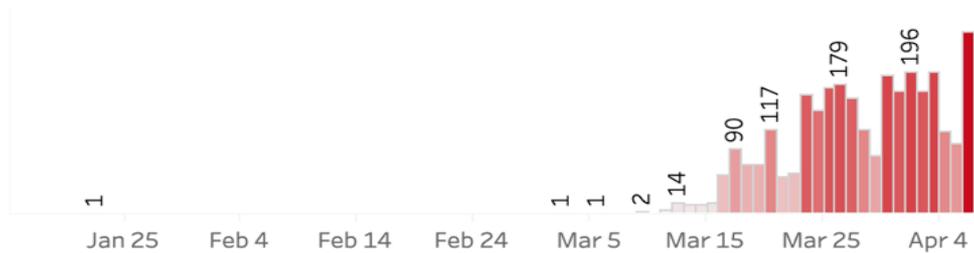
Select a county to filter the graphs below.



Counties with cases less than 10 will not have the graphs filtered.
Counties with less than 3 deaths will not be displayed in the filtered death counts.

COVID-19 Cases by Day

Date of specimen collection is used for day

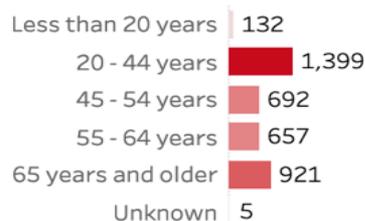


For recent weeks, all data may not be complete due to reporting lags.

COVID-19 Cases by Laboratory Type

ASPHL	Private Laboratory
175	3,631

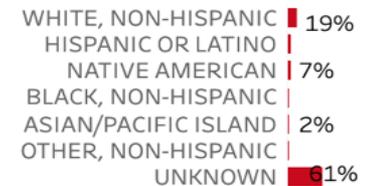
COVID-19 Cases by Age Group



COVID-19 Cases by Gender



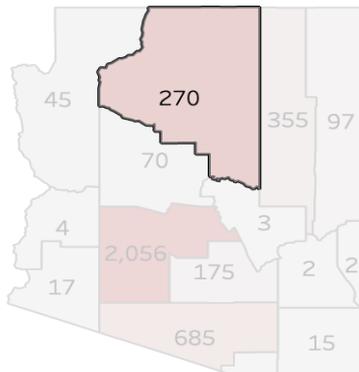
COVID-19 Cases by Race/Ethnicity



COVID-19 CASES : COCONINO COUNTY

<p>Number of Cases</p> <p>270</p>	<p>Number of deaths</p> <p>22</p>	<p>Arizona Community Risk</p> <p>Increasing with some area of heightened risk</p>	<p>Arizona Community Spread</p> <p>Widespread</p>
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Select a county to filter the graphs below.



Counties with cases less than 10 will not have the graphs filtered.
Counties with less than 3 deaths will not be displayed in the filtered death counts.

COVID-19 Cases by Day

Date of specimen collection is used for day



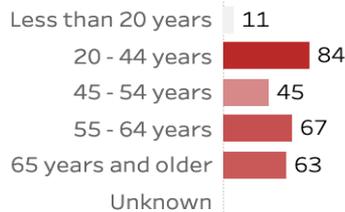
For recent weeks, all data may not be complete due to reporting lags.

