February 5, 2020: The Centers for Disease Control and Prevention (CDC) send initial COVID-19 testing kits. [comm] Soon thereafter, according to an MIT Technology Review article, “many of the kits were soon found to have faulty negative controls (what shows up when coronavirus is absent), caused by contaminated reagents. This was probably a side effect of a rushed job to put the kits together. Labs with failed negative controls had to ship their samples to the CDC itself for testing.” Vox reports that another roadblock to widespread testing will be criteria for which individuals will be granted a test. “Originally, that was limited only to people who traveled to China or who had been in close contact with someone known to have Covid-19.” In late February, that changed to “include anyone who traveled to any affected country, as well as people with unexplained flu-like symptoms.” By March 6, “anyone with a physician’s authorization can be tested for Covid-19 — that is, if they can access a test.” [epi] [test]

February 24: According to a Vox timeline on Trump actions and statements related to COVID-19, “In a tweet, Trump reiterates his claim that the virus is ‘very much under control in the USA.’” This may explain the ensuing lack of urgency in providing adequate testing supplies to states and the begins of what would be a longstanding political split between the Republican president and Democratic state governors. [gen]

February 26: The first instance of community spread in the US is confirmed by the CDC. [epi] [gen]

February 28: According to a Vox timeline of statements from the Trump Whitehouse, “Trump refers to the coronavirus as the Democrats’ ‘new hoax’ at a rally in South Carolina.” This furthers the politicization of the pandemic response in the United States. [comm] [gen]

*March 3: Governor Polis hosts a press conference [comm] announcing that, although there are no confirmed cases of COVID-19 in Colorado yet, the state has “stood up” an incident
command center and developed an emergency operations plan in the event that COVID-19 arrives in Colorado. During this press conference, Governor Polis says that the state is in possession of 50,000 N-95 masks for health care workers and has the capacity to test 160 people per day for COVID-19. CDPHE Executive Director Jill Hunsaker Ryan refers to the United States’ “highly sophisticated public health system” in which federal agencies such as the Centers for Disease Control and Prevention (CDC) “regularly work[s] together” with state and local public health agencies to contain the spread of communicable diseases. She also mentions that most people who get COVID-19 have mild cases “similar to seasonal flu.” She also emphasizes the importance of “stay[ing] home when you are sick,” without reference to asymptomatic spread. Rachel Herlihy, state epidemiologist, reaffirms this view, emphasizing exposure through being close to someone who has symptoms. (gen)

*March 5: The Colorado Department of Public Health and Environment (CDPHE), Colorado’s lead public health agency, announces the first confirmed positive case of COVID-19, beginning the first epidemic wave of disease (epidemic) in the state which continues through early May, ending at the low on June 14 before the second wave begins. Governor Polis leads a press conference announcing this case, and CDPHE disseminates a press release (press) providing this information. (gen)

March 6: At this point, state and local health departments are struggling to muster enough testing capacity to meet demand, according to a Vox report. “To date… fewer than 2,000 people have been tested for Covid-19 in the US — a number far behind other developed countries. South Korea, for example, has tested more than 140,000 people and has even set up drive-through testing stations for people to access.” As for the states, at this time the Atlantic reported that California had the highest capacity, saying “As of yesterday afternoon, it had tested 516 people, with 53 positive cases, a spokesperson for the Department of Health told us. The department now has the capacity to test 6,000 people every day, and it expects that capacity to expand to 7,400 people a day starting today, the spokesperson said.” In this same report, “Colorado told us how many specimens they could test a day (160), not how many patients (about 80).” {press} {test}

According to a later Colorado Springs Gazette article, Incident Commander Scott Bookman would say during this period “There has been no national strategy on testing. The entire country has really suffered from a lack of supplies and a lack of laboratories and an overall lack of strategy from the federal government.” {press} {test}

According to a Vox timeline on the Trump Whitehouse’s COVID-19 response, “At the CDC headquarters in Atlanta, Georgia, Trump says falsely that ‘anybody that wants a test can get a test’; he also comments that he would rather have infected people who were trapped on a cruise ship stay there to keep the number of confirmed US cases low.” {press} {test}

March 9: Governor Polis releases a video on Facebook {press} on how people can protect themselves from COVID-19. He recommends avoiding people who are sick, touching the eyes, nose, and mouth, stay home when sick and keep children home when sick, cover nose and
mouth when coughing and sneezing, clean and disinfect surfaces regularly, and wash hands often with soap and water for at least 20 seconds. Again, this video demonstrates the minimal concern regarding asymptomatic transmission at this time. \{gen\}

**March 10:** CDPHE announces \{comm\} the first drive-up testing site in Colorado to open the next day. \{test\}

**March 11:** Colorado Governor Jared Polis signs an executive order \{pol\} declaring a state of emergency on COVID-19. He also hosts a press conference \{comm\} announcing that they confirmed 16 additional positive cases, bringing the total to 33. He also diverges for the first time with the CDC definition of a confirmed case saying “we’re not waiting” for them to confirm cases before announcing them. \{epi\} \{gen\}

Colorado passes emergency leave requirements, which are amended later as the pandemic progresses, requiring paid leave for two weeks at 2/3 pay for Colorado Workers.

In a national address from the Trump Whitehouse, “Testing and testing capabilities are expanding rapidly, day by day, we’re moving very quickly ... The vast majority of Americans, the risk is very, very low.” \{comm\} \{test\}

**March 13:** Colorado Governor Jared Polis convenes a press conference \{comm\} to give an update on COVID-19. He announces 72 positive cases with evidence of community spread in the state. He also refers to testing capacity increasing in the state. The US Federal Government declares a national emergency \{pol\} on COVID-19. CDPHE announces \{comm\} that testing at the state lab will not be available the following day, after having served 650 Coloradans, due to inclement weather. The press release refers Coloradans to private testing providers instead. A later release redirects those seeking testing to the Denver Coliseum for drive up testing the following day. \{test\}

According to a *Vox* timeline on the Trump Whitehouse’s COVID-19 response, “Trump declares a national emergency in response to the coronavirus, freeing up billions in federal funding for the virus response,” two days after Colorado’s governor declared a state level emergency. \{comm\} \{gen\}

**March 14:** Governor Polis posts a video on Facebook \{comm\} promoting drive-through COVID-19 testing available at the Denver Coliseum. \{test\}

**March 15:** CDPHE recommends \{comm\} but does not mandate a halt to any gatherings of 50 or more people. \{gen\}

A Colorado Public Radio article later publishes the following: “By March 15, ten days after the first case, the state lab was overwhelmed and Ryan emailed a memo to Polis detailing the problems. ‘Subject: Memo Regarding Mass Testing Limitations at the State Lab...’ It listed among other things: problems with CDC kits, a lack of supplies and a lack of testing equipment.
Private labs weren’t doing much better. ‘Lab Corp recently put a hold on processing more lab tests. CDPHE has not been able to find any other labs in the nation to take the backlog of tests,’ Ryan wrote Polis.”

March 16: Governor Polis hosts press conference announcing public health order for a temporary 30-day ban on dining in restaurants and bars, but allows delivery, take-out and drive through food service only. He also mentions that testing is scaling up but not quickly enough, and issues with consistent data gathering with private labs not consistently providing negative results. He also indicates a desire for Colorado to follow the CDC’s lead when they provide guidance. CDPHE sends a press release explaining the public health order and linking to it.

Later press coverage from Colorado Public Radio takes into account documents not previously made public. “We are doing our best to be one of the leading states, if not the leading state for testing,’ Polis said on March 16. ‘But scaling that up has been very frustrating.’ Just before that news conference, Polis forwarded a memo detailing ‘mass testing limitations’ to the former CEO of an email marketing company in New York City, asking him to come to Colorado and help solve the testing riddle. ‘That’s a long list of bottlenecks,’ Matt Blumberg wrote back while preparing to travel to Denver. ‘No tests, no one to test, and no lab to process results.’” This article further explains the testing shortage by saying “It began with a failure at the federal level to produce enough test kits in the early days of the pandemic. That was followed by a decision by the White House to push responsibility for testing and protective supplies on to the states. That put Polis at the center of a fast-moving crisis with difficult questions and few answers.”

According to an NPR timeline of the statements from the Trump Whitehouse, “at a press briefing, Trump issued orders to control the spread of the virus in the U.S.: ‘My administration is recommending that all Americans, including the young and healthy, work to engage in schooling from home when possible. Avoid gathering in groups of more than 10 people. Avoid discretionary travel. And avoid eating and drinking at bars, restaurants and public food courts. If everyone makes this change or these critical changes and sacrifices now, we will rally together as one nation and we will defeat the virus. And we’re going to have a big celebration all together. With several weeks of focused action, we can turn the corner and turn it quickly.’”

