



# Employers Can Accelerate COVID-19 Vaccination Efforts

May 10, 2021 By Emily Gee and Nicole Rapfogel

During the first four months of the COVID-19 vaccination campaign in the United States, demand for the vaccine was far greater than supply. Increasingly, the opposite is happening: The vaccine doses available exceed the number of people stepping forward to receive them.<sup>1</sup> Some states and counties have even turned away unneeded shipments of vaccines.<sup>2</sup>

A high rate of vaccination nationwide is crucial to controlling the pandemic's threat to public health and ushering in a return to full economic activity. While the vaccination rate required to attain “herd immunity”—population-level resistance to the virus—is unknown and depends on a variety of factors, Dr. Anthony Fauci said he believes about 70 to 85 percent of people would need to acquire immunity through vaccination or previous infection with COVID-19.<sup>3</sup> Reaching a vaccination rate of 50 or 60 percent—as the United Kingdom and Israel have—would dramatically lower the number of coronavirus cases and allow the United States to bring transmission under control.<sup>4</sup> As of May 5, 32 percent of the total U.S. population, or more than 107 million people, had been fully vaccinated, and about 45 percent of the population had received at least one dose.<sup>5</sup> President Joe Biden recently announced a goal to have 70 percent of adults—who represent 54 percent of the total U.S. population—receive at least their first shot by July 4.<sup>6</sup>

This issue brief discusses the measures that private entities can take to counter the slowing rate of vaccination in the United States, by improving vaccine access and incentivizing or, eventually, requiring COVID-19 vaccination. The final section of the brief describes principles for equitable adoption of digital vaccination certification.

## 10 ways that employers can support COVID-19 vaccination

Businesses and other organizations can take steps to increase the U.S. population's immunity and help restore economic activity.

### Improving access

1. Reimburse transportation to vaccination sites or connect homebound employees with in-home vaccination services.
2. Arrange on-site vaccination for employees.
3. Host vaccination clinics for the general public.
4. Offer workers paid leave to receive the vaccine and recover from its side effects.

### Informing and educating

5. Provide educational materials to employees on COVID-19 and the benefit of vaccines.
6. Support community awareness campaigns, especially those that feature trusted messengers such as religious leaders, health care professionals, and local activists.

### Providing incentives

7. Offer monetary incentives to employees for vaccination.
8. Give perks to vaccinated customers, such as discounts on services or merchandise and preferred seating at sporting and entertainment events.

### Requiring and verifying

9. Consider requiring vaccination if employees' jobs involve a high degree of COVID-19 risk to themselves, consumers, or the general public.
10. Use vaccine credentialing systems that prioritize consumer accessibility and respect privacy.

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## Vaccinations are slowing

At its peak, the United States' vaccination campaign administered, on average, about 3.2 million doses per day.<sup>7</sup> Yet the rate has dwindled over the past few weeks—which included the federal government's pause of the Johnson & Johnson vaccine distribution to weigh the risk of blood clots, a rare but serious side effect—and there has been an even more rapid decline in the number of first doses administered per day.<sup>8</sup> (see Figure 1) By mid-May, everyone who wanted a vaccination will have already obtained their first dose, according to projections by the Kaiser Family Foundation.<sup>9</sup> Going forward, the United States will need to adopt new tactics to reach those who are not yet vaccinated.

Vaccinated individuals have a far lower risk of being infected with the coronavirus and suffering a severe case of the disease, and they are less likely to transmit the virus to others.<sup>10</sup> When the population is only partially vaccinated, however, the threat of substantial community transmission persists. At the start of May, the incidence of COVID-19 in the United States was still high according to Centers for Disease Control and Prevention (CDC) definitions, and the new case rates were rising in some states as recently as April, fueled by more contagious variants of the virus and the loosening of public health restrictions such as social distancing and mask mandates.<sup>11</sup>

FIGURE 1

## U.S. vaccine administration has slowed

Seven-day average of daily administered doses, January 1–April 29, 2021



U.S. Centers for Disease Control and Prevention, "COVID Data Tracker: Trends in Number of COVID-19 Vaccinations in the US," available at <https://covid.cdc.gov/covid-data-tracker/#vaccination-trends> (last accessed May 2021).

Besides threatening Americans' health, the community spread of COVID-19 stands in the way of the U.S. economic recovery. Industries that have suffered during the pandemic, such as leisure and hospitality and spectator sports, are not expected to fully rebound until the public health crisis is completely under control.<sup>12</sup>

Businesses, educational institutions, and other private organizations should help the United States achieve greater immunity quickly by encouraging vaccination.<sup>13</sup> Doing so makes business sense: Widespread vaccination is crucial for protecting workers' health, safely reopening stores and operating plants at full capacity, and increasing customers' comfort with in-person shopping and dining, in addition to slowing the spread in surrounding communities. *The Wall Street Journal* estimates that 75 percent of Americans would be vaccinated in September if the United States maintained its current rate of vaccination;<sup>14</sup> yet many experts believe that hesitancy could prevent the country from reaching that level.<sup>15</sup>

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### The private sector can speed up the rate of vaccination

Once those who strongly desire the COVID-19 vaccine have received it, sustaining vaccine take-up will require greater education and outreach, stronger incentives, and, in some cases, mandates. People who have not yet been vaccinated cite a range of reasons, such as fear of side effects, inability to access vaccine registration portals or vaccination locations, concerns about missing work, distrust of vaccines, or insufficient information about the value of vaccines or the risk of COVID-19.<sup>16</sup>

According to an April survey by the Kaiser Family Foundation, among those who have not yet received any dose of COVID-19 vaccine, 21 percent say they intend to get vaccinated as soon as possible, 35 percent say they intend to wait and see, 14 percent say they would get the vaccine only if required, and 30 percent say they do not intend to get the vaccine.<sup>17</sup> Notably, essential workers outside the health care industry are less likely to want to get vaccinated than the general population, according to a separate Kaiser Family Foundation survey.<sup>18</sup> For example, an analysis by the Prison Policy Initiative found that the median rate of staff vaccination in federal prisons is 48 percent, despite the fact that jails and prisons have been the source of major outbreaks.<sup>19</sup>

Businesses and other organizations should leverage their roles as employers to help people overcome vaccine hesitancy. For example, reimbursing transportation to vaccination sites, arranging on-site vaccination clinics, or connecting homebound employees with in-home vaccination services is likely to improve vaccination rates.<sup>20</sup> At little to no cost, employers can provide employees with educational materials on COVID-19 and vaccines to counter misinformation and fill information gaps that are at the root of some people's hesitancy.<sup>21</sup> Employers can also have a positive influence beyond their own workforces by hosting clinics open to the public and supporting community awareness campaigns, especially those that feature trusted messengers such as religious leaders, health care professionals, or local activists.<sup>22</sup> Business associations, including the U.S. Chamber of Commerce and the American Farm Bureau Federation, are actively promoting vaccination among their members.<sup>23</sup>