COVID-19 Cases by Laboratory Type

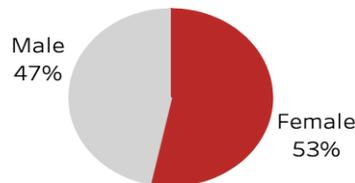
Private Laboratory

266

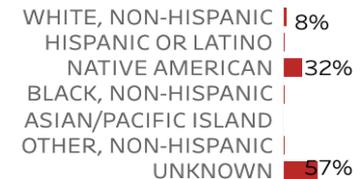
COVID-19 Cases by Age Group



COVID-19 Cases by Gender



COVID-19 Cases by Race/Ethnicity



Date Updated: 4/14/2020

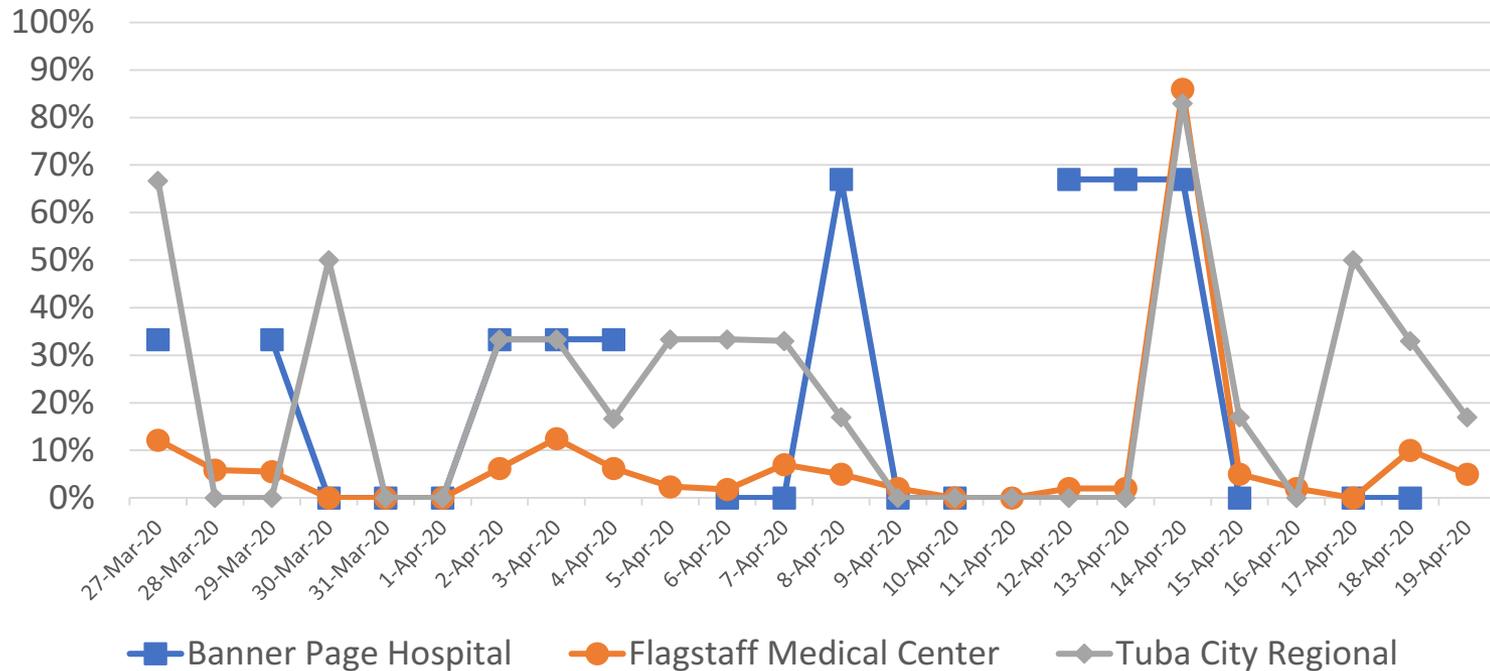
PHASE I : SLOW THE SPREAD

TRIGGER #2

**HOSPITALS IN THE STATE ARE SAFELY ABLE
TO TREAT ALL PATIENTS REQUIRING
HOSPITALIZATION WITHOUT RESORTING TO
CRISIS STANDARDS OF CARE**