March 17: According to Colorado Public Radio, “Elizabeth Concordia, president and CEO of UCHealth, wrote an email to Polis on behalf of Colorado’s major hospital providers. ‘I am writing to ask for very specific and needed help for all of these front-line providers — we have the same urgent issues,’ she wrote on March 17. The problem was getting test results: ‘We are waiting days for these results. We are wasting personal protective equipment (PPE) because we have to treat all of these patients as though they are COVID-19 positive when, in fact, many may not be.’ Concordia concluded her email asking for help in procuring testing reagents and more PPE. ‘Our staffs are exhausted and should not need to worry that we cannot protect them or that they
have to reuse equipment. This is not right and certainly not fair to our front-line workers,' she wrote.” At the same time, the president of the Kaiser Health Plan of Colorado, wrote “The increase in CO positive cases of COVID-19 over the last few days in the setting of very restricted testing (due to severe swab shortages and limited testing availability) along with increased persons with ‘influenza-like illness,’ signals that Colorado likely has community spread of Coronavirus… Strong consideration for Coloradoans to shelter in place x 6 weeks.”

*March 18: Governor Polis signs an executive order {pol} closing in-person learning (schools) due to COVID-19, which is later extended through the end of the academic school year. He also hosts a press conference during which he announces covid19.colorado.gov as the main website for COVID-19 information and guidance (supported by a CDPHE release) and promotes “Help Colorado Now,” a fundraising and volunteer effort to mobilize community resources to respond to COVID-19. CDPHE announces a “strategic approach” to testing, for which they will be “sending testing resources to specific communities that have not yet had testing that will yield vital information about how the disease is spreading.” However, “CDPHE is strongly advising the public: If you have symptoms (fever, cough, and shortness of breath), don’t wait for a test to self-isolate.”

*March 19: Colorado Governor Jared Polis signs an executive order {pol} banning elective surgeries. CDPHE advises Coloradans to isolate themselves if they have been exposed to COVID-19 or have symptoms even if they are unable to get a test, saying “Right now not everyone who has been exposed to or becomes ill with COVID-19 will be able to or need to have a test to confirm whether or not they have the illness.”

According to a Vox timeline on the Trump Whitehouse’s COVID-19 response, “Trump incorrectly claims that the Food and Drug Administration (FDA) approved the antimalarial drug hydroxychloroquine for treating Covid-19.”

March 20: CDPHE announces that they are beginning to distribute testing supplies to other sites throughout the state beyond Denver, and “is also strongly advising the public: If you have symptoms (fever, cough, and shortness of breath), don’t wait for a test to self-isolate,” indicating the lack of testing supplies.

March 21: A release from CDPHE advises the following to people with mild COVID-19 symptoms: “People who are not at high risk of severe illness may not need to be evaluated in-person or tested for COVID-19. Not everyone with symptoms or who may have been exposed to COVID-19 will be tested right away.” This indicates that testing supplies continue to be insufficient to meet the demand at the time in the state.

According to an NPR timeline of COVID-19 statements from the Trump Whitehouse, “Trump tweeted about potential coronavirus treatments: ‘HYDROXYCHLOROQUINE & AZITHROMYCIN, taken together, have a real chance to be one of the biggest game changers in the history of medicine. The FDA has moved mountains - Thank You! Hopefully they will BOTH
March 22: Colorado Governor Jared Polis signs an executive order ordering employers to reduce in-person workforce by 50% due to COVID-19, despite advocacy for a “stay at home” or “shelter in place order” similar to approaches taken by other states. He also hosts a press conference at the Emergency Operations Center emphasizing the work of the “Innovation Response Team Task Force.” (IRT) He says he “never imagined our nation’s response would be so slow.” He mentions being “furious” that the state is having to resort to closing businesses because the United States, “unlike South Korea and Taiwan,” did not have, among other things, “enough tests” or personal protective equipment. He says that when the state asked for additional supplies and support, the quote was “try getting it yourselves.” The purpose of the IRT is to execute what the state assumed the federal government would provide: testing, tracing, and treatment supplies and support to sustain Colorado through the COVID-19 pandemic. Their priorities are to:

1. Develop a statewide system for mass-testing and rapid results.
2. Develop mobile technologies to track the spread of the virus and support those at risk and infected citizens.
3. Create support services for citizens under isolation and quarantine.
4. Develop local sources alternatives to scale and produce medical supplies and PPE.

He also mentions the importance of “private sector partnerships” as part of the team’s work.

According to a later Colorado Public Radio article, Sarah Tuneburg is hired today as the leader of Colorado’s Innovation Response Team, which at this point is leading testing and containment efforts, or as the Executive Director of CDPHE called Tuneburg, Colorado’s “Testing and Containment Czar.”

March 23: CDPHE announces drive through testing in Montrose County.

Colorado Public Radio reports “Denver Mayor Michael Hancock announced a stay-at-home order for the city starting Tuesday, March 24, and other large counties followed suit. On the morning of March 25, Jefferson County and Tri-County announced their orders.”

*March 25: Colorado Governor Jared Polis signs an executive order ordering Coloradans to stay at home, which is temporary, lasting 30 days. Governor Polis hosts a press conference explaining and justifying this action, which is severe economically, by pointing to the exponential growth in COVID-19 cases in Colorado, with 1,086 cases with many likely undiagnosed and 19 deaths. These numbers are growing in Colorado, and the Governor had requested the President of the United States to declare Colorado a “major disaster area” consistent with California and New York. This would allow Colorado to receive additional...
support and resources to respond to the pandemic. CDPHE announces that while Colorado is getting supplies from the National Strategic Stockpile, it is not enough and Colorado is working to procure and produce their own supplies to meet the need. {gen}

**March 26:** CDPHE announces that they will distribute testing kits specifically for health workers and emergency responders in harder hit counties. CDPHE announces a public health order to support the stay-at-home executive order. {test}

**March 27:** CDPHE publishes a public health order implementing the stay at home order. Governor Polis hosts a press conference explaining the command structure and epidemiological support for the policies taken to reduce the spread of COVID-19. He also makes a plea to Colorado citizens not to see “what they can get away with,” but instead to try and comply with “the spirit” of the guidance to the extent possible. {gen}

**March 28:** CDPHE releases results from a convenience sample survey of 45,000 Coloradans reporting high concern about COVID-19, precaution-taking behavior, and anxiety. {gen}

**March 29:** Governor Polis announces that Colorado has secured major disaster status from the US Federal Government, qualifying it for additional support. {gen}

**April 1:** Governor Polis announces a suspension of in-person learning and relays needs for additional personal protective equipment. {gen}

**April 2:** Governor Polis announces that he sent a letter to Vice President Mike Pence requesting additional personal protective equipment supplies. {gen}

According to a Vox timeline on the Trump Whitehouse’s COVID-19 response, “Trump employs the DPA to direct 3M and other companies to manufacture masks and ventilators.” {pol} {gen}

*April 3:* Governor Polis announces his recommendation that all Coloradans wear non-medical cloth face coverings whenever they leave their homes, saying “data suggests up to 1 in 4 people infected with COVID are asymptomatic and spreading infected respiratory droplets.” As part of this announcement, the “Colorado Mask Project” led by Sarah Tuneberg is made available as a resource for people to make their own cloth masks or purchase some. Notably, this precedes CDPHE’s public support for wearing masks. A supporting press release goes out promoting this content. According to Colorado Public Radio reporting, Governor Polis is “among the nation’s first governors to wear a mask himself and emphasize widespread mask usage among residents as a means to control the spread of the virus.” {gen}

The same day, according to a timeline of the federal COVID-19 response on factcheck.org, “The CDC recommends that people begin ‘wearing cloth face coverings in public settings where other social distancing measures are difficult to maintain.’” {comm} {gen}
April 4: Governor Polis’ Facebook shares a video promoting wearing non-medical cloth face coverings and promoting the Colorado Mask Project. CDPHE announces that a member of the Unified Command Group tested positive for COVID-19, triggering a full investigation. The release also says “consistent with the Governor’s recommendations announced on Friday, UCG is embracing a culture of masking and supports the Colorado Mask Project,” implying that they had not been wearing face coverings previously. {gen}

According to a Vox timeline on the Trump Whitehouse’s COVID-19 response, “Trump again invokes the DPA to combat the hoarding of medical supplies by ‘wartime profiteers.’” {pol} {gen}

April 5: CDPHE releases epidemic modelling data showing an R0 value above 3 and the benefit of the stay-at-home order in reducing social contact and the spread of COVID-19. {gen}