All employers should offer workers paid leave to receive the vaccine and recover from its side effects, ensuring that no worker risks losing pay to get vaccinated.<sup>24</sup> Most people who are not yet vaccinated report being concerned about the side effects, and many are concerned about missing work because of them.<sup>25</sup> In April, President Biden unveiled a tax credit for small and medium-sized businesses and nonprofits to offset the cost of paid leave for vaccination.<sup>26</sup>

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## Employers should incentivize employees and customers to get vaccinated

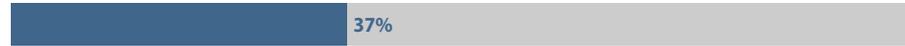
Businesses and other employers are increasingly creating incentives for employee vaccination. The Kaiser Family Foundation found that of those who said in March that they wanted to “wait and see” before getting vaccinated, 38 percent would get the vaccine if offered a \$200 payment.<sup>27</sup> (see Figure 2) President Biden<sup>28</sup> and Gov. Ned Lamont (D-CT)<sup>29</sup> are among the leaders who have called for businesses to do more to promote vaccination through incentives. Some states are offering their own incentives. Gov. Jim Justice (R-WV) announced that West Virginia will give young people ages 16 to 35 who get vaccinated a \$100 savings bond, and Gov. Larry Hogan (R-MD) offered \$100 to state employees who become fully vaccinated.<sup>30</sup> Gov. Andy Beshear (D-KY) is considering vaccination incentives for Kentucky residents.<sup>31</sup>

FIGURE 2

### About one-third of those who want to wait before getting the vaccine say they would be more likely to get vaccinated given certain employer incentives

Share who say they would be more likely to get the COVID-19 vaccine if:

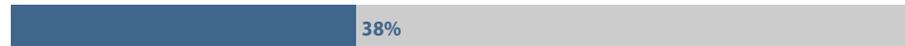
Their employer arranged for a medical provider to come to their work and administer the COVID-19 vaccine



Their employer offered to pay them an extra \$50 to get vaccinated



Their employer offered to pay them an extra \$200 to get vaccinated



Note: KFF COVID-19 Vaccine Monitor (March 15–22, 2021). This figure has been reproduced with the express permission of the Kaiser Family Foundation.

Source: Liz Hamel and others, "KFF COVID-19 Vaccine Monitor: March 2021" (Washington: Kaiser Family Foundation, 2021), available at <https://www.kff.org/coronavirus-covid-19/poll-finding/kff-covid-19-vaccine-monitor-march-2021>.

Some prominent big businesses are offering their employees incentives for vaccination.<sup>32</sup> Darden Restaurants, which operates Olive Garden and other restaurant brands, provides workers up to four hours' pay;<sup>33</sup> pet product retailer Petco provides \$75;<sup>34</sup> and grocery chain Kroeger gives a \$100 bonus.<sup>35</sup> Target, meanwhile, is offering employees four hours of pay as well as Lyft rides to vaccine sites.<sup>36</sup>

The private sector can speed up reopening by spurring vaccination in the wider community. Retail pharmacies and grocery stores that are administering COVID-19 vaccines should consider enticing customers to get vaccinated with merchandise discounts; many already do so for the annual flu vaccine.<sup>37</sup> Moreover, restaurants, bars, and stores could offer limited-time discounts to people who show a vaccination card or digital certification, similar to how some offer perks to seniors,<sup>38</sup> to conference attendees,<sup>39</sup> to students,<sup>40</sup> or for birthdays.<sup>41</sup>

Professional sports has been among the industries to adopt vaccine requirements and incentives most quickly. In New York, the Yankees<sup>42</sup> and the Mets<sup>43</sup> now accept evidence of full vaccination in lieu of a negative COVID-19 test for entry to baseball games; and the Buffalo Bills and Buffalo Sabres announced that vaccination would be mandatory for game attendance in the fall.<sup>44</sup> Likewise, the Miami Heat and Los Angeles Dodgers announced that they would reserve designated sections for vaccinated fans.<sup>45</sup> Teams are also providing vaccines to fans: The Seattle Mariners, for instance, are offering vaccinations with no appointment at home games.<sup>46</sup>

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## Vaccination requirements would advance public health

While attitudes toward the COVID-19 vaccine are growing more favorable over time,<sup>47</sup> a sizable portion of the U.S. population is likely to remain unvaccinated for the long run unless required to do so. Ultimately, some employers will likely need to consider mandating vaccination in order to operate safely and save lives.<sup>48</sup>

Vaccine mandates have been in place for more than a century. In the 1905 case *Jacobson v. Massachusetts*, the U.S. Supreme Court upheld a Massachusetts law that allowed cities to require smallpox vaccinations and impose fines on those not in compliance, noting that the law was for “the protection of the public health and the public safety.”<sup>49</sup> Many private entities require certain vaccinations for the sake of public health. For example, hospitals and other health care providers commonly require personnel to be vaccinated against influenza;<sup>50</sup> schools and child care providers require immunization for children; and colleges and universities can require students to obtain vaccines beyond the minimum requirements of state law.<sup>51</sup>

At present, the COVID-19 vaccines being administered in the United States are available under an emergency use authorization (EUA) from the U.S. Food and Drug Administration (FDA).<sup>52</sup> To be granted an EUA, vaccines and other drugs must complete rigorous clinical trials to demonstrate efficacy and safety. Prominent legal experts argue that EUA status does not preclude private employers’ ability to mandate and that courts are likely to uphold employer mandates for COVID-19 vaccines.<sup>53</sup> It is unclear if statutory law prevents public entities, including schools and universities, from implementing COVID-19 vaccine mandates prior to full FDA approval.<sup>54</sup>

The U.S. Equal Employment Opportunity Commission (EEOC) has issued guidance for employers on COVID-19 vaccines, explaining how requirements must comply with the Americans with Disabilities Act and provide reasonable accommodations for workers whose sincerely held religious beliefs or practices prevent vaccination.<sup>55</sup> For example, some individuals may be unable to receive the vaccine because of an allergy or other medical contraindications.<sup>56</sup> The EEOC is expected to offer guidance for incentives as well.<sup>57</sup>

In addition, state law may govern the exceptions and accommodations employers must allow, and legislators in many states have drafted bills to prevent employers from requiring vaccination.<sup>58</sup> Many states have pre-pandemic laws related to school vaccinations: 45 states currently allow religious exemptions, and of those, 15 states also permit philosophical exemptions for other types of personal beliefs.<sup>59</sup> Where possible, private sector organizations should limit nonmedical exemptions by making vaccination the default, with appropriate pathways for those facing religious barriers. For example, employers could require people requesting nonmedical exemption to consult with a health care provider or complete an educational exercise about the risks of remaining unvaccinated.<sup>60</sup> Ample research has demonstrated that philosophical exemptions can have a cluster effect, creating communities at high risk for preventable disease outbreaks.<sup>61</sup>

If employers’ efforts to boost awareness of the vaccine’s benefits and improve access are insufficient to achieve a safe level of vaccination, employers may need to consider vaccine requirements. Those that do choose to require vaccination should provide information on how COVID-19 vaccines work and how to get vaccinated.