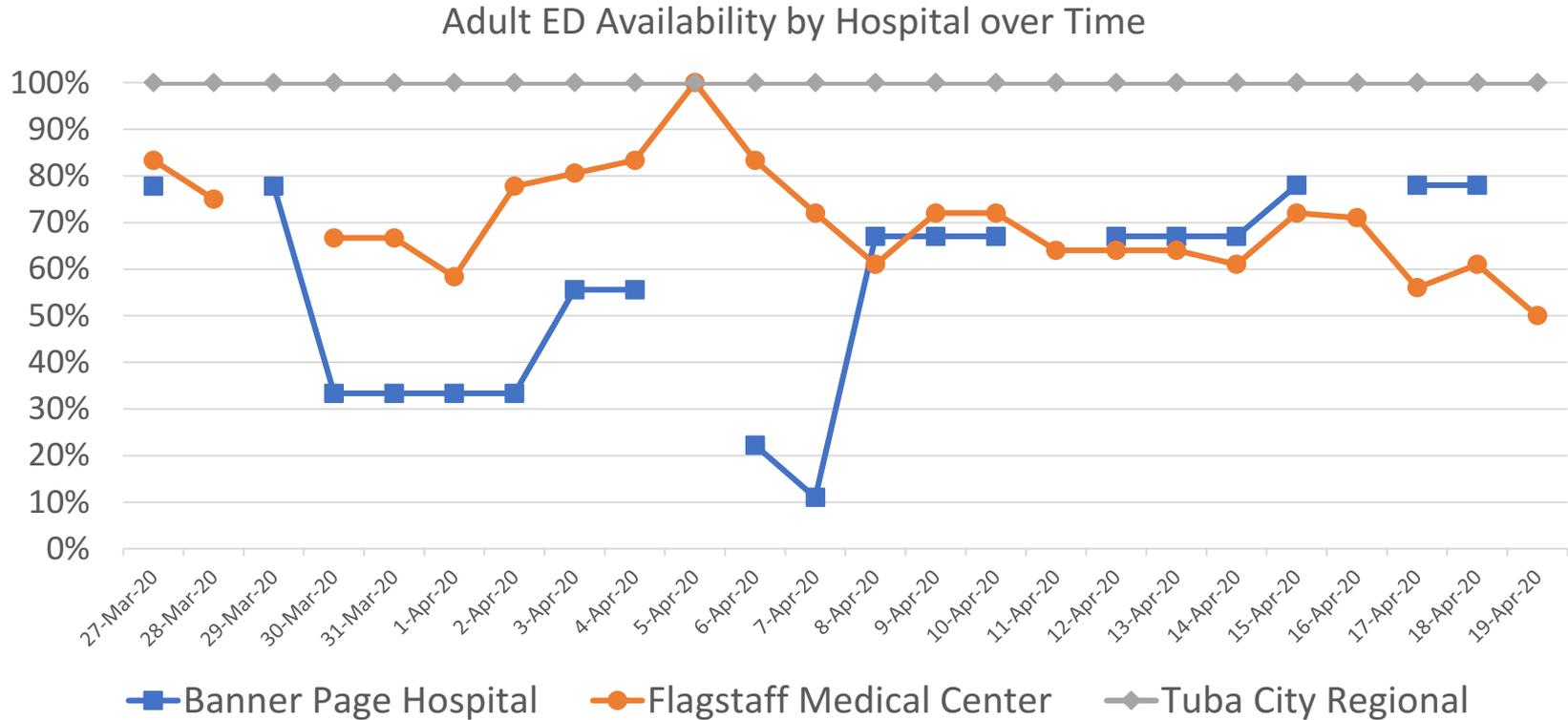
ICU Availability

Adult ICU Availability by Hospital over Time



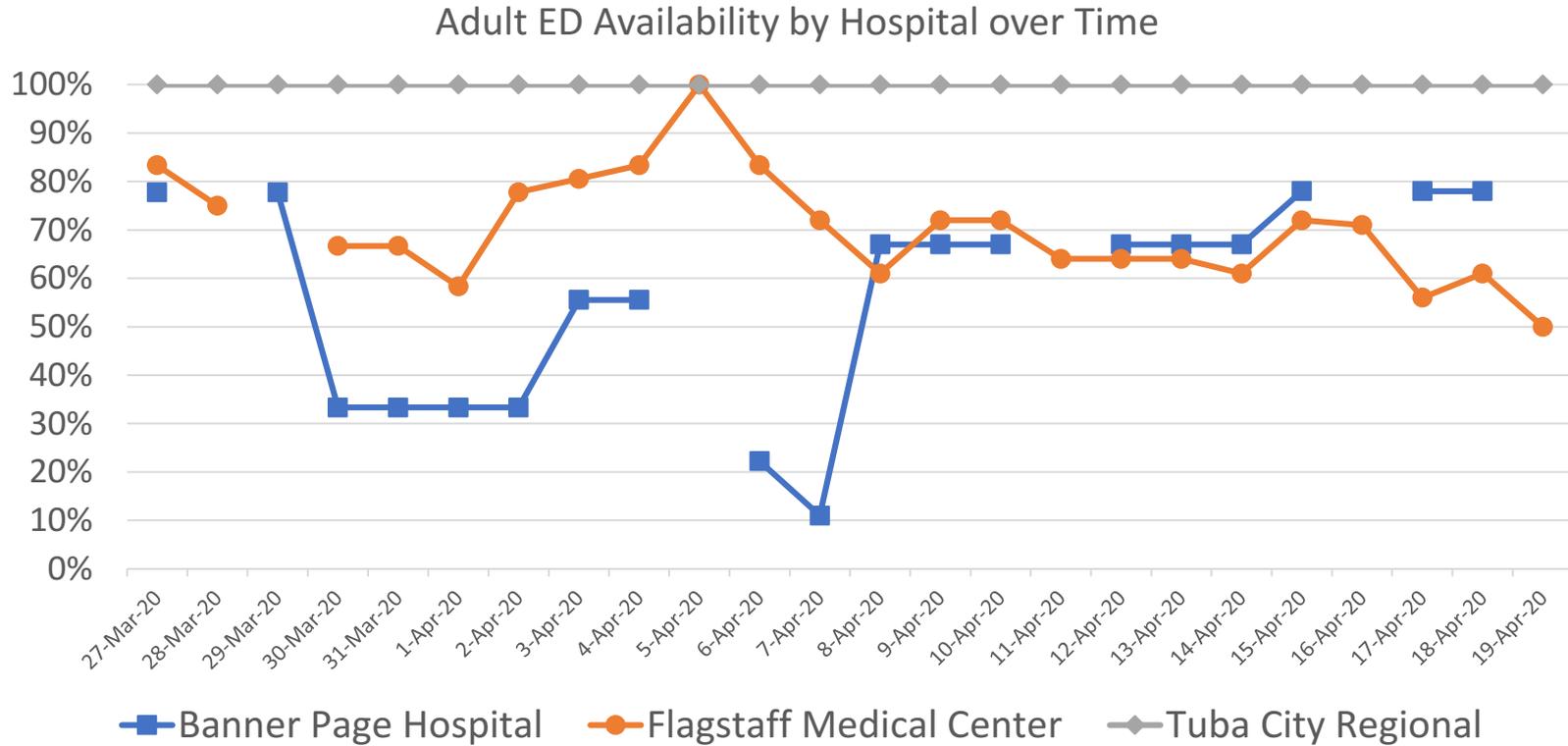
ICU availability has fluctuated since the start of the COVID-19 pandemic, ranging from 0% to 90% of availability on any given day, Tuba City Regional has experienced low levels of availability. FMC ICU availability has remained under 20% during the course of the pandemic. As of April 15, 2020, there was less than 20% adult ICU availability across all regional hospitals.

