

# Exploring the Preliminary Steps of One County Health Department to Manage the COVID-19 Pandemic

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## ABSTRACT

This case study describes how one county health department in Alabama used the best available evidence to address the needs of its citizens during the first 6 months of the COVID-19 pandemic. The authors explore issues of scope of authority by government officials, individual freedom versus population health, and challenges of health communication during a disease outbreak. Despite the availability of vaccines, boosters, and access to vaccines by children as young as 5 years, COVID-19 cases are on the rise across the United States more than 2 years after the official news broke out of Wuhan, China. Health officials have expressed concerns that backlash against governmental public health during the pandemic will limit public health authorities from responding to the traditional challenges that were present pre-COVID-19 and will remain in a post-COVID-19 world.

**KEY WORDS:** COVID-19, health communication, population health, scope of authority, vulnerable populations

In late December 2019, toward the beginning of the New Year, news started trickling into the United States about a new disease outbreak in Wuhan, China. By early January, Chinese media reported the first death from a novel coronavirus, later called COVID-19.<sup>1</sup> Between January and March 2020, COVID-19 had spread internationally, affecting more than 500 000 individuals.<sup>2</sup> The World Health Organization (WHO) declared COVID-19 a global pandemic on March 11, 2020.<sup>3</sup> To date (February 2022), COVID-19 has been responsible for more than 5 million deaths worldwide,<sup>4</sup> including 17 000 in Alabama.<sup>5</sup>

The purpose of this case study is to describe how one county health department in Alabama used the best available evidence to address the needs of its citizens during the first 6 months of the COVID-19 pandemic. To provide context for county-level decisions, we identify relevant state, national, and international actions in response to this evolving crisis.

Throughout this case, we raise important issues for consideration by public health professionals including the scope of authority by government officials, the challenges of protecting population health while respecting individual freedom, and the importance of communicating with multiple stakeholders throughout a disease outbreak.

## Background

Jefferson County is the most populous county in the state with more than 670 000 residents,<sup>6</sup> with the city of Birmingham being the major metropolitan area. Health care is one of the leading industries in Birmingham and Jefferson County, with multiple hospitals and health systems serving its residents, including the University of Alabama at Birmingham (UAB) Health System, which is the only level 1 trauma center in central Alabama.<sup>7</sup> The majority of residents in Jefferson County self-identify as either White (53.8%) or Black/African American (43.1%) and report a median household income of \$53 000, approximately \$14 000 lower than the national median household income.<sup>8</sup> According to a recent report, Alabama ranks as the sixth most economically poor state in the United States.<sup>9</sup> Approximately 16% of the residents of Jefferson County live below the federal poverty level, compared with 13% nationally, and 23% of Jefferson County's children live in households below the federal poverty level.<sup>10</sup>

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The Jefferson County Department of Health (JCDH) is one of 2 semiautonomous county health departments in the state with its own governing Board of Health and County Health Office. County public health departments in the rest of the state, with the other exception of Mobile County, are grouped into districts and overseen by the Alabama Department of Public Health (ADPH). ADPH traces its history back to the late 19th century in which legislation designated the Medical Association of the State of Alabama as the State Board of Health. The medical needs of Jefferson County and the city of Birmingham were addressed by various part-time physicians who served as health officers until 1917, when the Jefferson County Medical Society, in its capacity as the county board of health, appointed the first full-time county health officer with a dedicated staff to serve the entire county. This was the beginning of JCDH. Today, JCDH employs approximately 450 employees who administer a vast array of programs and services ranging from clinics and disease control to environmental health and vital records.<sup>11</sup>

### COVID-19 and Vulnerable Populations

Health indicators for residents of Jefferson County are comparable with those of all residents in Alabama, with ratings among the poorest in the country for obesity, diabetes, cardiovascular disease, stroke, heart attacks, fruit consumption, vegetable consumption, and physical activity.<sup>12</sup> As demonstrated in the research literature, COVID-19, like other communicable diseases, presents a higher risk for vulnerable populations including, among others, racial and ethnic minorities, the elderly, those who are socioeconomically disadvantaged, underinsured, and those with certain medical conditions.<sup>13</sup> Throughout the pandemic, people in congregate living situations, such as homeless shelters, jails, long-term care facilities, group homes, and substance use treatment centers, were of particular concern. Most people in these settings had few if any viable options for social distancing and were more likely to have underlying medical risk factors. People of lower socioeconomic status were also more likely to live or work in crowded conditions where COVID-19 could spread easily.