April 6: Colorado Governor Jared Polis signs an executive order rescinding the 50% in-person workforce reduction order and replacing it with an extended stay-at-home order through April 26, supports this with a press release summarizing the executive orders and an address announcing the extension. CDPHE conducts a media availability and related press release during which Executive Director Jill Hunsaker Ryan emphasizes the importance of wearing “non-medical cloth face coverings” (as recommended by Governor Polis in his press conference the week before) anytime an individual leaves their home. She also recommends that the public not purchase medical masks, and promotes homemade and simple cloth masks with additional guidance available through the Colorado Mask Project. Notably, this comes three days after the Governor’s announcement. {gen}

April 10: CDPHE announces that the state has procured more than $46 million in medical supplies, due to the insufficiency of supplies made available through the federal response. {gen}

Google and Apple announce that they will produce and make available digital contact tracing technology to combat the spread of COVID-19. {dig}

April 13: According to a Vox timeline on the Trump Whitehouse’s COVID-19 response, “Trump claims to have the legal right to overrule governors’ shelter-in-place orders, asserting at a press conference that the president’s ‘authority is total.’” {comm} {gen}

April 16: Colorado state health officials and Governor Polis hold a press conference during which they say “getting better testing capacity and materials in place, and a robust COVID-19 identification and containment strategy, would be the ‘foundational element’ of when the state can start to lift the stay-at-home order and other social distancing measures.” {test}

*April 17: CDPHE announces a “pilot symptom tracker survey,” saying the agency “has launched a short survey designed to track symptoms of COVID-19, even if the person experiencing symptoms is unable or does not need to get a test. Although the data collected
using this survey cannot replace official case data confirmed by testing, it may help public health officials track early warning signs that an outbreak could be imminent in a given area or region… Several local public health agencies had previously created their own symptom trackers over the last month. The results from their surveys will also be included in the aggregate data reports that CDPHE will eventually release publicly… Future versions of the symptom tracker will route people with COVID-19 symptoms to the appropriate resources for them. People who report their symptoms will be able to opt in to receive automated help managing their symptoms via text message. The system will route them to various resources, from telemedicine to behavioral health support. This survey will collect personal health information, which the department will safeguard, protect and report only in aggregate. More information about how data will be collected, shared and protected is available on our FAQ page.” This is CDPHE’s first attempt at a technology solution to help with contact tracing and epidemic monitoring for COVID-19. {dig}

April 18: Colorado Governor Jared Polis signs an executive order {pol} mandating that essential workers in government and other critical businesses wear non-medical face coverings. {gen}

April 23: The first epidemic wave peaks {epi} with a to-date high of 970 cases in one day. {gen}

April 25: Governor Polis announces {comm} his support for counties extending the Stay-at-Home order {pol}. CDPHE announces {comm} testing available to anyone with COVID-19 symptoms in Weld County, where there are many outbreaks, some related to meat processing plant JBC. {test}

*April 26: Colorado Governor Jared Polis signs an executive order {pol} and shared a release {comm} moving from the “stay-at-home” regulations to a new, less restrictive “safer-at-home” set of guidelines. This executive order allows some critical businesses to reopen with safety guidelines in place, encourages (but does not require) Coloradans to wear cloth face coverings, and allows for counties to apply for “local variances,” in which CDPHE can approve a different set of restrictions in their coverage area according to a series of criteria relating to the likelihood that the county can control pandemic spread. A separate executive order released on this date allows limited recommencement of elective surgeries. CDPHE released a short video and message {comm} on Facebook that reads “while the state’s Stay-at-Home order runs through today, many cities & counties have extended the order for longer. Check with your local public health agency for extensions or variances in your community.” CDPHE announces {comm} that King Soopers, a local grocery store, will offer drive-through testing. {test}

April 27: Governor Polis provides an update {comm} on the Safer at Home phase, clarifying the phased implementation of this order. Part of his justification for these policies is to “buy time” to develop a robust testing and tracing infrastructure in order to safely reopen. Polis also announces {comm} that Colorado is joining the Western States Pact, with Nevada, California, Oregon and Washington Democratic governors. This pact does not establish firm or consistent policy guidelines, but agrees to largely use science to combat COVID-19 and to collaborate to
protect residents from the virus. CDPHE announces a supportive public health order implementing the Safer at Home phase.

**April 28:** CDPHE announces that it will receive $10.3 million in federal funding to strengthen testing and contact tracing activities in the state, including “Enhance case investigation, contact tracing, and outbreak response, especially in high-risk settings and among at-risk populations. Improve surveillance and reporting.”

**April 29:** Governor Polis holds a press conference during which he shares more of Colorado’s testing strategy, saying “To date, 67,094 tests have been conducted in Colorado. Colorado has been running 3,000 tests per day, and there is the lab capacity to run 10,000 tests, but supply constraints don’t allow for that yet. The goal is to increase testing from 3,000 to 5,000 per day by the early May and up to 8,500 by the end of May. In order to reach testing goals, Colorado is working to increase testing supplies, availability of testing, and epidemiological capacity. Testing will help the State identify those who are sick, identify hotspots around the State, and protect those who are vulnerable, but it must be accompanied by isolation or quarantine and follow-up contact tracing to get maximum suppression impact… Colorado is still in need of a number of testing supplies to conduct swab tests… Currently, those who can be tested include symptomatic health care and frontline workers, symptomatic hospital and nursing home patients, symptomatic workers and others in outbreaks, and some symptomatic community members. By May 15, the State hopes to also include all symptomatic community members, as well as broader outbreak testing. The State is also working to build a robust program to prevent hotspots in senior, long term care, and congregate care facilities, and other vulnerable populations such as people experiencing homelessness…Through a contract with the Colorado School of Public Health, CDPHE has grown its COVID-19 epidemic response team from 31 staff to 56 staff, nearly doubling capacity to perform outbreak response, case investigation, and contact tracing work. The new students will undergo training this week and begin case investigation and contact tracing work next week, working closely with State and local public health staff.”

CDPHE announces that the symptom tracker survey now offers support to individuals with symptoms who may not be able to get tested. “After filling out the symptom tracker and consenting to receive text messages, users will receive text messages daily for seven days asking about their symptoms. From there, they may be connected with information on how to use telehealth to connect with medical advice, or how to access resources that can help manage mental health needs.” However, very few Coloradans are using the symptom tracker. “To date, about 1,000 Coloradans have filled out the symptom tracker.”

**April 30:** According to a Vox timeline on the Trump Whitehouse’s COVID-19 response, “The Trump administration allows federal ‘Stay at Home’ guidelines to expire, ceding the field to state efforts.”
May 2: CDPHE releases a short video on Facebook (comm) clarifying that, under the Safer at Home order, retail locations and some personal services could open May 1 if following best practices and on May 4, offices could open at reduced capacity. (gen)

May 4: Governor Polis announces (comm) interactive testing site map that (at the time) had 20 sites. (test)

May 6: Governor Polis provides an update (comm) on the supplies procured by the state, including masks, gowns, face shields, etc. that can support medical providers in testing, as well as 2 Battelle Units to clean and reuse N95 masks. (test)

May 7: According to a Vox timeline on the Trump Whitehouse’s COVID-19 response, “The US hits 75,000 reported Covid-19 deaths; the New York Times reports that the Trump administration elected to shelve detailed reopening guidelines from the CDC.” (gen)

May 8: Governor Polis extends (pol) disaster declaration. (gen)

May 12: The Western States Compact sends a letter (comm) asking for a $1 trillion stimulus relief package (pol) from Congress (the US Federal Government). (gen)

May 14: According to a timeline of the federal COVID-19 response on factcheck.org, Trump says during a speech “So we have the best testing in the world. It could be that testing is, frankly, overrated. Maybe it is overrated.” (comm) (test)

May 16: Colorado Senator Michael Bennett announces that Colorado will receive $160 million from the CDC for testing and tracing activities, materials and technologies. (pol) (test) (hum) (dig)

May 18: Governor Polis announces (comm) disbursement of CARES act funds to respond to COVID-19, saying, in part, “This immediate disbursement ensures that no Coloradan has to go without a hospital bed when they need one, that the state can continue to scale up testing and containment, and protect our most vulnerable.” Additionally, the governor announces (comm) a change in testing policy, saying “Today Governor Polis announced that Colorado has reached a critical goal, and now has the supplies and capacity to test anyone with COVID-19 symptoms. On April 29, Gov. Polis set the goal of testing all symptomatic Coloradans by mid-May. At the time, the state was only able to test some symptomatic individuals. With the increased capacity, Gov. Polis is now encouraging anyone with symptoms to get tested for the virus.”(test) (hum)

CDPHE encourages (comm) anybody with COVID-19 symptoms to get tested. “Colorado’s state lab has acquired significantly more testing supplies and has adequate processing capacity. This means that the state as a whole, including private partners, has the capacity to test all people with COVID-19 symptoms, as well as to expand surveillance testing.” They also direct people with symptoms to isolate. “If you test positive, you will know that you need to isolate yourself, take care of yourself and monitor your symptoms. Members of your household
and those who have been in close contact with you will need to quarantine.” They also recommend people “get text messages with more information about support available by reporting your symptoms to CDPHE’s symptom tracker.”