Adult ED Availability



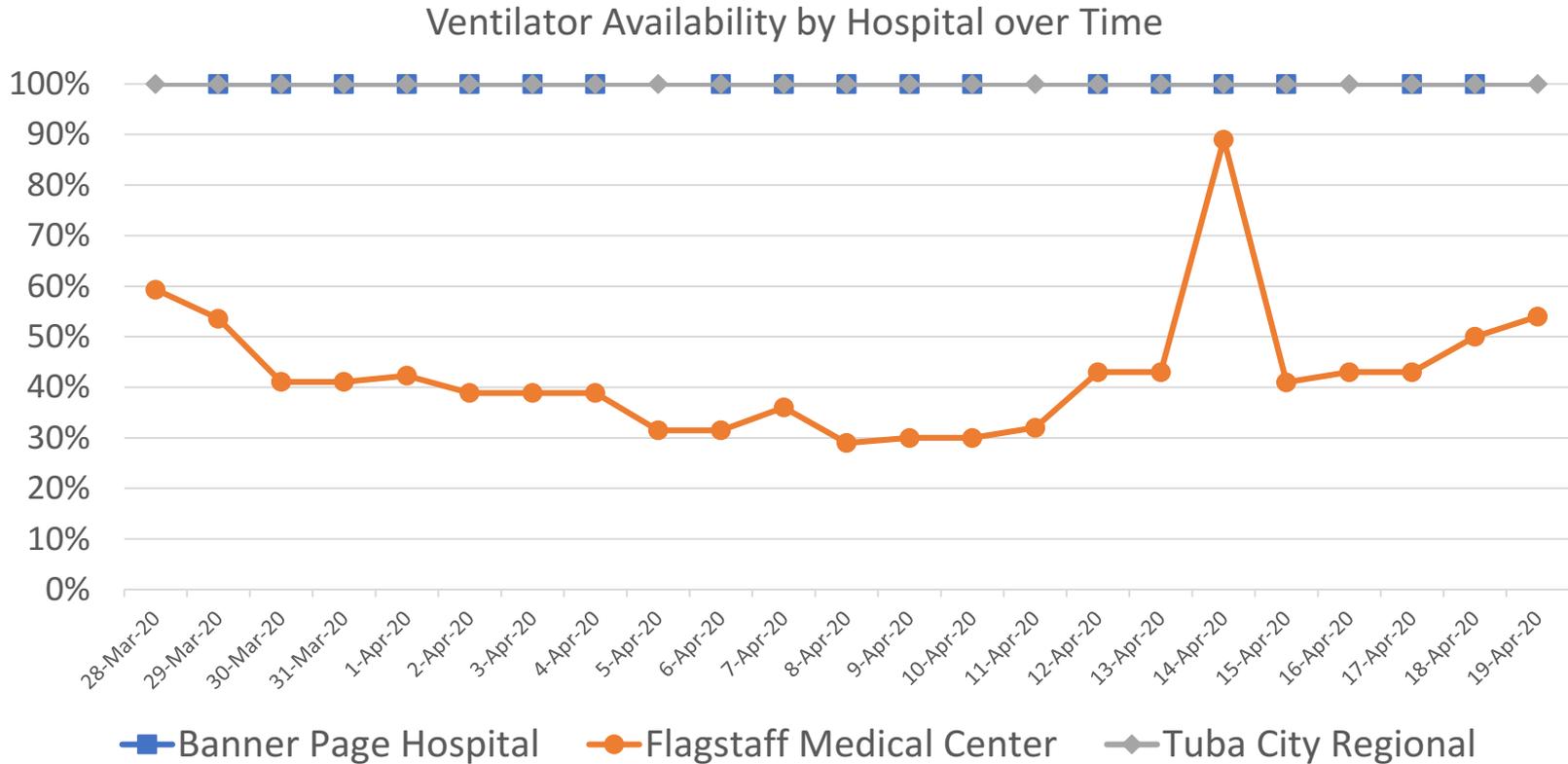
Adult ED availability also fluctuates over time. Both FMC and Tuba City Regional ED availability has remained over 60%. Banner Page has experienced spikes in low availability.

Med/Surg Availability



Adult medical- surgical bed availability has generally remained below 20% in all three hospitals with little fluctuation at FMC and Tuba City Regional. Banner Page has seen more fluctuation of the availability of their 6 med/surg beds.

Ventilator Availability



Ventilator availability has a slow downward trend from the end of March (60% availability) to mid-April (30% availability). On April 15, 2020, FMC had a 40% ventilator availability. Both Tuba City Regional and Banner Page Hospital have reported 100% availability in ventilators during the course of the pandemic.

PHASE I : SLOW THE SPREAD

TRIGGER #3

**THE STATE IS ABLE TO TEST ALL PEOPLE
WITH COVID-19 SYMPTOMS**

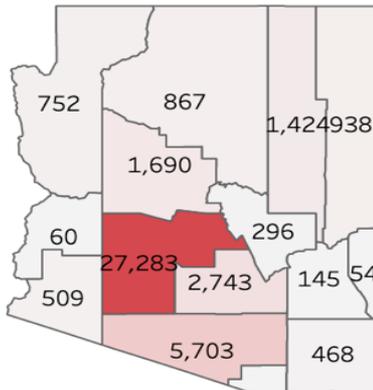
COVID-19 TESTING : ARIZONA

COVID-19 Testing at Private Laboratories and Arizona State Public Health Laboratory