### Political Climate of Alabama

Alabama is a socially and politically conservative state, with 52% of Alabama residents affiliating with the Republican party.<sup>14</sup> In the 2020 presidential election, more than 62% of Alabama residents voted for the Republican incumbent, Donald Trump.<sup>15</sup> Currently, all 3 branches of government in Alabama are

controlled by Republican officials including a Republican governor, both houses of the state legislature, Republican US senators, and a 9-member majority Republican Supreme Court.<sup>16</sup> The single Democrat in Alabama's congressional delegation (Terry Sewell, D-7th District AL) represents a district that includes a larger proportion of the African American population in Jefferson County. In July 2020, the Pew Research Center reported that Republicans were far less likely than Democrats to view COVID-19 as a major threat to public health.<sup>17</sup>

### Alabama Public Health Law and Governance

Alabama law grants the State Board of Health a tremendous amount of authority to mitigate the spread of notifiable diseases, such as COVID-19. The State Board of Health convenes as the State Committee of Public Health, which appoints and discharges the state health officer (Code, § 1048). On behalf of the State Board of Health, the state health officer or their designee—including the health officer of Jefferson County—can implement strategies that are consistent with medical and epidemiologic knowledge about the mode of transmission of a disease, including mandatory isolation, quarantine, and restriction of activities (Act 87-574).

For a situation in which an individual is exposed to a disease and refuses treatment, the county or state health officer may petition a probate judge of a county to commit that person to the custody of ADPH for compulsory testing, treatment, and quarantine (Section 22-11A-24). Moreover, it is the duty of the county health officer to investigate the first case or early cases of any notifiable disease and institute immediate measures to prevent the spread of such disease, should they decide there is an immediate danger of spreading (Section 22-3-5).

### JCDH Priority Health Actions

#### *January and February 2020*

On January 27, 2020, JCDH activated its Incident Command structure to coordinate emergency response efforts and maintain situational awareness of the emergent COVID-19 pandemic. According to Mark Wilson, MD, JCDH health officer, the Incident Command structure allowed the health department to temporarily rearrange its organizational structure, mobilize resources, and grant personnel the appropriate authority to respond to conditions on the ground. Between January and February 2020, JCDH staff members engaged in conversations with other entities including government partners and schools about

preparing contingency plans for a disease outbreak. JCDH attorneys drafted orders for quarantine and consulted with the county probate judge and county sheriff regarding court-ordered quarantine, if needed. These county actions occurred approximately 1 week after the first reported case of COVID-19 in the United States.

According to Dr Wilson, timely communication with key stakeholders, especially at the beginning of the pandemic, was extremely important in terms of understanding and mitigating the risk of disease transmission. Dr Wilson noted that JCDH went to great lengths to share up-to-date information with the public through frequent press conferences and interviews. He maintained, "At times, we were doing five to six interviews per day." However, JCDH, like most health departments around the country, faced a significant health communication challenge with COVID-19 in terms of social media.

Misinformation and disinformation about COVID-19 were ubiquitous from the onset of the pandemic. Yang et al<sup>18</sup> examined prevailing myths related to COVID-19 based on tweets and discovered that the vast majority of falsehoods were about the spread of the infection (eg, shoes, mosquitoes, 5G mobile networks, weather) and preventive measures (eg, garlic, bleach, alcohol, hot peppers). Others noted that higher levels of skepticism regarding health behaviors among individuals were frequently influenced by engagement in social media sources that may promote inaccurate news,<sup>19</sup> and COVID-19 skepticism could lead to fewer protective measures against disease spread (eg, social distancing, mask wearing, handwashing).<sup>20</sup> Simply stated, "Fake news, misinformation, and conspiracy theories have become prevalent in the age of social media and have skyrocketed since the beginning of the COVID-19 pandemic."<sup>21</sup> (p875)