They must also ensure that workers do not face any loss of pay due to vaccination. Employers should, however, allow workers ample time to become fully vaccinated before a mandate takes effect and recognize that vaccine availability has often not been equitable, particularly for people of color.<sup>62</sup>

It is also important that employers mandate vaccination to the full extent legally permissible if employees' jobs involve COVID-19-related occupational risk; regular interaction with customers or members of the public who are unvaccinated or at high risk of severe COVID-19; or settings that are prone to high rates of transmission.

- **Health care organizations should require that staff be vaccinated against COVID-19 for their own safety and that of their patients.** Houston Methodist became the first hospital system in the United States to announce it would require COVID-19 vaccinations for all staff.<sup>63</sup> More health care providers should follow suit; a recent nursing home outbreak illustrates how allowing some workers to remain unvaccinated can cost lives.<sup>64</sup> The pandemic has been deadly for health care workers. Across all types of facilities, more than 3,600 health care personnel have died during the pandemic, with a median age nearly 20 years lower than the national median age for COVID-19 deaths.<sup>65</sup> Notably, long-term care facilities, including nursing homes, are associated with one-third of COVID-19 deaths in the United States, with more than 179,000 deaths among residents and staff.<sup>66</sup> Two of the nation's largest operators of assisted living facilities, Enlivant and Sunrise Senior Living, have mandated employee vaccination.<sup>67</sup>
- **Child care providers and schools should consider requiring employees to be vaccinated.** While studies from last year showed that child care and K-12 schools with proper risk mitigation were not major contributors to community spread, educator and staff vaccination is still essential to protect unvaccinated children, minimize transmission among children, and allow students back into classrooms and other community spaces for in-person learning.<sup>68</sup> The CDC reports that nationally, "Nearly 80 percent of Pre-K-12 teachers, school staff, and childcare workers received at least their first shot of COVID-19 vaccine by the end of March."<sup>69</sup> However, none of the three vaccines currently authorized for use in the United States is available for children under age 16, although Pfizer anticipates emergency authorization of its vaccine for use in children ages 12 to 15. There is no certainty that all teens can be vaccinated by the fall, and younger children are not likely to obtain vaccination until late this year.<sup>70</sup>
- **Workplaces that are prone to COVID-19 outbreaks should mandate vaccination.** One such category is high-density facilities not conducive to social distancing.<sup>71</sup> This includes meatpacking and poultry processing plants, which have been the source of numerous outbreaks.<sup>72</sup> Employee vaccination in shared housing facilities, including group homes, carceral settings, student housing, transitional housing, and domestic violence and abuse shelters, is also imperative for protecting both workers and residents.<sup>73</sup> The CDC notes that residential congregate settings "may face high turnover of residents, a higher risk of transmission, and challenges in maintaining recommended physical distancing."<sup>74</sup>

- **The health of first responders and other essential workers should continue to be a priority.** Employers of first responders and other essential workers should require vaccination of personnel who serve critical functions or are at high risk of close contact with unvaccinated individuals.

In addition, more than 100 colleges and universities have announced vaccine requirements for students,<sup>75</sup> and some have mandated vaccination for faculty and staff.<sup>76</sup> Rutgers University,<sup>77</sup> the University of Notre Dame,<sup>78</sup> Pomona College,<sup>79</sup> and Yale University<sup>80</sup> are among the many institutions where students will need to be vaccinated to return to campus in the fall. Likewise, the University of California and California State University systems<sup>81</sup> as well as the Atlanta University Center Consortium,<sup>82</sup> a group of historically Black colleges and universities that includes Morehouse College, are requiring that students, staff, and faculty obtain vaccinations before the fall term. According to an analysis by *The New York Times*, more than 600,000 COVID-19 cases have been “linked to American colleges and universities” throughout the pandemic; and there have been more than 100 COVID-19 deaths among college students and staff, the “vast majority [of which] occurred in 2020 and involved employees.”<sup>83</sup> Given this track record, colleges and universities should offer vaccination on campus, especially for international students who may not otherwise have access. Some institutions are offering vaccines to students now to ensure that they receive them before the summer break.<sup>84</sup>

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### Vaccine certification must balance convenience with accessibility and privacy

As vaccine requirements and incentives linked to vaccination become commonplace, certification will become more important, as will efforts to ensure that certification tools are widely accessible.<sup>85</sup> Although they are often referred to as “vaccine passports,” vaccine credentials exist primarily to document vaccination status, not authorize travel.<sup>86</sup> At least 17 private companies are developing digital vaccine credential systems, and New York state has launched an “Excelsior Pass,” an application developed by IBM.<sup>87</sup> Meanwhile, at least six states have banned or limited the use of “vaccine passports.”<sup>88</sup> While the United States seems unlikely to have a national credentialing system,<sup>89</sup> with so many independent efforts emerging, the government should consider providing guidance on privacy and other key issues for these nongovernmental efforts.

No national organization in the United States maintains immunization records, nor will the federal government be creating one for COVID-19 vaccinations; and existing immunization information systems maintained at the state level are of “variable quality.”<sup>90</sup> So far, vaccine credential applications rely on individuals to upload photos of their paper vaccination card and self-report other details, posing validation concerns. *The Washington Post* reported that Albert Fox Cahn, a privacy advocate, “was able to load up a volunteer’s Excelsior Pass in about 11 minutes, using nothing more than that person’s Twitter posts and information from publicly available websites.”<sup>91</sup>

Similar vulnerabilities have been exposed for Israel’s Green Pass, touted as the first digital credential for COVID-19 vaccination.<sup>92</sup>

Organizations developing and using vaccine credentials will need to balance convenience with accessibility and privacy. Makers of credentialing systems should strive to make their tools accessible to everyone. When the digital credentials are designed as phone-based applications, alternative modes of access will need to be available for people without smartphones or internet connection. Credential systems should also be made accessible to non-English speakers, those who are not technologically literate, and people with cognitive or visual disabilities, using Section 508 standards as a model. In addition, credential platforms that incorporate other forms of identity verification should consider workarounds for those without identification documents, such as undocumented immigrants.<sup>93</sup> While some vaccine credential initiatives offer paper options, they are designed primarily for smartphone use.<sup>94</sup>

The U.S. vaccine rollout has been criticized for providing inequitable access to some communities,<sup>95</sup> particularly people without internet access,<sup>96</sup> disabled people,<sup>97</sup> and racial and ethnic minorities.<sup>98</sup> Without broad accessibility, credentials themselves could become barriers to access for travel, commerce, and leisure events—deepening existing inequities.<sup>99</sup> To ensure credentials are not used in unlawful and discriminatory ways, government actors and other authorities, including the European Union<sup>100</sup> and the World Health Organization,<sup>101</sup> have begun to set standards and bounds.<sup>102</sup> Credential systems should prioritize the privacy and security of the data they collect, and Congress should prohibit the sale and abuse of vaccine credential data.<sup>103</sup>

Lastly, entities using vaccine credentials should bear in mind that vaccination, while highly effective, does not reduce the risk of COVID-19 to zero and that transmission in the United States remains high.<sup>104</sup> Like New York’s Excelsior Pass, credentialing initiatives should encourage users to follow CDC protocols for social distancing and face coverings.<sup>105</sup> Employers, sporting venues, airlines, and others must continue to engage in risk mitigation to protect the unvaccinated.