Total COVID-19 Testing

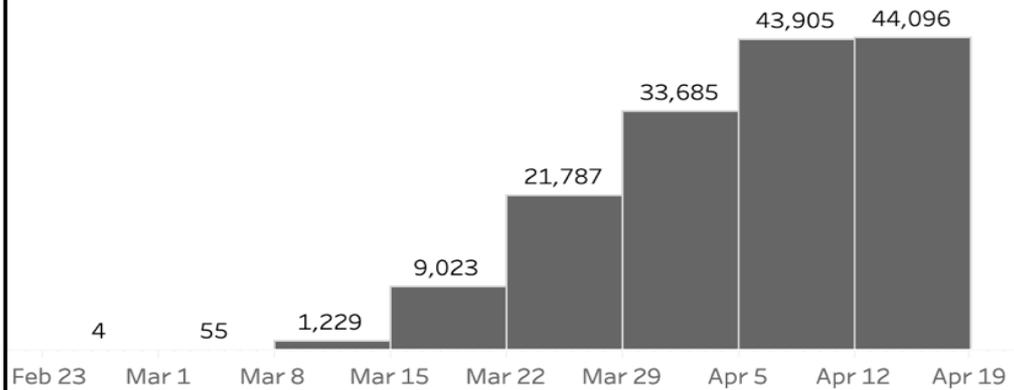
44,096

Select a county to filter the graphs below.

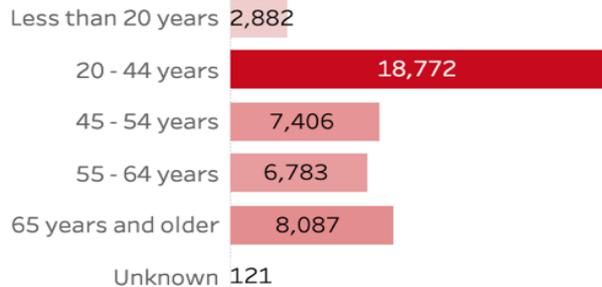


COVID-19 Testing by Week

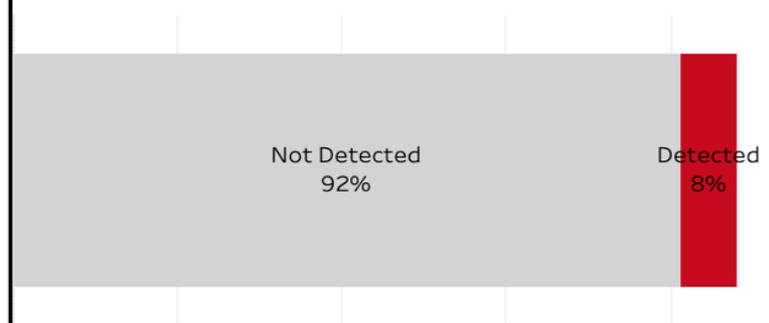
This represents a running total by week



COVID-19 Testing by Age Group



COVID-19 Testing by Results

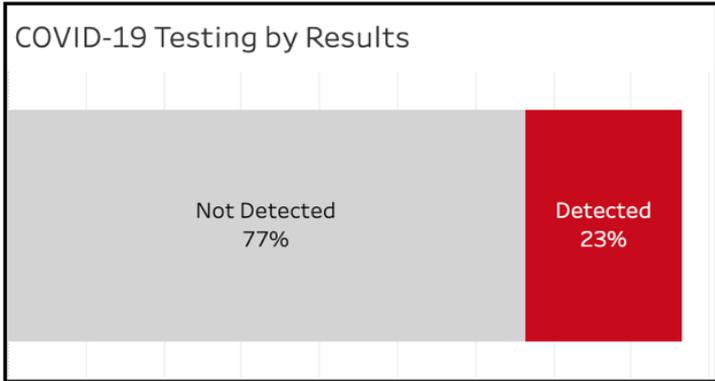
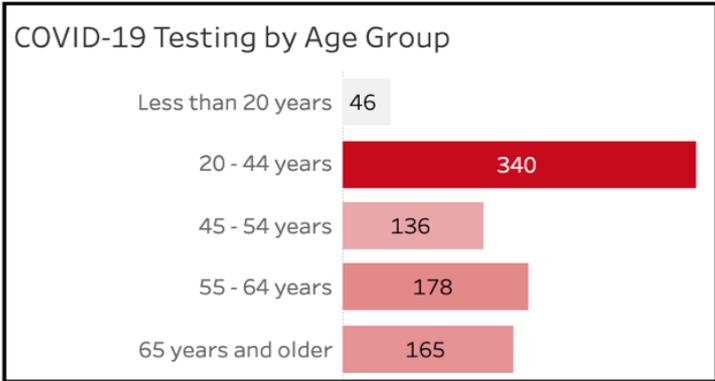
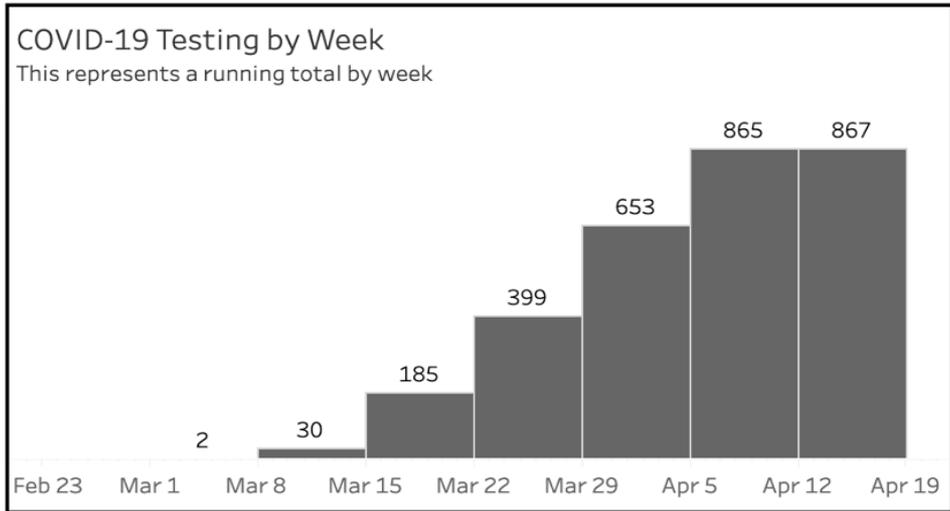
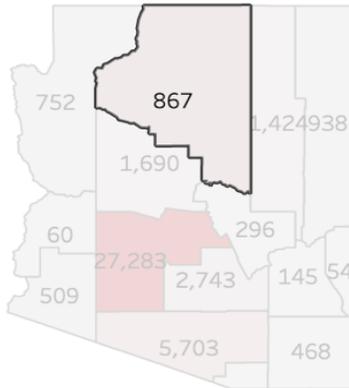