### March 2020

By the first week of March 2020, all of Alabama's neighboring states (Mississippi, Tennessee, Georgia, and Florida) had reported COVID-19 cases; however, Alabama health officials had not yet confirmed a case of COVID-19 in the state, likely due to the limited amount of testing at that time. Nevertheless, there were several large-scale events planned in Alabama, which would include travelers from other states, and health officials worried that these mass events would thwart efforts to stop or slow the outside threat. On the world stage, Italy had been hard hit by a "medical tsunami" of COVID-19 cases that led to a shortage of intensive care unit (ICU) beds and resources, including both ventilators and oxygen.<sup>22</sup> (p326)

On Thursday, March 12, 2020, Dr Wilson called a press conference and recommended canceling all public gatherings of more than 500 people. According to Dr Wilson, the number 500 was "completely arbitrary" but based on conversations with public health colleagues and infectious disease doctors to "help our public start getting ready for what's coming, to start to tighten things up a little bit." Regarding this decision, Dr Wilson reiterated, "It was not an order, it was a recommendation."

The next day, Friday, March 13, 2020, President Trump declared COVID-19 a national emergency, which freed up \$50 billion in federal resources, directed state governments to set up emergency operations centers, and activated emergency preparedness contingency plans among hospitals.<sup>23</sup> This federal announcement was immediately followed by a state proclamation by Alabama's Governor Kay Ivey declaring a state public health emergency, which included the immediate suspension of public schools.<sup>24</sup> In addition, state officials announced the first reported cases of COVID-19 in Alabama, including one in Jefferson County.<sup>25</sup>

By Monday, March 16, the pace of COVID-19-related activities had accelerated dramatically. At 11:00 AM, Dr Wilson organized an emergency call with Jefferson County commissioners, city mayors, and local health experts to discuss strategies for containing the spread of the disease. Dr Michael Saag, UAB physician and infectious disease specialist, recounted experiences of his colleague in Italy stating, "We have to act now. We have to start shutting things down." Noting community concern for safety, Dr Wilson responded, "I've got a public health order ready to go." That evening, Dr Wilson issued his first emergency order which:

- Suspended public gatherings of 25 persons or more or any gatherings that could not maintain a 6-ft distance between persons;
- Ordered the closure of private schools and preschool/childcare centers, banned restaurants, bars, and breweries from serving food and drink on premises for 1 week;
- Suspended senior citizen center gatherings; and
- Prohibited visitation of all visitors and nonessential personnel in nursing homes and long-term care facilities except for certain compassionate care situations, such as end of life.

These orders were largely consistent with guidance issued that same day by President Trump and the Centers for Disease Control and Prevention (CDC): "15 Days to Slow the Spread."<sup>26</sup> With regard to stakeholder communication, Dr Wilson stated, "Once the hospitals started actually getting cases, there were

regular calls ... three times a week with all of the CEOs.... That was one of the things we were most concerned about early on was how to support our hospitals.”

The following day, Tuesday, March 17, Alabama’s state health officer, Dr Scott Harris, issued orders similar to Jefferson County to all counties surrounding Jefferson County. By the end of the week, Dr Harris expanded the order to the entire state. Dr Wilson recalled receiving an e-mail message on Tuesday, March 24, from Dr Jeanne Marrazzo, infectious disease physician and Director of the Division of Infectious Diseases at UAB, in which she described the rapid increase of admissions to UAB hospital and other hospitals; the addition of ICU teams to take care of the sick; and the shortage of personal protective equipment (PPE). Dr Marrazzo stated, “Unfortunately, I think we will remember the last 24-hour period when the COVID-19 tsunami broke our shore.”

### **April through July 2020**

On Friday, April 3, 2020, Governor Ivey issued a statewide stay-at-home order until April 30, which required all Alabama residents to shelter in place except to perform essential activities. This same day, the CDC recommended cloth face coverings as a voluntary measure to reduce the spread of coronavirus.<sup>27</sup> However, COVID-19 was spreading rapidly, especially among the inmate population where social distancing was impossible and hand sanitizer was widely banned.<sup>28</sup> Dr Wilson was in the process of reaching out to local judges about this concern when he learned that they had already released approximately 40% of city and county jail inmates with low-level criminal charges to reduce disease spread.