CDPHE also promotes workplace protections, saying “If you are diagnosed with COVID-19, it is important for you to know that worker protections are in place to ensure that you can isolate yourself, both for your own health and recovery and for the safety of everyone around you. Federal law requires up to two weeks paid leave for those who work for employers with fewer than 500 employees (though some employers with 50 or fewer employees may be exempt). The Colorado Health Emergency Leave with Pay Rules ("Colorado HELP Rules") adds coverage for workers as well."

According to a timeline of the federal COVID-19 response on factcheck.org, Trump says “I’m taking it — hydroxychloroquine. … Right now. Yeah. A couple of weeks ago, I started taking it. … Because I think it’s good. I’ve heard a lot of good stories.” This points to his (apparent) view that treatments are available and testing, tracing, and other public health solutions may be unnecessary. [comm] [gen]

May 19: According to a timeline of the federal COVID-19 response on factcheck.org, Trump says in a cabinet meeting “So when we have a lot of cases, I don’t look at that as a bad thing; I look at that as — in a certain respect, as being a good thing because it means our testing is much better.” This shows a federal inclination that the testing in the United States is likely adequate. [comm] [test]

May 20: Governor Polis holds a press conference [comm] during which he discusses the threat to children and “called on the White House to extend the federal deployment of National Guard service members until the end of the year, instead of just until June 24.” [gen]

May 22: CDPHE hosts a media availability [comm] during which Incident Commander Scott Bookman gives an overview of testing infrastructure, noting that CDPHE has identified 41 community testing sites across 36 counties supported by the state. At this time, CDPHE is reporting capacity to conduct 3,000-4,500 tests per day with a goal of 8,500 tests per day by the end of May. Up until this point, there has been a limited supply chain of swabs, but that is expanding during this period. State Epidemiologist Rachel Herlihy reports that the state is expanding the case investigation and contact tracing workforce by funding Local Public Health Agencies, hiring and onboarding public health students to do contact tracing directly for CDPHE, and working with Americorps to develop a larger and more consistent volunteer workforce. [test] [hum] Governor Polis announces [comm] an executive order [pol] that “eliminates copays for COVID-19 testing for individuals who rely on Medicaid.”

*May 26: Governor Polis announces [comm] that “beginning May 27, 2020, restaurants are allowed to re-open for in-person dining at 50% capacity.” [pol] CDPHE announces [comm] that testing is now available at 40 community testing sites statewide. "The state aims to test between 5,000-8,500 people daily, and the additional testing sites will help the state achieve that goal."
Before going to a testing site, individuals should call or email a health care provider or schedule a telehealth appointment to determine if they need a test. With increased supplies, Colorado can now test:

-Any individual who has COVID-19 symptoms.
-Any individual who is employed as a health care worker, nursing home worker or first responder.
-Any essential worker who directly interacts with the public while working, per state or employer guidelines."

Modelling released by CDPHE from the Colorado School of Public Health shows that the Stay at Home order reduced the R0 in Colorado to below 1, but the impact of the easing of some restrictions during Safer at Home cannot yet be determined.

May 28: Governor Polis announces that the Federal Government will extend National Guard deployment, saying “Gov. Polis applauded the announcement to extend the Colorado National Guard’s federal deployment until mid-August. Previously, their federal deployment was set to end after just 89 days -- one day short of the 90 day threshold for retirement and education benefits. This would have been deeply unfair to Colorado's national guardsmen and women who are on hiatus from their day jobs so they can be on the front lines fighting this pandemic, and it would have placed more stress on the state budget.” CDPHE announces resources provided to the response from the Federal Emergency Management Agency (FEMA), saying “The State Emergency Operations Center (EOC) received direct staffing support and numerous resources for the state’s response to COVID-19. The State EOC received resources through the Strategic National Stockpile and the FEMA resource ordering system.”

June 1: Colorado Governor Jared Polis signs an executive order moving from the “safer at home” requirements to new, “safer at home and in the vast, great outdoors” requirements. One change this brought was limiting gatherings to no more than 10 people. CDPHE releases additional modeling data from the Colorado School of Public Health, which indicates a slight decrease in community social distancing.

June 2: “Governor Polis announced that the Corporation for National and Community Service (CNCS) will mobilize more than 800 AmeriCorps and Senior Corps members to support the State of Colorado’s COVID-19 response. The national service members will conduct contact tracing and other work important to helping Colorado reopen and getting people back to work. As the state increases COVID-19 testing and continues reopening in phases, tracing the contacts of each positive case will be key to containing the virus and keeping our economies open.”

Colorado Public Radio puts this into context, saying “Those numbers are far short of what experts say is needed to actually impact the spread of the virus. One report from the National Association of County and City Health Officials estimated a state should have 30 tracers per
100,000 people during a pandemic, which would translate to about 1,740 people in Colorado.”

June 3: A later Colorado Public Radio article shows the lack of coordination between state and local public health agencies, saying “The next day on a conference call, local public health directors vented about the governor’s surprise announcement. The timing of the contact tracer news couldn’t have been worse for some public health directors, who were in the process of asking the counties they serve for millions of dollars to do the work the state now said it would take on. The state’s announcement of 800 contact tracers undercut them.”

June 4: Governor Polis announces a new media campaign to increase mask-wearing among Coloradans.

June 5: Governor Polis announces a new executive order to allow restaurants to expand their outdoor dining to allow for safer restaurant-going in the state.

June 8: Colorado announces a new pilot program partnership with smart thermometer company Kinsa in an ongoing effort to find better monitoring systems to test and trace infections to reduce the spread of COVID-19. This will also promote the Symptom Tracker.

June 10: A survey of state health agencies conducted by Business Insider indicates only three US States intend to use the Google Apple Exposure Notification CTA, North Dakota, South Carolina, and Alabama. However, 11 states did not respond.

June 15: Governor Polis announces new draft “protect our neighbors” guidelines that will allow for greater county-level flexibility according to the epidemic evidence at the local level, as well as a “safer at home” draft statewide policy minimum.

June 16: CDPHE releases a 1-minute video on Facebook and publishes a web page explaining what contact tracing is and how it works for the public, emphasizing safety and confidentiality of data and the potential to reduce the spread of COVID-19 when Coloradans “answer the call” from public health.

June 18: Governor Polis gives an update during which he says “Colorado is the only state in the western region of the country right now that is seeing a steady decline in case counts, but if we are not careful by wearing masks and staying six feet from others when possible, we will lose that status here and nobody wants to see those trendlines go up.”

June 19: CDPHE announces updates to the Safer at Home public health order.

*June 30: Governor Polis signs an executive order closing bars statewide and provides more information about the forthcoming “protect our neighbors” framework saying...
“Communities in Protect Our Neighbors will be able to permit all activities to occur at 50 percent of pre-pandemic capacity, with at least six feet between non-household members and no more than 500 people in one setting at a time. Local communities may issue more detailed guidelines or public health orders for different settings, so long as the capacity does not exceed these caps.” CDPHE sends {comm} a press release providing more information about Protect Our Neighbors, saying “The Protect-Our-Neighbors metrics were drafted by a workgroup consisting of epidemiologists and public health experts from the CDPHE, the University of Colorado School of Public Health, and local public health agencies from across the state. The group included representatives from urban, rural and frontier counties. In addition, the workgroup consulted health care coalitions and health care systems leadership in drafting treatment metrics. They met over the course of five sessions and reviewed scientific literature, case studies, and expert consultation to develop metrics that would achieve the goal of ensuring that they signify a systems readiness for broader reopening.” {gen}

**July 1:** CDPHE announces {comm} a public health order {pol} supporting the executive order closing bars, and including the following quote:

“We have started to see an increase in cases and are making every effort to prevent transmission of this virus,” said State Epidemiologist Dr. Rachel Herlihy. “Bars are more likely to have people congregating and mingling in close proximity, and for longer duration. We have updated the public health order to limit the operation of bars and other alcohol establishments to be in line with our current level of disease transmission.” {epi} {gen}