COVID-19 TESTING : COCONINO COUNTY

COVID-19 Testing at Private Laboratories and Arizona State Public Health Laboratory

Total COVID-19 Testing
867

Select a county to filter the graphs below.

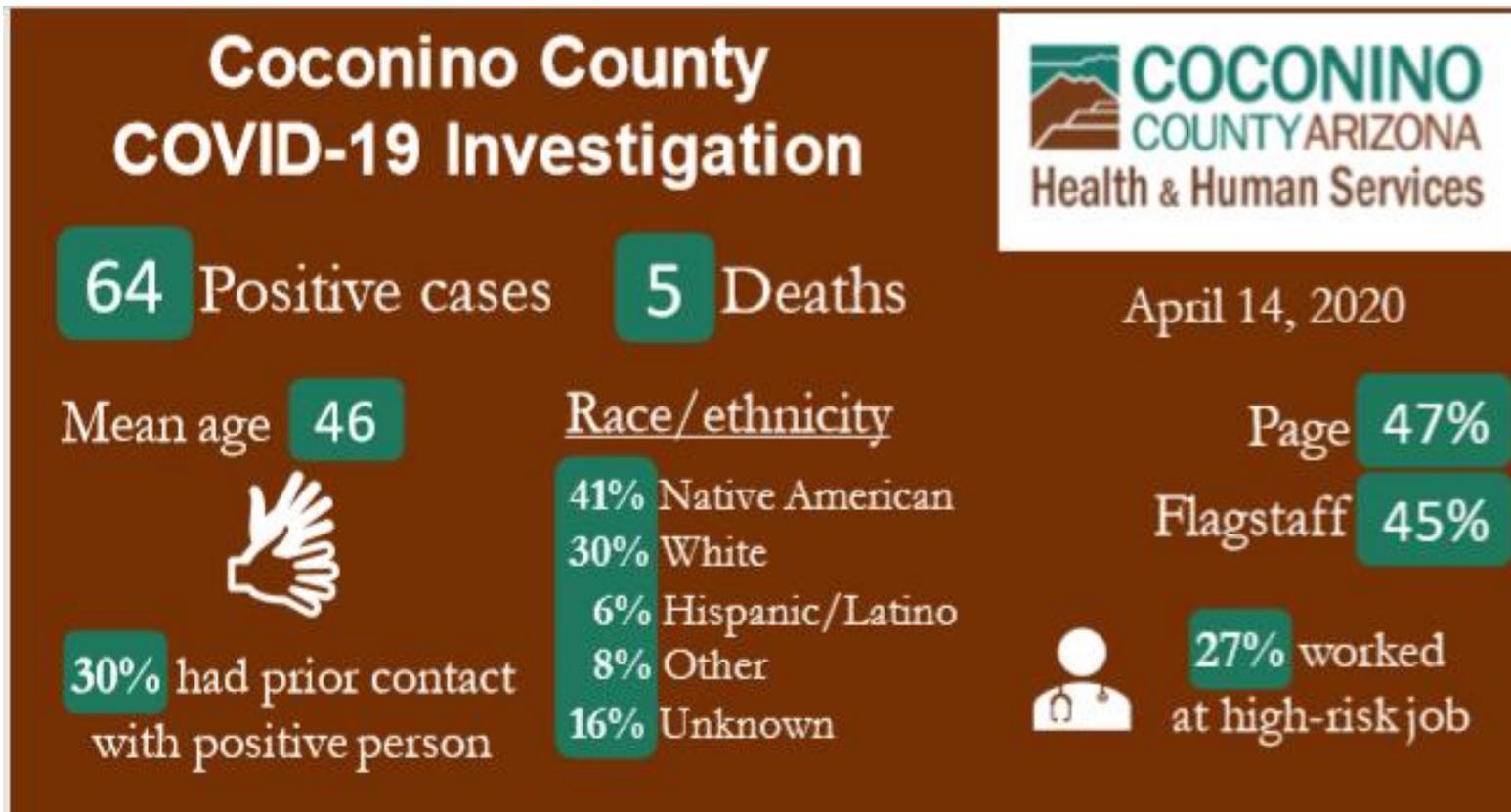


PHASE I : SLOW THE SPREAD

TRIGGER #4

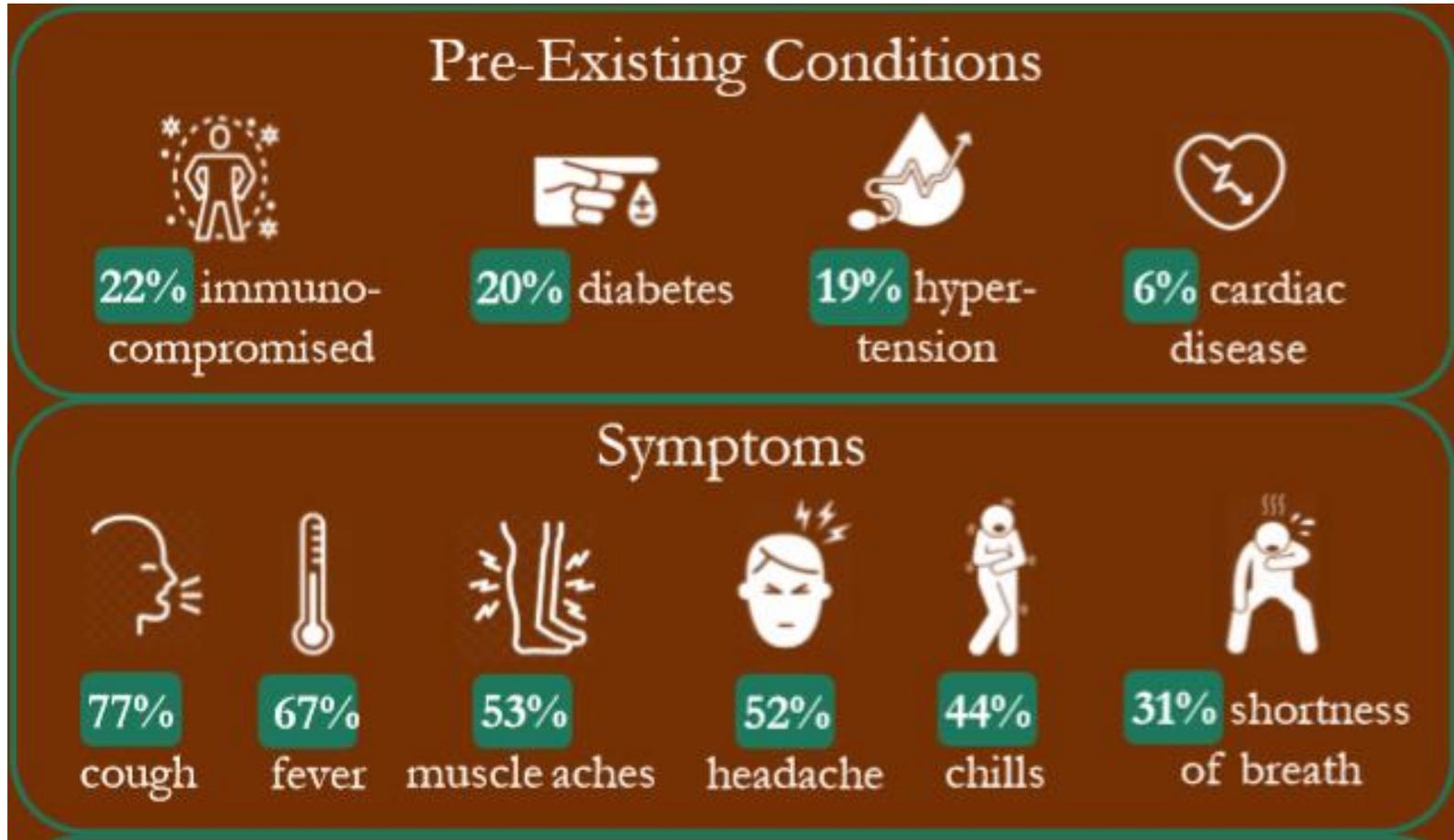
THE STATE IS ABLE TO CONDUCT ACTIVE MONITORING OF CONFIRMED CASES AND THEIR CONTACTS.

COVID-19 PATIENT AND CONTACT TRACING



Currently, 6 case investigators per day M-F; and on weekend and 3 case investigators per day taking phone calls from the public, data is shared with NAU for analysis.

COVID-19 PATIENT AND CONTACT TRACING



Capacity to conduct case tracing in Coconino County and in the Northern Arizona region is not at the desired level at this time.