Already by early April, then President Trump announced guidelines for reopening businesses, schools, and other places affected by stay-at-home orders through the White House’s 18-page plan “Opening Up America Again.”<sup>29</sup> The phased approach or *gating criteria* for reopening were guidelines that required, among other elements, a 14-day decline in cases and hospitalizations. Alabama representative Terry Sewell followed suit on April 22 with a plan for reopening the 7th District, which also required a decline in the daily number of hospitalizations for 14 consecutive days. This action was in response to a request by Governor Ivey to each member of Alabama’s congressional delegation to convene taskforces to develop recommendations for reopening.

Effective April 30, Governor Ivey’s *Safer at Home* statewide order relaxed previous health orders regarding individuals, employers, retailers, and beaches and allowed elective medical procedures to resume,

despite not meeting the White House gating criteria.<sup>30</sup> The guidelines for reopening still contained many measures that could have mitigated the spread of COVID-19, including prohibiting all non-work-related gatherings of any size that could not maintain a consistent 6-ft distance between persons from different households and limiting businesses to no more than 50% of the normal occupancy load; however, the governor’s order was inconsistently followed and provided little accountability. And in May 2020, even the White House reneged on its own guidelines, as former President Trump cheered on states for reopening without meeting the White House gating criteria, and the White House also rejected recommendations by the CDC for reopening.

In May 2020, Dr Harris and other health officials warned of a possible spike in new coronavirus cases due to the upcoming Memorial Day weekend, and this surge was exactly what the state experienced. Media outlets documented the large crowds at Alabama’s beaches, as if the pandemic had not existed. By July 13, 2020, Alabama saw a 92% change in its 7-day average of new coronavirus cases as compared with the week prior.<sup>31</sup>

Citing concerns for public health, Dr Wilson issued a mandatory face mask order for Jefferson County effective June 26, the first countywide mask mandate in the state. Approximately 3 weeks later, July 15, 2020, Governor Ivey announced a statewide mask order based on a 50% increase in new COVID-19 cases over the 2-week period from June 30 to July 13. Ivey tweeted,

We are going to need everyone’s help if we are going to slow the spread and turn these trends in a different direction. We are asking everyone to do a better job practicing social distancing, personal hygiene and, now, wearing face masks.<sup>32</sup>

However, this call to action for mandatory masking may have come too late. As stated by Erwin et al, “The reopening of businesses and beaches in Alabama was followed by a surge in cases in June, but a statewide mandate to wear masks was not issued until mid-July.”<sup>33(p649)</sup>

According to Dr Wilson, the face coverings ordinance was the one action taken by JCDH for which his office received the greatest backlash. Previous orders had shut down businesses, confined individuals to their homes, and kept families apart from one another. Yet, it was the mask mandate that drew the greatest criticism and further revealed the politicization of the pandemic response. At this time in the pandemic, experts had demonstrated that face masks, when used correctly, could result in a large reduction in risk of infection.<sup>34</sup> Moreover, emergency use

authorization for the first COVID-19 vaccine was still months away.<sup>35</sup> Regardless, Wilson observed that individuals perceived this mask requirement to be the greatest threat to their individual liberty and frequently refused to wear one. Governor Ivey reissued the statewide mask mandate several times through the second half of 2020 and into 2021, finally ending the mandate on April 9, 2021.

Nevertheless, after 6 months of public health orders regarding face masks, social distancing, disease notification, and quarantine, residents of Jefferson County were tired of local and state ordinances and started showing signs of *pandemic fatigue*. According to Wilson, support for public health precautions had started to wane, and people learned that they could defy public health orders because political leaders and law enforcement agencies were unwilling to enforce them. Quoting Alabama's former state health officer and current director of the Alabama Hospital Association, Don Williamson, Dr Wilson stated, "There are two words in public health. One is public, and you can only do so much health as the public will allow." Even after Alabama experienced a significant spike in new COVID-19 cases due to the Delta variant in July 2021, Dr Wilson decided against issuing a second, mandatory mask mandate, stating:

We were genuinely concerned that it might do more harm than good, to public health, to our health department, (and) to future health officers and their ability to take action in some other pandemic or other unforeseen public health emergency.