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## Conclusion

The COVID-19 vaccines have made it possible for Americans to begin to safely reunite with long-missed friends and family members, lessened the strain on hospitals once packed with coronavirus patients, and saved lives. To ensure that the United States vaccinates as many people as possible, the next stage of pandemic response will require stronger incentives, coupled with initiatives to improve awareness and access, to reach those not inclined to seek out the vaccine on their own.

Until a larger share of the population is vaccinated, precautions to prevent the spread of COVID-19 remain necessary. Vaccination is an issue of both national and local concern. Even if the United States achieves a high level of vaccination nationally, insufficient vaccination in some areas could allow pockets of high transmission to persist.<sup>106</sup> Businesses and other employers must step up to promote population health and revive the economies of their local communities by doing their part to encourage vaccination.

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## Endnotes

- 1 Dan Goldberg and Rachel Roubein, "States have a new Covid problem: Too much vaccine," *Politico*, April 21, 2021, available at <https://www.politico.com/news/2021/04/21/states-covid-vaccine-problem-483872>; Dan Keating, Fenit Nirappil, and Isaac Stanley-Becker, "U.S. sees significant drop in vaccinations over past week," *The Washington Post*, April 21, 2021, available at <https://www.washingtonpost.com/health/2021/04/21/vaccinations-downturn-jj-pause-soft-demand/>.
- 2 Leah Willingham, Heather Hollingsworth, and Michelle Smith, "US drop in vaccine demand has some places turning down doses," *13News Now*, April 23, 2021, available at <https://www.13newsnow.com/article/news/health/coronavirus/vaccine/covid-vaccine-demand-drop/507-29b6dfe0-7e94-4b6f-9ad7-4dd1428599f9>.
- 3 World Health Organization, "Coronavirus disease (COVID-19): Herd immunity, lockdowns, and COVID-19," December 31, 2020, available at <https://www.who.int/news-room/q-a-detail/herd-immunity-lockdowns-and-covid-19>; The White House Briefing Room, "Press Briefing by White House COVID-19 Response Team and Public Health Officials," Press release, April 12, 2021, available at <https://www.whitehouse.gov/briefing-room/press-briefings/2021/04/12/press-briefing-by-white-house-covid-19-response-team-and-public-health-officials-27/>.
- 4 Elizabeth Weise, "As US nears vaccine tipping point, dramatic decrease in COVID-19 cases could come without herd immunity, some experts say," *USA Today*, May 3, 2021, available at <https://www.usatoday.com/in-depth/news/health/2021/05/04/us-covid-19-vaccine-tipping-point-could-just-10-15-percent-away/4915586001/>.
- 5 Centers for Disease Control and Prevention, "COVID Data Tracker: COVID-19 Vaccinations in the United States," available at <https://covid.cdc.gov/covid-data-tracker/#vaccinations> (last accessed May 2021).
- 6 Peter Sullivan, "Biden sets goal of at least one shot to 70 percent of adults by July 4," May 4, 2021, *The Hill*, available at <https://thehill.com/policy/healthcare/551741-biden-to-set-goal-of-at-least-one-shot-to-70-percent-of-adults-by-july-4>.
- 7 Centers for Disease Control and Prevention, "COVID Data Tracker: Trends in Number of COVID-19 Vaccinations in the US," available at <https://covid.cdc.gov/covid-data-tracker/#vaccination-trends> (last accessed May 2021).
- 8 Luke Money, "California's COVID-19 vaccination pace slowed after Johnson & Johnson pause, data show," *Los Angeles Times*, April 26, 2021, available at <https://www.latimes.com/california/story/2021-04-26/california-covid-19-vaccines-slow-amid-johnson-johnson-pause>; Centers for Disease Control and Prevention, "COVID Data Tracker: Trends in Number of COVID-19 Vaccinations in the US."
- 9 Jennifer Kates, Larry Levitt, and Josh Michaud, "Supply vs Demand: When Will the Scales Tip on COVID-19 Vaccination in the U.S.?", Kaiser Family Foundation, April 20, 2021, available at <https://www.kff.org/policy-watch/supply-vs-demand-when-will-the-scales-tip-on-covid-19-vaccination-in-the-u-s>.