THRESHOLDS FOR ACTION ARE CURRENTLY UNMET

To transition away from physical or social distancing as a primary tool for controlling current and future spread of COVID-19 :

1. A sustained reduction in cases for at least 14 days – **Unmet**
2. Hospitals in the state are safely able to treat all patients requiring hospitalization without resorting to crisis standards of care **Unmet**
3. The state is able to test all people with COVID-19 symptoms **Unmet**
4. The state is able to conduct active monitoring of confirmed cases and their contacts. **Unmet**

RECOMMENDATIONS FOR MOVING FROM PHASE 1 TO PHASE II : REOPEN, STATE BY STATE

- 1. Maintain Physical Distancing**
 - **Until at least May 30, 2020 in Northern Arizona as to not overwhelm the regional health system**
- 2. Increase diagnostic testing capacity and build data infrastructure for rapid sharing**
- 3. Implement Comprehensive COVID-19 Surveillance Systems**
- 4. Massively Scale Contact Tracing and Isolation and Quarantine**

THRESHOLDS FOR MOVING TO PHASE II : REOPEN, STATE BY STATE

To achieve these goals, three main areas require strengthening now:

1. **Better data** to identify areas of spread and the rate of exposure and immunity in the population;
2. **Improvements in state and local health care system** capabilities, public-health infrastructure for early outbreak identification, case containment, and adequate medical supplies; and
3. **Therapeutic, prophylactic, and preventive treatments** and better-informed medical interventions that give us the tools to protect the most vulnerable people and help rescue those who may become very sick

IN THE MEANTIME...

REPORT PROVIDES EVIDENCE INFORMED GUIDANCE FOR SLOWING THE SPREAD OF COVID-19

We provided an exhaustive review of strategies for slowing the spread by 15 sectors and populations.

- ✓ What Everyone Needs to Do
- ✓ Essential Businesses
- ✓ Non-Essential Workplaces and Businesses
- ✓ Indoor and Outdoor Entertainment and Recreation
- ✓ Employment and Labor
- ✓ Childcare, Schools, and Universities
- ✓ Transportation
- ✓ Public Safety and Law Enforcement
- ✓ Correctional and Detention Facilities
- ✓ Local Public Health Resources
- ✓ People Experiencing Homelessness (PEH)
- ✓ Housing and Rent
- ✓ Personal Violence and Safety
- ✓ Social Support and Caring for Others
- ✓ Faith-Based and Social Services
- ✓ Immigrant Eligibly

THANK YOU

QUESTIONS AND CONTACT

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DETAILED RECOMMENDATIONS

TRIGGERS FOR MOVING TO

PHASE II: REOPEN, STATE BY STATE

A state can safely proceed to Phase II when it has achieved all the following:

- A sustained reduction in cases for at least 14 days,
- Hospitals in the state are safely able to treat all patients requiring hospitalization without resorting to crisis standards of care,
- The state is able to test all people with COVID-19 symptoms, *and*
- The state is able to conduct active monitoring of confirmed cases and their contacts.

RECOMMENDATIONS FOR PHASE I: SLOW THE SPREAD

MAINTAIN PHYSICAL DISTANCING

- **Close** community gathering spaces such as schools, shopping centers, dining areas, museums, and gyms statewide (places where people congregate indoors);
- **Promote** telework for nonessential employees statewide;
- **Urge** the public to limit unnecessary domestic or international travel;
- **Cancel or postpone** meetings and mass gatherings;
- **Shut** dining areas but encouraging restaurants to provide takeout and delivery services if possible;
- **Issue stay-at-home advisories** in hot spots where transmission is particularly intense (i.e., when case counts are doubling in a city or locality every three to five days); and
- **Monitor** community adherence to physical distancing and stay-at-home advisories, adjusting risk messaging as appropriate, and identifying alternative incentives for compliance if needed.

Establish Regional Approach (Northern Arizona Counties and Tribes)

**RECOMMENDATIONS FOR PHASE I: SLOW THE SPREAD
INCREASE DIAGNOSTIC TESTING CAPACITY AND BUILD DATA
INFRASTRUCTURE FOR RAPID SHARING**

Increase diagnostic testing capacity and build data infrastructure for rapid sharing of results

1. Hospitalized patients (rapid diagnostics are needed for this population);
2. Health care workers and workers in essential roles (those in community-facing roles in health and public safety);
3. Close contacts of confirmed cases; and
4. Outpatients with symptoms. (This is best accomplished with point-of-care diagnostics in doctors' offices with guidelines that encourage widespread screening and mandated coverage for testing.)

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RECOMMENDATIONS FOR PHASE I: SLOW THE SPREAD

IMPLEMENT COMPREHENSIVE COVID-19 SURVEILLANCE SYSTEMS

- Widespread and rapid testing at the point of care using cheaper, accessible, and sensitive point-of-care diagnostic tools that are authorized by the Food and Drug Administration (FDA);
- Serological testing to gauge background rates of exposure and immunity to inform public health decision-making about the level of population-based mitigation required to prevent continued spread in the setting of an outbreak; and
- A comprehensive national sentinel surveillance system, supported by and coordinated with local public-health systems and health care providers,

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RECOMMENDATIONS FOR PHASE I: SLOW THE SPREAD MASSIVELY SCALE CONTACT TRACING AND ISOLATION AND QUARANTINE

- Surge the existing public-health workforce to conduct case finding and contact tracing;
- Enable rapid reporting to state, local, and federal health authorities, through the public-health workforce and electronic data sharing from health care providers and labs; and
- Develop and field a technological approach to enable rapid data entry, reporting, and support for isolation, quarantine

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