## Epilogue

At the time of this writing (February 2022), more than 2 years after the official news broke out of Wuhan, China, COVID-19 cases are on the rise across the United States, with new daily cases topping 900 000 nationally and nearly 13 000 in Alabama, despite the availability of vaccines,<sup>36</sup> the availability of boosters,<sup>37</sup> and access to vaccines by children as young as 5 years.<sup>38</sup> Many Alabama residents have exhibited vaccine hesitancy due to mistrust, fear, and lack of information. Based on responses of residents of Jefferson, Dallas, and Mobile Counties, Alabama, study authors reported that participants who were African American and Latinx preferred to wait and see the long-term effects of the vaccine by watching how others reacted to it first.<sup>39</sup>

This delay in accepting vaccines despite their availability reflects a failure of public health and health care professionals to communicate with the very population groups in Alabama (and elsewhere) that have suffered disproportionately from COVID-19. In this

regard, racial and ethnic minorities have experienced a double dose of health inequity during the pandemic: the first was in the disparities in cases, hospitalizations, and deaths because minority populations had greater vulnerability due to excess at-risk conditions, higher exposures among many frontline workers, and less access to and ability to pay for treatment options. The second was based on early and equitable access to information about and access to receiving COVID-19 vaccines. Declines in COVID-19 cases and hospitalizations in May and June 2021 gave hope to many that the pandemic was coming to an end. However, the Delta variant in May 2021, and more recently the Omicron variant in November 2021, has obliterated that hope with a resurgence of new cases.

In winter 2021, the Alabama state legislature put forth multiple bills to place limits on actions that could be taken by the governor as well as state and county health officers regarding declarations in times of emergency. One of these bills specifically would have placed limits on the authority of the Jefferson County health officer, requiring that they confer with an advisory committee and put a 10-day wait on emergency orders, which Wilson suggested would not work in an emergency. Proponents of the bills spoke about the need to limit government overreach, while opponents suggested that sponsors were putting the economic needs of the state ahead of population health.<sup>40</sup> None of the bills specifically limiting the authority of county health officers passed during the 2021 Alabama legislative session, and no new legislation has been introduced in 2022.

Dr Wilson and other public health officials have expressed concern that the backlash against governmental public health during the pandemic will limit public health authorities from responding to the traditional challenges that were present pre-COVID-19 and will remain in a post-COVID-19 world. Protecting public health authorities, for example, to close a restaurant because of a foodborne outbreak, ordering treatment of an uncooperative patient with multidrug-resistant tuberculosis, and requiring partner notification for sexually transmitted infections are vital to the well-being of households and communities. Such protections will be equally important in planning for and responding to the next pandemic, which we cannot entirely prevent but may have the power to control.

## Discussion Questions

1. Despite his authority to mitigate notifiable diseases like COVID-19, Dr Wilson stated that a second mask mandate would probably do "more

harm than good.” What does he mean by this statement? Do you agree with his conclusion?

2. JCDH informed the public of protective actions against COVID-19 through formal communication channels; however, social media seemed to play a significant role in influencing individual behavior. Describe how social media can be used to either encourage or discourage health behaviors.
3. In what ways did politics influence Alabama’s COVID-19 response?
4. What is the appropriate scope of authority for a state board of health?
5. Who are the stakeholders in this scenario? How might their priorities be similar or different from one another?