- 10 Mark G. Thompson and others, "Interim Estimates of Vaccine Effectiveness of BNT162b2 and mRNA-1273 COVID-19 Vaccines in Preventing SARS-CoV-2 Infection Among Health Care Personnel, First Responders, and Other Essential and Frontline Workers — Eight U.S. Locations, December 2020–March 2021," *Morbidity and Mortality Weekly Report* 70 (13) (2021): 495–500, available at <https://www.cdc.gov/mmwr/volumes/70/wr/mm7013e3.htm>; Adrianna Rodriguez, "COVID-19 vaccines may reduce transmission, experts say, but vaccinated Americans still need to wear masks in public. Here's why," *USA Today*, April 3, 2021, available at <https://www.usatoday.com/story/news/health/2021/04/03/covid-vaccines-reduce-transmission-but-still-wear-mask-experts-say/4833945001/>.
- 11 Centers for Disease Control and Prevention, "COVID Data Tracker: Trends in Number of COVID-19 Cases and Deaths in the US Reported to CDC, by State/Territory," available at [https://covid.cdc.gov/covid-data-tracker/#trends\\_daily-trendscases](https://covid.cdc.gov/covid-data-tracker/#trends_daily-trendscases) (last accessed May 2021); Centers for Disease Control and Prevention, "COVID Data Tracker: COVID-19 Integrated County View," available at <https://covid.cdc.gov/covid-data-tracker/#county-view> (last accessed May 2021); Travis Caldwell and Mallika Kallingal, "Nearly half of US states reported an increase in Covid-19 cases this week. Here's what experts say can help stop another surge," *CNN*, April 17, 2021, available at <https://www.cnn.com/2021/04/16/health/us-coronavirus-friday/index.html>; *The New York Times*, "Covid-19: Governor of Michigan, Battling Virus Surge, Again Calls for More Vaccine Supplies," April 19, 2021, available at <https://www.nytimes.com/live/2021/04/11/world/covid-vaccine-coronavirus-cases/michigans-governor-continues-to-press-for-extra-vaccine-doses-to-fight-virus-surges>.
- 12 Cecilia Rouse, "The Employment Situation in March," The White House Briefing Room, April 2, 2021, available at <https://www.whitehouse.gov/briefing-room/blog/2021/04/02/the-employment-situation-in-march/>.
- 13 Reimagine Main Street, "Small Business Owners: COVID-19 Vaccines are the Keys to Reopening Main Street," April 6, 2021, available at <https://www.reimaginemainstreet.org/small-business-owners-covid-19-vaccines-are-the-keys-to-reopening-main-street>.
- 14 WSJ Graphics, "Tracking Covid-19 Vaccine Distribution," *The Wall Street Journal*, available at <https://www.wsj.com/articles/tracking-covid-19-vaccine-distribution-11611355360> (last accessed May 2021).
- 15 Apoorva Mandavilli, "Reaching 'Herd Immunity' Is Unlikely in the U.S., Experts Now Believe," *The New York Times*, May 3, 2021, <https://www.nytimes.com/2021/05/03/health/covid-herd-immunity-vaccine.html>.
- 16 Emmarie Huetteman, "Covid Vaccine Hesitancy Drops Among All Americans, New Survey Shows," Kaiser Health News, March 30, 2021, available at <https://khn.org/news/article/covid-vaccine-hesitancy-drops-among-americans-new-kff-survey-shows/>; Dan Diamond, "We want to be educated, not indoctrinated; say Trump voters wary of coronavirus vaccination," *The Washington Post*, March 15, 2021, available at <https://www.washingtonpost.com/health/2021/03/15/vaccine-hesitant-republicans-focus-group/>.
- 17 Liz Hamel and others, "KFF COVID-19 Vaccine Monitor - April 2021," Kaiser Family Foundation, May 6, 2021, available at <https://www.kff.org/coronavirus-covid-19/poll-finding/kff-covid-19-vaccine-monitor-april-2021/>.
- 18 Craig Palosky, "Essential Workers Employed Outside Health Care are Less Enthusiastic about Getting a COVID-19 Vaccine than Other Adults," Kaiser Family Foundation, April 23, 2021, available at <https://www.kff.org/coronavirus-covid-19/press-release/essential-workers-employed-outside-health-care-are-less-enthusiastic-about-getting-a-covid-19-vaccine-than-other-adults/>.
- 19 Wanda Bertram and Wendy Sawyer, "With the majority of corrections officers declining the COVID-19 vaccine, incarcerated people are still at serious risk," Prison Policy Initiative, April 22, 2021, available at <https://www.prison-policy.org/blog/2021/04/22/vaccinerefusal/>.
- 20 Centers for Disease Control and Prevention, "COVID-19: Workplace Vaccination Program," available at <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/essentialworker/workplace-vaccination-program.html> (last accessed April 2021); Huetteman, "Covid Vaccine Hesitancy Drops Among All Americans, New Survey Shows."
- 21 Dan Diamond, "We want to be educated, not indoctrinated; say Trump voters wary of coronavirus vaccination," *The Washington Post*, March 15, 2021, available at <https://www.washingtonpost.com/health/2021/03/15/vaccine-hesitant-republicans-focus-group/>.