CDPHE completes statewide audience research on attitudes and opinions related to COVID-19. Topline results indicate:
- 51% of Coloradans strongly agree with COVID-19 policies and health guidelines in general, 29% only “somewhat” agree, and 20% neither agree nor disagree or disagree.
- Men are slightly less likely to strongly agree with COVID-19 policies and guidelines.
- Among those who do not strongly support policies, they are more likely to trust CDPHE compared to state leaders.
- Support for policies is negatively correlated with watching Fox News, a proxy for a conservative leaning respondent.
- Two-in-five choose the CDPHE as a trusted source; CDC is selected most (46%), with doctors at 38% and state leaders at 32%
- One-half wear a mask “always,” with 30% reporting they do so “most of the time” and 18% “some of the time” or “never”
- 82% report that they try to maintain 6’ of distance from people they do not live with, including 39% ‘always’ and 43% ‘most of the time’
- Nearly three-quarters see washing hands as being very effective, followed by the cancellation of large events (63%) and trying to stay home (60%) {gen}

A national survey reveals that “In this cross-sectional survey study of 6284 US adults, approval was generally low for use of consumer digital data for activities such as case identification, digital contact tracing, policy setting, and enforcing quarantines. Political ideology and
race/ethnicity were associated with approval for scenarios in which digital data were used, whereas local COVID-19 incidence and family experience with COVID were not.” {dig}

July 7: “Colorado Department of Public Health and Environment (CDPHE) released a guide and application form to allow local communities to apply for Protect-Our-Neighbors certification. Communities can only apply if they meet eight criteria—including declining cases—and have attestation letters from hospitals, public health experts and local officials. Because cases are increasing in many counties throughout the state, most counties will not yet be eligible to apply for Protect Our Neighbors.” {comm} {epi} {pol} {gen}

*July 9: Governor Polis signs an executive order {pol} moving from “safer at home in the vast, great outdoors” requirements to new “protect our neighbors” requirements. This new system moves CDPHE from granting individual “variances” to the beginnings of what would turn into the “dial framework,” in which counties qualify automatically for varying levels of restrictions according to a series of metrics meant to indicate the severity of local disease burden. This order is extended on October 4. He sends a supplemental release {comm} explaining it and promoting a new, interactive disease modelling website. {epi} {gen}

*July 16: Colorado Governor Jared Polis signs an executive order {pol} mandating that all Coloradans over the age of 10 (with some exceptions) must wear masks or face coverings in all indoor public places and holds a press conference/sends press release {comm} explaining the mask order to the public. This order is extended on September 12, February 4, and March 5 and does not (ultimately) expire until spring 2021. {gen}

CDPHE and the Colorado SPH announce {comm} modeling {epi} that shows “COVID-19 hospitalizations have been increasing since late June. The estimated effective reproductive number has increased over the past two weeks and is now at the highest estimated value since late March. Social distancing has declined since May.” {gen}

July 20: A Pew Research Center survey conducted in July 2020 found that 41% of Americans would likely not speak with a public health official on the phone or via text message, and 27% said they would not be comfortable sharing the names of recent contacts—both key elements of the contact tracing process. {hum}

According to a later MIT technology review analysis of contact tracing applications, “Digital contact tracing faces similar challenges. Some reviewers felt so strongly about protecting their privacy that they came to their state app’s pages in order to boast about their refusal to download this technology. Many echoed the sentiments of this reviewer from Pennsylvania: ‘Open access to my wifi, GPS, and Bluetooth? Creepy. No thanks, Harrisburg.’” {dig}

*July 21: Governor Polis announces {comm} an executive order {pol} banning the sales of alcohol after 10 p.m., “In order to curb some of that social behavior, the Governor announced that, for the next 30 days, the State is suspending all alcohol sales after 10:00 p.m. each day. This will apply to all entities that are licensed to sell liquor.” {gen}
*July 23: Governor Polis gives an update on Colorado’s progress developing testing and contact tracing infrastructure, saying:

“As a result of state lab expansion and partnerships with the private sector, Colorado has increased testing from 160 Coloradans per day back in March to administering over 10,000 tests per day on average and exceeding 12,000 tests a day in recent days. On July 19, the state lab processed an all time high of 3,803 tests. That day, Colorado also hit our overall combined high between the state lab and private labs with 12,413 tests processed. Colorado’s 7-day average is 10,317 tests per day total, and more than 3,000 for the state lab. The state lab has also added a third, overnight shift to process more tests and keep turn around time low.

The state has also worked to increase supplies. Since April, Colorado has purchased 300,000 tests and 450,000 swab kits through international suppliers, and is expecting 300,000 more tests plus 800,000 swab kits over the next eight weeks. Another 300,000 swabs have been purchased and delivered from United States suppliers, and 500,000 kits are expected by the end of September. Colorado is also working to expand and diversify testing capacity as much as possible through innovation, introducing new and more efficient testing methods. That’s why the state lab has invoked the authority from the Food and Drug Administration to approve novel tests for use in Colorado. Over the next few weeks, the state will be evaluating an innovative saliva test that has the potential to significantly expand surveillance testing capabilities. Over time, academic and private lab partners will be expanding the types of samples that can be collected for testing, including working with Curative to introduce a cheek swab test in Colorado, in settings where repeated testing is appropriate.

Contract tracing is another key element of how Colorado will reach its goals. Thanks to the 115 full-time COVID-19 case investigators and contact tracers Colorado’s Department of Public Health & Environment, Colorado has been able to reach out to 96% of positive cases within a 48 hour window, where 72% have responded. Last month, Gov. Polis announced that the Corporation for National and Community Service (CNCS) would be mobilizing more than 800 AmeriCorps and Senior Corps members to support the State of Colorado’s COVID-19 response through contact tracing and other associated work. To date, 423 contact tracers have started working, and an additional 300 AmeriCorps NCCC members, 350 VISTA Summer Associates, and 100-200 Senior Corps volunteers will be joining them over the course of the next year.”

*July 27: Wave 2 of the epidemic curve peaks at 879 cases in one day before declining again to 188 cases on August 30.

A July 27 Colorado Public Radio article says “Today Colorado ranks at or near the bottom of states in testing for COVID-19. Even as Texas and California have experienced resurgences of the virus, Colorado also still has the third-highest rate of COVID-19 deaths among states west of the Mississippi.” It also says “The state’s busiest testing site is run not by
CDPHE, but by the City and County of Denver. At times, the single site, which offers up to 2,000 tests per day, has been responsible for as much as a third of the tests administered in the state on any given day. The state has provided about five days’ worth of testing materials, but the site is run by Denver.”

**August 1:** According to a document published by CDPHE for LPHAs and contact tracers, counties begin using the Dr. Justina contact tracing and data management system, beginning with four counties, Mesa, Prowers, Kiowa, and San Juan Basin counties. (dig)

**August 10:** Governor Polis promoted two new mass testing sites opening in Aurora and Adams County at Waterworld. “Both the sites in Aurora and Adams County are completely free to the public and Coloradans should receive their results in four days or less. The new testing site in Aurora is at the Aurora Sports Park. Referrals and health insurance or identification are not needed to be tested. The Adams County site at Water World will be able to test up to 2,500 Coloradans per day, and their goal is that it will take up to twenty minutes from when someone pulls into the testing site to when they leave.” It was the case that mass testing sites did not require health insurance or payment for testing services.

*August 12: CDPHE announces pilot program to monitor wastewater as an early indicator of increasing spread of COVID-19. This shows another example of attempts to use various tools to track the spread of the virus.*

*August 27: CDPHE encourages Coloradans to get tested, offers guidance in conflict with the CDC: “The state is encouraging all Coloradans who need or want to get a COVID-19 test to go to any of the many community testing sites located throughout the state. There are no identification or insurance requirements, and the tests are free. People exhibiting symptoms of COVID-19 should get tested immediately. Anyone who has been or may have been exposed to someone with COVID-19, but does not have symptoms, should get tested 7 days after exposure. The state of Colorado testing guidance differs from what the CDC released yesterday. We currently have the capacity to test anyone who wants to get tested.”*

**September 4:** According to the Colorado Springs Gazette, CDPHE contracts with Curative Labs to provide testing in long-term care facilities. “The company would go on to provide Colorado with more than 715,000 coronavirus tests, averaging 70,000 tests per week during its contract with the state.” Ultimately, this company would make several errors which would lead Colorado to stop contracting with them.

*September 8: Governor Polis announces the forthcoming adoption of the Google Apple Exposure Notification service in Colorado. The release says, in part:*

“Gov. Polis was joined by Sarah Tuneberg, Senior COVID-19 Advisory, and Innovation Response Team Leader, to announce a new partnership between the state of Colorado and Google and Apple that will leverage cutting-edge technology to help us slow the spread of COVID-19. It’s called Exposure Notification services that all Coloradans can opt-in to on their
phone later this month. This mobile phone service will allow people to know if they might have been exposed to COVID without compromising their privacy or data. This is entirely optional. Privacy and security are at the core of the design of the service. The service will be offered to both iOs and Android users in Colorado. If someone opts-in, they can be notified if they’ve been exposed to the virus from another person also using the service.