## References

1. World Health Organization. Coronavirus disease (COVID-19) pandemic. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>. Published 2021. Accessed October 21, 2021.
2. World Health Organization. Coronavirus disease 2019 (COVID-19) situation report—67. [https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200327-sitrep-67-covid-19.pdf?sfvrsn=b65f68eb\\_4](https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200327-sitrep-67-covid-19.pdf?sfvrsn=b65f68eb_4). Published March 27, 2020. Accessed October 12, 2021.
3. Cucinotta D, Vanelli M. WHO declares COVID-19 a pandemic. *Acta Biomed*. 2020;91(1):157-160.
4. Johns Hopkins University. COVID-19 dashboard. <https://coronavirus.jhu.edu/map.html>. Published 2022. Accessed February 15, 2022.
5. Tracking coronavirus in Alabama: latest map and case count. *The New York Times*. <https://www.nytimes.com/interactive/2021/us/alabama-covid-cases.html>. Published February 15, 2022. Accessed February 15, 2022.
6. US Census Bureau. QuickFacts: Jefferson County, Alabama. <https://www.census.gov/quickfacts/jeffersoncountyalabama>. Published April 1, 2020. Accessed November 4, 2021.
7. Alabama Public Health. Alabama trauma and health system (ATHS). <https://www.alabamapublichealth.gov/aths/trauma-center-levels.html>. Published May 13, 2021. Accessed January 10, 2022.
8. US Census Bureau. Income and poverty in the United States: 2020. <https://www.census.gov/library/publications/2021/demo/p60-273.html>. Published September 14, 2021. Accessed November 28, 2021.
9. Alabama Possible. 2020 poverty data sheet. <https://alabamapossible.org/2019/07/25/2019-poverty-data-sheet-800000-alabamians-live-below-poverty-threshold/>. Published July 25, 2019. Accessed October 4, 2021.
10. US Census Bureau. 2013-2017 American Community Survey 5-year estimates. <https://www.census.gov/newsroom/press-kits/2018/acs-5year.html>. Published December 6, 2018. Accessed November 1, 2020.
11. Jefferson County Department of Health. History of Jefferson County Department of Health. <https://www.jcdh.org/SitePages/About/AboutJCDH/HistoryJCDH.aspx>. Published 2021. Accessed October 17, 2021.
12. America’s Health Rankings. Alabama. <https://www.america'shealthrankings.org/explore/annual/state/AL>. Published 2021. Accessed October 28, 2021.
13. Kuy S-R, Tsai R, Bhatt J, et al. Focusing on vulnerable populations during COVID-19. *Acad Med*. 2020;95(11):e2-e3.
14. Statista. Identification with political parties in the United States in 2018, by state. <https://www.statista.com/statistics/1080003/political-party-identification-state-us>. Published March 17, 2021. Accessed December 2, 2021.
15. State of Alabama. Canvass of results. <https://www.sos.alabama.gov/sites/default/files/election-2020/Final%20Canvass%20of%20Results-Merged.pdf>. Published November 3, 2020. Accessed October 15, 2021.
16. Alabama.gov. The official Web site of the state of Alabama. <https://www.alabama.gov>. Published 2020. Accessed November 6, 2020.
17. Tyson A. Republicans remain far less likely than Democrats to view COVID-19 as a major threat to public health. <https://www.pewresearch.org/fact-tank/2020/07/22/republicans-remain-far-less-likely-than-democrats-to-view-covid-19-as-a-major-threat-to-public-health>. Published July 22, 2020. Accessed November 22, 2020.
18. Yang S, Jiang J, Pal A, Yu K, Chen F, Yu S. Analysis and insights for myths circulating on Twitter during the COVID-19 pandemic. *IEEE Open J Comput Soc*. 2020;1:209-219.
19. Chan MS, Jamieson KH, Albarracin D. Prospective associations of regional social media messages with attitudes and actual vaccination: a big data and survey study of the influence vaccine in the United States. *Vaccine*. 2020;38(40):6236-6247.
20. Latkin CA, Dayton L, Moran M, Strickland JC, Collins K. Behavioral and psychosocial factors associated with COVID-19 skepticism in the United States. *Curr Psychol*. 2021;1-9. doi:10.1007/s12144-020-01211-3.
21. The COVID-19 infodemic. *Lancet Infect Dis*. 2020;20(8):875.
22. Craxi L, Vergano M, Savulescu J, Wilkinson D. Rationing in a pandemic: lessons from Italy. *Asian Bioeth Rev*. 2020;12(3):325-330.
23. Facher L. President Trump just declared the coronavirus pandemic a national emergency. Here’s what it means. <https://www.statnews.com/2020/03/13/national-emergency-coronavirus>. Published March 12, 2020. Accessed October 17, 2021.
24. Office of the Governor. State of emergency. Coronavirus (COVID-19). <https://governor.alabama.gov/newsroom/2020/03/state-of-emergency-coronavirus-covid-19>. Published 2020. Accessed October 22, 2021.
25. MacDonald V. Alabama has its first cases of COVID-19; public schools to close for 2½ weeks. <https://birminghamwatch.org/alabama-first-confirmed-case-covid-19>. Published March 13, 2020. Accessed November 5, 2021.
26. Coronavirus.gov. 15 days to slow the spread. <https://www.justice.gov/doj/page/file/1258511/download>. Published March 16, 2020. Accessed November 21, 2021.
27. Dwyer C, Aubrey A. CDC now recommends Americans consider wearing cloth face coverings in public. <https://www.npr.org/sections/coronavirus-live-updates/2020/04/03/826219824/president-trump-says-cdc-now-recommends-americans-wear-cloth-masks-in-public>. Published April 3, 2020. Accessed December 1, 2021.
28. Williams T, Weiser B, Rashbaum WK. “Jails are petri dishes”: inmates freed as the virus spreads behind bars. <https://www.nytimes.com/2020/03/30/us/coronavirus-prisons-jails.html>. Updated November 30, 2020. Accessed October 30, 2021.
29. Tausche K, Breuninger K. Trump issues guidelines to open up parts of US where coronavirus cases are in decline, testing ramped up. <https://www.cnn.com/2020/04/16/coronavirus-trump-issuing-guidelines-on-reopening-parts-of-us-amid-outbreak.html>. Updated April 17, 2020. Accessed January 10, 2022.
30. Landers K. New “safer at home” health order eases some COVID-19 restrictions in Alabama while protecting our communities. <https://www.alabamapublichealth.gov/news/2020/04/28c.html#:~:text=Minimizing%20travel%20outside%20the%20home,from%20touching%20one%20E%20%80%99s%20face>. Published April 28, 2020. Accessed December 5, 2021.
31. Hawkins D, Berger M, Kornfield M, et al. As coronavirus infections surge nationwide, 21 states see increase in average daily new cases. <https://www.washingtonpost.com/nation/2020/06/13/coronavirus-live-updates-us>. Published June 13, 2020. Accessed November 29, 2021.
32. Lardieri A. Alabama Gov. Kay Ivey issues face mask mandate. <https://www.usnews.com/news/health-news/articles/2020-07-15/alabama-gov-kay-ivey-issues-face-mask-mandate>. Published July 15, 2020. Accessed October 28, 2021.