- 22 Nevada Business, "Immunize Nevada Partners with Asian Community Development Council to Host COVID-19 Vaccine Clinic," Press release, April 14, 2021, available at <https://www.nevadabusiness.com/2021/04/immunize-nevada-partners-with-asian-community-development-council-to-host-covid-19-vaccine-clinic/>; Frances Stead Sellers and Bonnie Berkowitz, "These are the pro-vaccine messages people want to hear," *The Washington Post*, April 22, 2021, available at <https://www.washingtonpost.com/health/interactive/2021/covid-vaccine-messages/>; Madeline Carlisle, "Survey: Faith-Based Approaches Could Help Convince Millions of Americans to Get COVID-19 Vaccines," *Time*, April 22, 2021, available at <https://time.com/5957032/religion-covid-19-vaccine-hesitancy-survey/>.
- 23 U.S. Chamber of Commerce, "U.S. Businesses Stand Ready to Help with COVID-19 Vaccinations," Press release, March 24, 2021, available at <https://www.uschamber.com/press-release/us-businesses-stand-ready-help-covid-19-vaccinations>; American Farm Bureau Federation, "Vaccine Resources Available for Farmers, Ranchers and Small Businesses," April 8, 2021, available at <https://www.fb.org/news/vaccine-resources-available-for-farmers-ranchers-and-small-businesses>.
- 24 Centers for Disease Control and Prevention, "COVID-19: Possible Side Effects After Getting a COVID-19 Vaccine," available at <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/expect/after.html> (last accessed April 2021).
- 25 Liz Hamel and others, "KFF COVID-19 Vaccine Monitor: March 2021," Kaiser Family Foundation, March 30, 2021, available at <https://www.kff.org/coronavirus-covid-19/poll-finding/kff-covid-19-vaccine-monitor-march-2021/>.
- 26 The White House Briefing Room, "FACT SHEET: President Biden to Call on All Employers to Provide Paid Time Off for Employees to Get Vaccinated After Meeting Goal of 200 Million Shots in the First 100 Days," Press release, April 21, 2021, available at <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/21/fact-sheet-president-biden-to-call-on-all-employers-to-provide-paid-time-off-for-employees-to-get-vaccinated-after-meeting-goal-of-200-million-shots-in-the-first-100-days/>.
- 27 Hamel and others, "KFF COVID-19 Vaccine Monitor: March 2021."
- 28 The White House Briefing Room, "FACT SHEET: President Biden to Call on All Employers to Provide Paid Time Off for Employees to Get Vaccinated After Meeting Goal of 200 Million Shots in the First 100 Days."
- 29 Matthew Campbell and Roger Susanin, "Gov. Lamont encouraging local businesses to offer incentives for workers to get vaccinated," WFSB, April 23, 2021, available at [https://www.wfsb.com/news/gov-lamont-encouraging-local-businesses-to-offer-incentives-for-workers-to-get-vaccinated/article\\_8a80937e-a3cf-11eb-b3f7-936f1bf06b44.html](https://www.wfsb.com/news/gov-lamont-encouraging-local-businesses-to-offer-incentives-for-workers-to-get-vaccinated/article_8a80937e-a3cf-11eb-b3f7-936f1bf06b44.html).
- 30 Rachel Treisman, "West Virginia Will Pay Young People \$100 to Get Vaccinated Against COVID-19," NPR, April 27, 2021, available at <https://www.npr.org/sections/coronavirus-live-updates/2021/04/27/991173625/west-virginia-will-pay-young-people-100-to-get-vaccinated-against-covid-19>; Rebecca Tan and Lola Fadulu, "Maryland will pay \$100 to state employees who are fully vaccinated," *The Washington Post*, May 3, 2021, available at [https://www.washingtonpost.com/local/maryland-offers-100-to-state-employees-who-are-fully-vaccinated/2021/05/03/5cf66b16-ac14-11eb-b476-c3b287e52a01\\_story.html](https://www.washingtonpost.com/local/maryland-offers-100-to-state-employees-who-are-fully-vaccinated/2021/05/03/5cf66b16-ac14-11eb-b476-c3b287e52a01_story.html).
- 31 Corrine Boyer, "Kentucky Considers Incentives As Vaccination Numbers Continue To Fall," WPFL, available at <https://wfpf.org/kentucky-considers-incentives-as-vaccination-numbers-continue-to-fall>.
- 32 H.J. Mai, "For Some Americans, Getting a Vaccine Is As Easy As Showing Up To Work," NPR, April 18, 2021, available at <https://www.npr.org/2021/04/18/986404165/for-some-americans-getting-a-vaccine-is-as-easy-as-showing-up-to-work>.
- 33 Kenneth Terrell, "These Companies Are Paying Employees to Get Vaccinated," AARP, available at <https://www.aarp.org/work/working-at-50-plus/info-2021/companies-paying-employees-covid-vaccine.html> (last accessed April 2021).
- 34 Tonya Garcia, "Target, Tractor Supply join list of companies paying workers to get COVID-19 vaccine," MarketWatch, February 10, 2021, available at <https://www.marketwatch.com/story/target-tractor-supply-join-list-of-companies-paying-workers-to-get-covid-19-vaccine-11612973048> (last accessed April 2021).
- 35 Terrell, "These Companies Are Paying Employees to Get Vaccinated."
- 36 Target Corporation, "Target's Paying Frontline Team Members to Get the COVID-19 Vaccine — Here's How," February 10, 2021, available at <https://corporate.target.com/article/2021/02/team-vaccination>.
- 37 Alexandra Olgin, "For many grocery stores and pharmacies offering the flu shot is just a way to get you in the door," Marketplace, October 25, 2018, available at <https://www.marketplace.org/2018/10/25/many-grocery-stores-and-pharmacies-offering-flu-shot-just-way-get-you-door/>.
- 38 Rachel Hartman, "Great Senior Discounts for 2021," *U.S. News & World Report*, January 13, 2021, available at <https://money.usnews.com/money/retirement/slideshows/10-great-senior-discounts>.
- 39 Discover Los Angeles, "Show Your Badge," available at <https://www.discoverlosangeles.com/meetla/show-your-badge> (last accessed April 2021).
- 40 Melissa Lee, "Hulu, Amazon and more things to save on with a student discount," *USA Today*, February 25, 2021, available at <https://www.usatoday.com/story/tech/reviewedcom/2021/02/25/student-discount-25-ways-save-student-right-now/4258186001/>.
- 41 Kristen Haney, "It's Your Birthday So Don't Pay for Anything!," NBC Washington, February 17, 2009, available at <https://www.nbcwashington.com/local/party-like-its-your-birthday-because-it-is/1885776/>.
- 42 New York Yankees, "COVID-19 Testing/Proof of Vaccination Requirements FAQs," available at <https://www.mlb.com/yankees/ballpark/health-and-safety/testing-requirements-faq> (last accessed April 2021).
- 43 New York Mets, "COVID-19 Testing/Proof of Vaccination Requirements FAQs," available at <https://www.mlb.com/mets/fans/safe-at-citi/covid-testing-faqs> (last accessed April 2021).
- 44 Natalie Dreier, "Buffalo sports fans will need COVID-19 vaccines before watching Bills, Sabres in person," Fox 23 News, April 14, 2021, available at <https://www.fox23.com/news/trending/buffalo-sports-fans-will-need-covid-19-vaccines-before-watching-bills-sabres-person/AWKFW6U3R-JB4LESIBTBQCECCXM/>.
- 45 Louise Radnofsky and Anne Steele, "The Miami Heat Runs a Tricky Play: Prime Seats for the Vaccinated," *The Wall Street Journal*, April 21, 2021, available at <https://www.wsj.com/articles/miami-heat-prime-seats-for-the-vaccinated-11617148308>; ABC 7 Eyewitness News, "Dodger Stadium's 'fully vaccinated fan section' to debut Saturday at game vs. Padres," April 22, 2021, available at <https://abc7.com/dodger-stadium-dodgers-vaccinated-section/10535004/>.
- 46 Daniel Kramer, "Mariners to vaccinate fans during games," MLB.com, May 3, 2021, available at <https://www.mlb.com/news/mariners-to-vaccinate-fans-during-games-at-t-mobile-park>.
- 47 Hamel and others, "KFF COVID-19 Vaccine Monitor - April 2021"; G. Elliot Morris, @gelliottmorris, April 23, 2021, 11:54 a.m. ET, Twitter, available at <https://twitter.com/gelliottmorris/status/1385623057495166978>.
- 48 Maggie Fox, "All the COVID-19 vaccines prevent death and severe disease, and that's what matters, experts say," CNN, March 22, 2021, available at <https://www.cnn.com/2021/03/22/health/covid-vaccines-prevent-death/index.html>.
- 49 Oyez, "Jacobson v. Massachusetts," available at <https://www.oyez.org/cases/1900-1940/197us11> (last accessed April 2021); *Jacobson v. Massachusetts*, 197 U.S. 11 (February 20, 1905), available at <https://www.law.cornell.edu/supremecourt/text/197/11>.