The technology does not track location and does not share anyone’s identity with Google, Apple, other users, or the State. But, it can give an early heads up if someone using the service has been exposed to someone with COVID-19. Every Coloradan can make the individual choice if they’d like to use this service. Colorado is one of the first states in the country to deploy this technology.”

*September 15: CDPHE announces the new Dial Framework, automatically characterizing counties in different levels of restrictions (classified by color) according to the severity of the outbreak locally. This replaces the previous “variance” system, which required committee based applications and decision making on a case-by-case basis. Governor Polis also held a press conference with State Epidemiologist Rachel Herlihy, who “addressed a potentially concerning trends of rising cases, increased positivity rates, and decreased social distancing, and reminded Coloradans about the importance of wearing face coverings, washing hands, avoiding large crowds, and physically distancing.” With the background of loosening restrictions, this posed the rising cases as a problem of individual choices, not public policy.

September 16: CDPHE announces a new modeling report, showing “COVID-19 hospitalizations have been decreasing since mid-July. This decline has slowed and hospitalizations appear to be at a plateau. The estimated effective reproductive number has increased following an upward trend over recent weeks. The current effective reproductive number is estimated to be between 0.93 and 1.14. Due to lags between infection and hospitalizations, this reflects transmission occurring through late-August (approximately August 25).” The third wave has begun, and will peak November 12 with 6940 cases before declining to 305 cases 3/23.

September 22: Governor Polis hosts a press conference drawing attention to increasing case counts in the state. “Gov. Polis and Dr. Herlihy also addressed the rising number of cases among 18-25 year olds, as well as all other age groups in Colorado, and the potential danger for community spread if not careful. Both emphasized the importance of avoiding large crowds and not attending parties in order to minimize transmission of the virus. Overall, Colorado has seen an increase in cases in all age groups. The increase is the highest in the 18-25 year old age group.”

September 24: CDPHE announces guidance for temporary outdoor dining structures to allow for outdoor dining even during the winter months. Governor Polis expresses support for a local public health order in Boulder County restricting gatherings among young people to reduce the spread of COVID-19.
October 1: CDPHE announces that cases and hospitalizations are climbing, saying "The total number of patients in Colorado currently hospitalized with confirmed cases of COVID-19 today rose to 200 for the first time since August 9. The Colorado Department of Public Health and Environment (CDPHE) receives data on COVID-19 hospitalizations from the Colorado Hospital Association daily. This increase in hospitalizations follows a large increase in cases that began in mid-September."

October 6: Governor Polis holds a press conference during which State Epidemiologist Rachel Herlihy draws attention to rising case counts and Governor Polis gives an update on testing. “The Governor also applauded the state testing team and the State Lab for reaching the highest single day of tests reported at 19,761. In fact, the State Lab set a record for the week, processing 35,727 tests. Over the last week (ending 10/2), the State Lab and partners across the state averaged nearly 17,000 tests per day in Colorado with more than 90% of all results being returned in three days or less.” A supporting CDPHE press release shared modeling data. “The estimated effective reproductive number has risen over the last month. The current number is estimated to be between 1.21 and 1.27. This estimate reflects transmission through approximately Sept. 15.”

October 13: Governor Polis hosts press conference highlighting climbing case counts. “Colorado last week recorded more than 1,000 cases of COVID-19 in one 24-hour period, the most since March. Today the state saw another day with more than 1,000 cases and alarmingly the positivity rate is above 5%. On September 4, there were 132 confirmed COVID-19 hospitalizations in the state and on October 12th there were 288.”

October 15: According to a document on the Dr. Justina contact tracing and data management system, “after 10/15, all case investigation data capture should occur only in Dr. Justina, not CEDRS.”

October 16: Governor Polis hosts press conference highlighting climbing case counts and encouraging testing. “Gov. Polis also highlighted rising cases in Colorado and that the state’s positivity rate is beginning to creep above 5%. On Sept. 4, there were 132 confirmed COVID-19 related hospitalizations, and today Colorado has more than 350. Coloradans who think they have any symptoms or think they may have been exposed to COVID-19, can visit over 80 free, quick, and easy testing sites across the state. Find a testing site at covidtest.colorado.gov/map.”

October 19: CDPHE sends out press release raising the alarm about increasing cases and hospitalizations. “The total number of patients in Colorado currently hospitalized with confirmed cases of COVID-19 rose to 381 on Monday, the highest figure since May. The number of new cases each day over the last week has been about 1,000 daily.”
October 20: Governor Polis hosts press conference launching statewide media campaign imploring Coloradans to “Step Up” (in English and Spanish) to reduce the spread of COVID-19, CDPHE sends press release with additional information.

October 22: CDPHE sends press release providing additional information about the launch of CO Exposure Notifications. “CO Exposure Notifications will complement existing statewide health safety protocols, without compromising the privacy of Coloradans. Exposure Notification systems like these are critical to preventing further spread of COVID-19. In models developed by Oxford University, researchers have estimated that even if only 15% of the population enables exposure notifications, regions could see a reduction in infections of 8% and deaths by 6%.”

October 23: CDPHE releases CSPH modeling report showing increasing cases and hospitalizations. The communication warns “We are at a critical moment. If Colorado remains on the current trajectory, we will likely exceed the April peak in hospitalizations for COVID-19 by mid-November, which exceeded 900 in one day. Increases in contacts over the holidays will accelerate growth in cases and intensive care unit hospital capacity may be exceeded in December or January. The effective reproductive number is approximately 1.5 (ranging with statistical uncertainty from 1.16 to 1.85).”

CDPHE amends Safer at Home public health order to restrict the sizes of personal gatherings. “In response to an alarming increase in hospitalizations due to COVID-19, the Colorado Department of Public Health and Environment (CDPHE) today amended its Safer at Home public health order to limit personal gatherings in all counties at all Safer at Home levels. The revised order reduces the size of personal gatherings to no more than 10 people from no more than two separate households. Recent case investigation data show that since July attending social gatherings and community exposures have become more common among new cases. This suggests people have relaxed their precautions and are interacting more closely with a greater number of households.”

October 25: Governor Polis hosts a press conference launching CO Exposure Notifications, Colorado’s Google Apple Exposure Notification product.

October 27: As case counts continue to climb, Governor Polis hosts press conference introducing Coloradans who have suffered from severe COVID-19 symptoms, updating on the increasing case rates, and promoting the Exposure Notification system.

“This week, CDPHE launched the COVID-19 Exposure Notification System to increase the effectiveness of contact tracing. You can see more about it at addyourphone.com This is a new feature on your phone that notifies you if you may have been exposed to someone contagious with COVID-19. By opting in, your Android or iPhone device will share anonymous tokens with other CO Exposure Notifications users using your phone’s Bluetooth. If another user you’ve been near tests positive for COVID-19 within a 14-day period, the service will notify you.”
CDPHE announces that several counties will be moving to more restrictive COVID-19 policies due to increasing case counts.

The CDC updates its guidance to define a close contact as: “Someone who was within six feet of an infected person for a cumulative total of 15 minutes or more over a 24-hour period starting from two days before illness onset (or, for asymptomatic patients, two days prior to test specimen collection) until the time the patient is isolated.” The previous definition of a close contact was “someone who spent at least 15 consecutive minutes within six feet of an infected person, thus putting the individual at higher risk of contracting the virus.”

*October 30:* Colorado Governor Jared Polis signs an executive order establishing the “dial framework,” as unified public policy, superseding all other executive orders, in which counties will automatically qualify for varying levels of restrictions that are designated by one of 6 colors, from green to red.

CDPHE announces that, after three days, nearly 600,000 Coloradans have activated Exposure Notifications on their devices, accounting for about 15% of mobile users in Colorado. CDPHE also announces that many counties are moving to stricter policies on the dial framework. Plus, modeling shows an increasing epidemic spread across the state.

November 2: CDPHE releases updated and clarified public health order summarizing the dial framework. Governor Polis asks the federal government to provide additional support. “Governor Polis has met with President Trump, Vice-President Pence and Colorado’s federal delegation to advocate for federal funding and resources to help our state respond to the COVID-19 pandemic.”

November 5: CDPHE announces that several counties will move into more restrictive COVID-19 policy phases due to increased spread of the virus in the state.