33. Erwin PC, Muecke KW, Brownson RC. Different responses to COVID-19 in four US states: Washington, New York, Missouri, and Alabama. *Am J Public Health*. 2021;111(4):647-651.
34. Howard J, Huang A, Li Z, et al. An evidence review of face masks against COVID-19. *Proc Natl Acad Sci U S A*. 2021;118(4):e2014564118.
35. Food and Drug Administration. FDA takes key action in fight against COVID-19 by issued emergency use authorization for first COVID-19 vaccine. <https://www.fda.gov/news-events/press-announcements/fda-takes-key-action-fight-against-covid-19-issuing-emergency-use-authorization-first-covid-19>. Published December 11, 2020. Accessed December 2, 2021.
36. Coronavirus in the U.S.: latest map and case count. *The New York Times*. <https://www.nytimes.com/interactive/2021/us/covid-cases.html>. Published November 18, 2021. Accessed November 18, 2021.
37. Maragakis LM, Kelen GD. Booster shots, third doses and additional doses for COVID-19 vaccines: what you need to know. <https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus/booster-shots-and-third-doses-for-covid19-vaccines-what-you-need-to-know>. Published December 15, 2021. Accessed January 5, 2022.
38. Centers for Disease Control and Prevention. COVID-19 vaccines for children and teens. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/children-teens.html>. Published December 13, 2021. Accessed January 5, 2022.
39. Bateman LB, Hall AG, Anderson WA, et al. Exploring COVID-19 vaccine hesitancy among stakeholders in African American and Latinx communities in the Deep South through the lens of the Health Belief Model. *Am J Health Promot*. 2021;36(2):288-295.
40. Lyman B. Alabama Senate approves bills limiting governor's emergency powers after a year of COVID-19. <https://www.montgomeryadvertiser.com/story/news/politics/2021/04/02/alabama-senate-approves-bills-limiting-governors-emergency-powers/4833648001>. Published April 2, 2021. Accessed November 27, 2021.