- 50 Centers for Disease Control and Prevention, "Influenza (Flu): Health Care Workers Need A Flu Vaccine," available at <https://www.cdc.gov/flu/professionals/healthcareworkers.htm> (last accessed April 2021).
- 51 National Conference of State Legislatures, "State Immunization Policy Overview," February 26, 2021, available at <https://www.ncsl.org/research/health/immunizations-policy-issues-overview.aspx>; Jake New, "Vulnerable to Measles," Inside Higher Ed, February 3, 2015, available at <https://www.insidehighered.com/news/2015/02/03/22-states-dont-require-measles-immunizations-college-students>.
- 52 U.S. Food and Drug Administration, "Emergency Use Authorization for Vaccines Explained," available at <https://www.fda.gov/vaccines-blood-biologics/vaccines/emergency-use-authorization-vaccines-explained> (last accessed April 2021).
- 53 Dorit R. Reiss, I. Glenn Cohen, and Carmel Shachar, "Authorization status is a red herring when it comes to mandating COVID-19 vaccination," Stat, April 5, 2021, available at <https://www.statnews.com/2021/04/05/authorization-status-covid-19-vaccine-red-herring-mandating-vaccination/>; Dorit Reiss, "Can Employers Mandate a Vaccine Under Emergency Use Authorization?," Harvard Law Bill of Health, February 24, 2021, available at <https://blog.petrieflom.law.harvard.edu/2021/02/24/employer-mandate-covid-vaccine-eua/>.
- 54 Wen W. Shen, "State and Federal Authority to Mandate COVID-19 Vaccination" (Washington: Congressional Research Service, 2021), available at <https://crsreports.congress.gov/product/pdf/R/R46745>; Project BioShield Act of 2004, Public Law 276, 108th Cong., 2nd sess. (July 21, 2004), available at <https://www.congress.gov/108/plaws/publ276/PLAW-108publ276.pdf>.
- 55 U.S. Equal Employment Opportunity Commission, "What You Should Know About COVID-19 and the ADA, the Rehabilitation Act, and Other EEO Laws," available at <https://www.eeoc.gov/wysk/what-you-should-know-about-covid-19-and-ada-rehabilitation-act-and-other-eeo-laws> (last accessed April 2021).
- 56 Centers for Disease Control and Prevention, "Vaccines & Immunizations, Interim considerations: preparing for the potential management of anaphylaxis after COVID-19 vaccination," available at <https://www.cdc.gov/vaccines/covid-19/info-by-product/clinical-considerations.html> (last accessed April 2021).
- 57 Lindsay L. Ryan, "Stay Tuned: EEOC to Issue Guidance Soon on COVID-19 Vaccine Incentives," *The National Law Review* 11 (118) (2021), available at <https://www.natlawreview.com/article/stay-tuned-eeoc-to-issue-guidance-soon-covid-19-vaccine-incentives>.
- 58 Elizabeth Weise and Kaitlin Lange, "State lawmakers opposed to COVID vaccine mandates have filed a flurry of bills this session. Some worry about the message they send," *USA Today*, April 27, 2021, available at <https://www.usatoday.com/in-depth/news/health/2021/04/27/lawmakers-over-40-states-look-for-covid-19-vaccine-requirements/7326506002/>.
- 59 Centers for Disease Control and Prevention, "Public Health Professionals Gateway: State School and Childcare Vaccination Laws," available at <https://www.cdc.gov/php/publications/topic/vaccinations.html> (last accessed April 2021).
- 60 Emily Oshima Lee, Lindsay Rosenthal, and Gabriel Scheffler, "The Effect of Childhood Vaccine Exemptions on Disease Outbreaks" (Washington: Center for American Progress, 2013), available at <https://www.americanprogress.org/issues/healthcare/reports/2013/11/14/76471/the-effect-of-childhood-vaccine-exemptions-on-disease-outbreaks/>.
- 61 Centers for Disease Control and Prevention, "For Immunization Managers: State Vaccination Requirements," available at <https://www.cdc.gov/vaccines/imz-managers/laws/state-reqs.html> (last accessed April 2021); Emily Lee, Rosenthal, and Scheffler, "The Effect of Childhood Vaccine Exemptions on Disease Outbreaks."
- 62 *The New York Times*, "Covid-19: Some U.S. Vaccination Sites Will Close as Demand Drops," available at <https://www.nytimes.com/live/2021/04/23/world/covid-vaccine-coronavirus-cases> (last accessed April 2021); Claudia Lopez-Lloreda, "Meet the Black Physicians Bringing Covid Vaccines to Hard-Hit Philadelphia Communities," *Smithsonian*, April 23, 2021, available at <https://www.smithsonianmag.com/science-nature/meet-group-black-physicians-working-increase-vaccinations-hard-hit-communities-philadelphia-180977564/>; Patricia Guadalupe, "Most Latinos plan to get or have got Covid vaccinations. Access is key, leaders say," NBC News, April 23, 2021, available at <https://www.nbcnews.com/news/latino/latinos-plan-get-got-covid-vaccinations-access-key-leaders-say-rcna756>.
- 63 Gwendolyn Wu and others, "Houston Methodist says it will fire hospital workers who refuse to take COVID vaccine," *Houston Chronicle*, April 22, 2021, available at <https://www.houstonchronicle.com/news/houston-texas/health/article/Houston-Methodist-COVID-vaccine-refusal-fire-16121140.php>; Sarah Polus, "Texas hospital system first to require all employees to get COVID-19 vaccine," *The Hill*, April 24, 2021, available at <https://thehill.com/homenews/state-watch/550128-texas-hospital-first-to-require-all-employees-get-covid-19-vaccine?rl=1>.
- 64 Alyson M. Cavanaugh, "COVID-19 Outbreak Associated with a SARS-CoV-2 R.1 Lineage Variant in a Skilled Nursing Facility After Vaccination Program — Kentucky, March 2021," *Morbidity and Mortality Weekly Report* 70 (17) (2021): 639–643, available at [https://www.cdc.gov/mmwr/volumes/70/wr/mm7017e2.htm?s\\_cid=mm7017e2\\_w](https://www.cdc.gov/mmwr/volumes/70/wr/mm7017e2.htm?s_cid=mm7017e2_w); Roni Caryn Rabin, "An unvaccinated worker set off an outbreak at a U.S. nursing home where most residents were immunized," *The New York Times*, April 21, 2021, available at <https://www.nytimes.com/2021/04/21/health/vaccine-nursing-homes-infections.html?smtp=cur&smid=tw-nytimes>.
- 65 *The Guardian* and Kaiser Health News, "Lost on the front-line," available at <https://www.theguardian.com/us-news/ng-interactive/2020/aug/11/lost-on-the-frontline-covid-19-coronavirus-us-healthcare-workers-deaths-database> (last accessed April 2021).
- 66 AARP Public Policy Institute, "AARP Nursing Home COVID-19 Dashboard," available at <https://www.aarp.org/ppi/issues/caregiving/info-2020/nursing-home-covid-dashboard.html> (last accessed April 2021).
- 67 Lois A. Bowers, "Add Enlivant, Sunrise to list of operators mandating COVID-19 vaccines for employees," *McKnight's Senior Living*, March 25, 2021, available at <https://www.mcknightseniorliving.com/home/news/add-enlivant-sunrise-to-list-of-operators-mandating-covid-19-vaccines-for-employees/>.
- 68 Allyson Chiu, "Covid-19 and child care: What the latest research says," *The Washington Post*, October 22, 2020, available at <https://www.washingtonpost.com/life-style/2020/10/22/child-care-science-covid/>; Centers for Disease Control and Prevention, "COVID-19: Science Brief: Transmission of SARS-CoV-2 in K-12 schools," available at [https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/transmission\\_k\\_12\\_schools.html](https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/transmission_k_12_schools.html) (last accessed April 2021); World Health Organization Regional Office of Europe, "Ensuring safe schooling during COVID-19," available at <https://www.euro.who.int/en/health-topics/Health-systems/pages/news/news/2021/4/ensuring-safe-schooling-during-covid-19> (last accessed April 2021).
- 69 Centers for Disease Control and Prevention, "Nearly 80 percent of teachers, school staff, and childcare workers receive at least one shot of COVID-19 vaccine," Press release, April 6, 2021, available at <https://www.cdc.gov/media/releases/2021/s0406-teachers-staff-vaccine.html>; Centers for Disease Control and Prevention, "Vaccines & Immunizations."
- 70 Maggie Fox, "FDA to authorize Pfizer's Covid-19 vaccine for 12-to-15-year-olds by early next week, official says," CNN, May 4, 2021, available at <https://www.cnn.com/2021/05/03/health/pfizer-covid-vaccine-teens-fda/index.html>.
- 71 Occupational Safety and Health Administration, "COVID-19 Guidance on Social Distancing at Work," available at <https://www.osha.gov/sites/default/files/publications/OSHA4027.pdf> (last accessed April 2021).