Several local health departments in Colorado, including Jefferson County’s, send a letter to the state outlining their concern that their contact tracing capacity had been overwhelmed by the volume of cases, per an ABC News report.

November 6: “The Colorado Department of Public Health and Environment (CDPHE) and the Colorado School of Public Health released an updated modeling report showing hospitalizations from SARS-CoV-2 are increasing more sharply than last week’s projections. Keeping hospitals at or below demand capacity will require substantial and rapid action to prevent transmission. People should only interact with members of their own household, avoid gatherings, stay home when they are sick, wash their hands, physical distance, and wear a mask.”

“The state is launching new COVID-19 testing kiosks across the state. The first two COVID-19 testing kiosks will open in Greeley at UNC, Denver International Airport (DIA) and based on demand will be strategically deployed to additional communities. CDPHE has partnered with
Curative to increase testing in long-term care facilities and in our rural and frontier communities. The testing kiosk at the University of Northern Colorado is at Nottingham Field and will be open from 9 a.m. - 6 p.m., Monday through Saturday, starting on November 7th at the University of Northern Colorado campus.”

**November 10:** “The Colorado Department of Public Health and Environment (CDPHE) will bring on an additional 100 AmeriCorps members to serve in the COVID-19 Containment Response Corps (CCRC) in staggered nine month terms over the next year. AmeriCorps members will support case investigation, contact tracing, resource coordination, test result notification, isolation and quarantine monitoring, and other activities to contain the spread of COVID-19 within Colorado.”

**November 12:** Wave 3 of the epidemic curve peaks at 6,941 cases in one day before declining to 319 cases on March 14. “As demand for COVID-19 testing increases, the Colorado Department of Public Health and Environment wants to remind Coloradans that there are numerous state-sponsored community testing sites across the state. They are free, convenient, and do not require a doctor’s note, identification, or insurance. There are more than 50 free community testing sites across the state, as well as dozens of locations offered by private providers.”

LPHA leaders sound the alarm (per a Denver Post article) that their testing and tracing infrastructure is being overwhelmed by the volume of cases.

*November 13:* CDPHE and Governor Polis announce that more than 1 million Coloradans had enabled Exposure Notifications.

**November 14:** Governor Polis announces “that given the rise in cases across our state, he has ordered the State Emergency Operations Center to return to level 1. This is the highest level of operation and brings together all state agencies, federal partners and the voluntary organizations that serve the State’s communities in crisis. At this level, the EOC can better coordinate and synchronize the State’s response to the pandemic.”

*November 16:* Tri-County Health Department, the LPHA covering the most populous local area in the state, says in a 9News article that their contact tracing system is overwhelmed and they are unable to respond to each case.

**November 17:** CDPHE announces additional counties are going to stricter levels on the dial.

**November 19:** CDPHE announces additional counties are going to stricter levels on the dial.

Governor Polis announces National Governors Association call with President Elect Joe Biden to coordinate on COVID-19 response.
November 20: CDPHE releases latest modeling report showing “The effective reproductive number is approximately 1.4 (a drop from 1.7 last week), and transmission control has increased from 61% to 65%. Colorado has greatly exceeded the April hospitalization peak at 1,564 hospitalizations today for confirmed COVID-19. An estimated 1 out of 49 Coloradans are infectious, by far the highest prevalence to date.”

CDPHE promotes pop-up and mobile testing sites.

Governor Polis announces meeting with Dr. Fauci and other federal leaders. “Governor Polis spoke with President-Elect Biden and Vice President-Elect Harris yesterday. Throughout the pandemic, Governor Polis has been in close contact with leaders at the federal level including President Trump, Vice-President Pence, Dr. Birx, and Colorado’s federal delegation to advocate for federal funding and resources to help our state respond to the COVID-19 pandemic. The Governor’s office plans to put in a request to the White House to allow Dr. Fauci to speak with Coloradans in the coming months during the Governor’s press briefing.”

November 22: According to a Kaiser Health News report, low adoption plagues efficacy of the Google Apple Exposure Notification in the United States. “Only about a dozen states, including the recent addition of Colorado, have launched the smartphone feature, which sends users a notification if they’ve crossed paths with another app user who later tests positive for COVID-19. Within those few states, enthusiasm appears dim. In Wyoming, Alabama and North Dakota, some of the few states with usage data beyond initial downloads, under 3% of the population is using the app.”

November 25: CDPHE publishes a letter asking Coloradans not to gather for the Thanksgiving holiday, as well as the latest modeling report, which shows: “An estimated 1 of 41 Coloradans are infectious, by far the highest prevalence to date. Prevalence is as high as 1 in 29 Coloradans in some regions. The effective reproductive number is approximately 1.4, indicating continued rise in infections at a rate similar to last week.”

*November 28: Colorado Governor Jared Polis signs an executive order changing the “dial framework,” to add another color after red, purple, in order to preserve local variations in policy and prevent the state from returning to the more stringent, statewide restrictions previously alluded to by state leaders should metrics justify them.

December 1: Governor Polis hosts press conference with Dr. Anthony Fauci. “Colorado is not alone with seeing a spike in cases. Dr. Fauci discussed how the country is dealing with a nationwide public health crisis and that the virus had spread to different regions. Dr. Fauci also noted that as temperatures drop and Americans approach the holiday season he anticipates that the country could see a surge upon a surge. He pointed out that the country is looking at thirty or more days of precarious risk and encouraged people to avoid crowds, wear a mask, wash hands, and social distance.”
**December 5:** CDPHE releases latest modeling report showing “An estimated 1 of 40 Coloradans are infectious, the highest prevalence to date. The effective reproductive number is approximately 1.2, lower than last week but indicating continued growth of the epidemic. Infections are continuing to rise, albeit at a slower rate than last week. Estimated transmission control has increased from 66% to 71% since last week.”

**December 10:** “A bipartisan assembly of Governors representing 1 in 3 Americans issued support for a Call to Action to Defeat COVID-19 and Promote National Recovery and Renewal, developed and released by the COVID Collaborative.”

**December 11:** Governor Polis announces plea from Western Governors for aid and support in ending pandemic. “Four Western Governors, Colorado Governor Jared Polis, Utah Governor Gary Herbert, Arizona Governor Doug Ducey, and Nevada Governor Steve Sisolak are urging Congress to ensure that states can fairly address the financial and public health impacts of the COVID-19 pandemic. The bipartisan group of Governors sent a letter to members of the U.S. Senate involved in the bicameral COVID relief legislation.”

*December 16:* CDPHE implements 5 star business variance program. “The program requires businesses certified through the program to implement safety measures beyond what is already required by public health orders and guidelines that will help slow the spread of COVID-19, and in doing so, they will be able to expand operations. This program is for responsible businesses that are following public health guidance, and going above and beyond to prioritize the health and safety of their staff and customers.”

**December 18:** “CDPHE and the Colorado School of Public Health released an updated statewide modeling report and updated regional models showing that public health protocols before the Thanksgiving holiday have helped to slow the spread of SARS-CoV-2. Transmission control of the virus improved across the state in recent weeks; hospital demand and cases have declined, but it will be weeks before both reach lower levels.”

*December 21:* According to a 9News investigation, by mid-December, although more than 1.4 million Coloradans had enabled CO Exposure Notifications, 148,911 codes had been issued to those who tested positive and only 12,804 people entered their codes into the system to alert their contacts.

**December 22:** CDPHE releases dashboard with data on wastewater monitoring for early community outbreaks.

*January 4, 2021:* CDPHE amends the public health order to reflect the new 5 star business program.

CDPHE allows “local public health agencies with counties in the Red level on the state’s dial to move to the Orange level, which went into effect at 12:00 a.m. today. As always, counties can choose to continue to operate with more restrictive guidance. The state’s
decision to move the counties simply provides greater flexibility for local jurisdictions. CDPHE notified counties of the decision last week.” {gen}

*January 6:* “As part of ongoing efforts to keep in-person learning as safe as possible, the Colorado Department of Public Health and Environment (CDPHE) has developed a new at-home COVID-19 testing program for teachers, staff, and selected students at participating schools. The program is intended to help prevent the spread of COVID-19 in schools by allowing symptomatic and exposed individuals to get tested quickly and easily. If teachers or students are symptomatic, they should stay home. The program is also designed to facilitate more regular testing, especially for teachers and staff who are frequently in close contact with others as part of their jobs.” {comm} {test}

“Governor Jared Polis and Jill Hunsaker Ryan Executive Director of the Colorado Department of Public Health and Environment (CDPHE) sent a letter {comm} to Center for Disease Control and Prevention (CDC) Director Dr. Robert R. Redfield urging the CDC to allocate a portion of the funds designated in the CARES Act Unemployment Extension (H.R.113) for high risk and under-served populations to the state of Colorado.” {gen}

Governor Polis and Jill Hunsaker Ryan gave an update {comm} on Colorado’s vaccination process. “Governor Polis also gave an update on the state’s move from Phase 1A of the vaccination process to Phase 1B, which includes Coloradans aged 70 and up. Colorado remains hopeful that Phase 1 can be completed this winter and the move to Phase 2 can happen by the spring. The state still expects that with a steady allocation of the vaccine provided by the federal government, Colorado’s general population will have access to the vaccine by the summer.” {gen}

January 15: CDPHE announces {comm} it “is partnered with Connect for Health Colorado® to provide Coloradans with a call center that has support services for COVID-19 testing and containment results. The “COVID Results” Call Center opened on Nov. 19, 2020 and has placed more than 228,000 calls. The COVID-19 Call Center staff provide outbound call support to deliver COVID-19 test results. The call center is also open daily from 8:00 a.m. to 6:00 p.m. and provides information and guidance in English and Spanish, as well as in other languages using an interpretation service.” {test} {hum}

Governor Polis announces {comm} that the vaccine will be available, regardless of insurance status, free of charge. “In an effort to continue making the free COVID-19 vaccine as accessible as possible, today Governor Polis signed an Executive Order ensuring that the vaccine is free for Coloradans, and insurance status will not be used to deny or deprioritize any patient from getting the vaccine. The state wants to ensure there are no barriers to accessing the vaccine. The Executive Order directs the Colorado Division of Insurance to enact a rule regarding rates for COVID-19 vaccine administration.” {gen}

January 18: CDPHE launches a statewide media campaign {comm} encouraging Coloradans to get vaccinated. {gen}
January 21: CDPHE announces it “will no longer be using Curative testing effective, today, Jan. 21 in residential care facilities-- as well as in correctional facilities, homeless shelters, and other congregate settings. The decision comes after the FDA cited additional concerns about the accuracy of the Curative assay and collection methods.”

January 26: CDPHE and CSPH release new modeling report. “According to the report, hospital demand and the number of reported cases continue to decline from the December peak, and the effective reproductive number is at 0.83. With this number below one, the epidemic is declining in Colorado; however, infections remain widespread. The estimated number of infectious people has declined to approximately 1 in 115 – approximately the same as the April peak, but still almost 1% of Coloradans.”

February 5: CDPHE solicits feedback on a “dial 2.0” that will allow better policies considering increasing vaccination rates. “Given the level of vaccinations occurring and decreasing COVID-19 rates, the range of incidence metrics in Dial 2.0 better reflect a balance between disease suppression and economic activity. Additionally, instead of looking at the numbers over a 14-day period, Dial 2.0 will consider metrics within a 7-day period -- making the dial more responsive and flexible.”

February 6: CDPHE announces that Dial 2.0 goes into effect today.

February 13: A Denver Post article notes “If you received a message from Colorado's COVID-19 Exposure Notifications app asking you to share data, it doesn't mean you need to quarantine -- the state just wants to know how the public has been using the phone app. The state isn't collecting names, locations, phone numbers or IP addresses, a spokesman for the Colorado Department of Public Health and Environment said. The state wants to look at two data points: how many people who tested positive and received a code to notify others actually entered it into the system, and how many people have received a notification that they were exposed. There's no penalty if you opt not to share that data.”

February 26: "CDPHE and the Colorado School of Public Health released an updated statewide modeling report showing that the effective reproduction number for SARS-CoV-2 statewide is just below one, and transmission control dropped from 83% to 76% over the last week. Currently 1 in 194 Coloradans are estimated to be infected.”

March 7: CDPHE updates the Dial Framework to relax restrictions and allow greater flexibility.

April 15: The “dial framework” is allowed to expire, and instead Colorado transitions to "limited COVID-19 restrictions" public health orders issued through CDPHE.

April 16: The American Civil Liberties Union publishes an article criticizing pandemic response technologies and tracking solutions, warning Americans to beware of testing and tracing
applications in general. They do, however, point out that “Since the outbreak of the virus, at least 24 states and Washington, D.C. have rolled out exposure notification apps through Google and Apple’s Exposure Notification framework, GAEN (using Bluetooth signals and randomly generated keys to track possible exposures), and Exposure Notifications Express (allowing public health authorities to access the framework without maintaining or building their own app). These tools are more privacy-protective than other location-based tracking proposals we have seen. Save for a few worrying instances, the vast majority of state contact tracing apps have remained voluntary and largely developed through GAEN, something many other countries cannot say.”

May 27: A New York Times article says “In the United States, some public health officials and researchers said the apps had demonstrated modest but important benefits. In Colorado, more than 28,000 people have used the technology to notify contacts of possible virus exposures. In California, which introduced a virus-tracking app called CA Notify in December, about 65,000 people have used the system to alert other app users, the state said.”

June 3: A “surveillance-based, cross-sectional study” published in JAMA showed that “2 of 3 individuals with COVID-19 were either not reached for interview or named no contacts when interviewed. A mean of 0.7 contacts were reached by telephone by public health authorities, and only 0.5 contacts per case were monitored, a lower rate than needed to overcome the estimated global SARS-CoV-2 reproductive number.”

June 16: An MIT Technology Review article examines statements from state health departments that enabled GAEN based systems. Their results indicate “Twenty-four states and DC shared user estimates, showing that, by early May, a total 36.7 million Americans have opted in to the notifications. Hawaii has the highest share of its population covered, at about 46%. In four more states, more than 30% of residents opted in: Connecticut, Maryland, Colorado, and Nevada. Seven more states have over 15% of their populations covered… Most of the state apps have average ratings between 3 and 4… Many 1-star reviewers appeared to misunderstand how their state’s app works, didn’t trust in the technology, or were unable to understand how the app fit into the broader public health system. This indicates that, for many Americans, the app wasn’t doing its job even though it was technically in use… Over and over, reviewers stated that they got tripped up by needing an activation code… People who opted into the system hoping for protection—only to get silence—may have been discouraged into thinking the technology simply doesn’t work at all. For example, one New Jersey reviewer who claimed to work in an emergency room expressed frustration at how they ‘hadn’t been alerted once’ even after direct contact with covid-19 patients. Those who felt like their app wasn’t working may have discouraged others from downloading it—when in fact more users was exactly what was needed for the system to be successful… Positive app reviewers tried to combat mistrust with explanations and endorsements. Most of the state apps, in fact, have more five-star ratings than any other category—an encouraging signal that thousands of Americans were willing to give the technology a try… While these efforts may seem heartwarming, such reviews mask a more fundamental problem: it should be public health authorities doing the trust-building, not random commenters. And they should have the resources to do it in a more effective forum than
the Google Play store… She believes that future crises may require us to closely pair digital contact tracing with genomic sequencing and other surveillance methods. Colorado Mesa University has pioneered such a system with the help of Sabeti and the rest of the Broad Institute. The school’s covid surveillance incorporates sequencing data from student tests, self-reported student symptoms, wastewater testing, contact tracing, and more—all compiled into geographic heat maps that administrators can use to pinpoint outbreaks before they become serious.”

*June 30:* According to a Denver Post article, “The Colorado Department of Public Health and Environment reported it generated 377,007 codes for anyone who tested positive between October and mid-June, and 29,183 people used them to notify others whom they could have infected… It's not shocking that people who had greater trust in public health were more likely to download the app, said Susan Landau, a professor of computer science at Tufts University’s School of Engineering. But since those who have the highest trust levels tend to be white and relatively well-off, the app may have been less effective for the essential workers who were at an increased risk of getting the virus. When health departments do traditional contract tracing, they typically start by asking if the person can safely isolate at home, and if they need assistance getting food or other necessities, Landau said. ‘It's only after they do the caring kinds of things, do they move to, who could you have exposed,’ she said. Apps skip over that, so people may never know about supports that would help them safely isolate until they’re no longer contagious, Landau said. The biggest successes were those that paired an app with support for those in quarantine, she said.”

*July 8:* Governor Jared Polis rescinds the state of emergency related to COVID-19 and ceases to take emergency action via executive order to control the spread of COVID-19.

Methods

I began by researching and summarizing state COVID-19 response policies using the appropriate web page listing all executive and public health orders on covid19.colorado.gov. I researched the epidemic curve over this time period using the data made publicly available on the epidemic incidence from March 2020 to present. I described this data in the timeline where appropriate.

Finally, to analyze public communications supporting these milestones and activities, I analyzed and summarized relevant press releases made available as part of the pandemic response, as well as information found through Google News searches and press releases/social media accounts from CDPHE and Governor Jared Polis. I summarized relevant learnings from these communications throughout the timeline.