- 72 Jonathan W. Dyal, "COVID-19 Among Workers in Meat and Poultry Processing Facilities — 19 States, April 2020," *Morbidity and Mortality Weekly Report* 69 (18) (2020): 557–561, available at <https://www.cdc.gov/mmwr/volumes/69/wr/mm6918e3.htm>; Nina Lakhani, "US coronavirus hotspots linked to meat processing plants," *The Guardian*, May 15, 2020, available at <https://www.theguardian.com/world/2020/may/15/us-coronavirus-meat-packing-plants-food>.
- 73 Mary Van Beusekom, "Studies detail large COVID outbreaks at US prisons, jails," Center for Infectious Disease Research and Policy, April 5, 2021, available at <https://www.cidrap.umn.edu/news-perspective/2021/04/studies-detail-large-covid-outbreaks-us-prisons-jails>; Erica Wilson and others, "Multiple COVID-19 Clusters on a University Campus — North Carolina, August 2020," *Morbidity and Mortality Weekly Report* 69 (39) (2020): 1416–1418, available at <https://www.cdc.gov/mmwr/volumes/69/wr/mm6939e3.htm>.
- 74 Centers for Disease Control and Prevention, "COVID-19: Guidance for Fully Vaccinated People," available at <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/fully-vaccinated-guidance.html> (last accessed April 2021).
- 75 Cierra S. Queen and Jordan Allen, "100 U.S. colleges will require vaccinations to attend in-person classes in the fall," *The New York Times*, April 29, 2021, available at <https://www.nytimes.com/2021/04/29/us/colleges-vaccinations-enrollment.html>.
- 76 Andy Thomason and Brian O'Leary, "Here's a List of Colleges That Will Require Students or Employees to Be Vaccinated Against Covid-19," *The Chronicle of Higher Education*, available at <https://www.chronicle.com/blogs/live-coronavirus-updates/heres-a-list-of-colleges-that-will-require-students-to-be-vaccinated-against-covid-19> (last accessed April 2021).
- 77 Jeff Goldman, "Montclair State, New Jersey City, join Rutgers among state schools requiring COVID vaccines for students," *NJ.com*, April 22, 2021, available at <https://www.nj.com/education/2021/04/montclair-state-joins-rutgers-as-2nd-state-university-to-require-covid-vaccines-for-students.html> (last accessed April 2021).
- 78 Dennis Brown, "Notre Dame to require students to be vaccinated for COVID-19 beginning with fall 2021 semester," *Notre Dame News*, April 7, 2021, available at <https://news.nd.edu/news/notre-dame-to-require-students-to-be-vaccinated-for-covid-19-beginning-with-fall-2021-semester/>.
- 79 Pomona College, "Coronavirus (COVID-19) Information for the Pomona College Community," available at <https://www.pomona.edu/coronavirus> (last accessed April 2021).
- 80 Rose Horowitz and Maria Fernanda Pacheco, "Yale to require COVID vaccines for students this fall, considering mandate for faculty, staff," *Yale Daily News*, April 19, 2021, available at <https://yaledailynews.com/blog/2021/04/19/yale-to-require-covid-vaccines-for-students-this-fall-considering-mandate-for-faculty-staff/>.
- 81 Jocelyn Gecker, "California's public universities to require COVID-19 vaccine," *Associated Press*, April 22, 2021, available at <https://apnews.com/article/us-news-health-education-california-coronavirus-vaccine-28a4729ef178edad794d4362c5f2482a>.
- 82 Jessica Brown, "Clark Atlanta, Spelman, Morehouse to require COVID-19 vaccinations for fall semester," *11 Alive*, April 19, 2021, available at <https://www.11alive.com/article/news/education/clark-atlanta-spelman-morehouse-covid-19-vaccinations/85-8fc8356d-e15f-400b-afa6-bc2e2f0ea8a9>.
- 83 *The New York Times*, "Tracking Coronavirus Cases at U.S. Colleges and Universities," available at <https://www.nytimes.com/interactive/2021/us/college-covid-tracker.html> (last accessed April 2021).
- 84 Andee Erickson, "Duluth colleges host vaccine clinics to reach students before summer break," *Duluth News Tribune*, April 27, 2021, available at <https://www.duluthnewstribune.com/news/education/6999949-Duluth-colleges-host-vaccine-clinics-to-reach-students-before-summer-break>; Marisa Rios, "Efforts taken by MU, Columbia College to get students vaccinated before summer break," *KOMU 8*, April 15, 2021, available at [https://www.komu.com/news/covid19/efforts-taken-by-mu-columbia-college-to-get-students-vaccinated-before-summer-break/article\\_535f982-9e36-11eb-923e-e35669c99958.html](https://www.komu.com/news/covid19/efforts-taken-by-mu-columbia-college-to-get-students-vaccinated-before-summer-break/article_535f982-9e36-11eb-923e-e35669c99958.html).
- 85 *The Washington Post*, "Federal officials review 'vaccine passport' plans," available at [https://www.washingtonpost.com/context/federal-officials-review-vaccine-passport-plans/d40fb0be-fb34-48c9-be39-43d10bb15feb/?itid=lk\\_inline\\_manual\\_18](https://www.washingtonpost.com/context/federal-officials-review-vaccine-passport-plans/d40fb0be-fb34-48c9-be39-43d10bb15feb/?itid=lk_inline_manual_18) (last accessed April 2021).
- 86 Laurel Wamsley, "FAQ: What Is A Vaccine 'Passport,' And What Are These Credentials Used For?," *NPR*, April 8, 2021, available at <https://www.npr.org/2021/04/08/985400141/faq-what-is-a-vaccine-passport-and-what-are-these-credentials-used-for>.
- 87 Dan Diamond, Lena H. Sun, and Isaac Stanley-Becker, "Vaccine passports' are on the way, but developing them won't be easy," *The Washington Post*, March 28, 2021, available at <https://www.washingtonpost.com/health/2021/03/28/vaccine-passports-for-work/>; New York State COVID-19 Updates, "Excelsior Pass," available at <https://covid19vaccine.health.ny.gov/excelsior-pass> (last accessed April 2021).
- 88 Carlie Porterfield, "Arizona Becomes Sixth State To Ban Coronavirus Vaccine Passports — See The Full List Here," *Forbes*, April 19, 2021, available at <https://www.forbes.com/sites/carlieporterfield/2021/04/19/arizona-becomes-sixth-state-to-ban-coronavirus-vaccine-passports-see-the-full-list-here/?sh=1287a38f20bf> (last accessed April 2022).
- 89 Brett Samuels, "White House rules out involvement in 'vaccine passports,'" *The Hill*, April 6, 2021, available at <https://thehill.com/homenews/administration/546705-white-house-rules-out-involvement-in-vaccine-passports>.
- 90 Centers for Disease Control and Prevention, "Vaccine Information for Adults: How to Locate Your Vaccine Records," available at <https://www.cdc.gov/vaccines/adults/vaccination-records.html> (last accessed April 2021); Jackie Drees, "Vaccine passports: 18 states with bans, limitations & green lights," *Becker Hospital Review*, available at <https://www.beckershospitalreview.com/digital-transformation/vaccine-passports-10-states-with-bans-limitations-green-lights.html> (last accessed May 2021); Lawrence O. Gostin, Glenn Cohen, and Jana Shaw, "Digital Health Passes in the Age of COVID-19: Are 'Vaccine Passports' Lawful and Ethical?," *JAMA* (2021), available at <https://jamanetwork.com/journals/jama/fullarticle/2778526>.
- 91 Geoffrey A. Fowler, "We tested the first state 'vaccine passport.' Here's what worked — and didn't.," *The Washington Post*, April 9, 2021, available at <https://www.washingtonpost.com/technology/2021/04/08/vaccine-passport-new-york-excelsior-pass/>.
- 92 Amitai Ziv, "Anyone Can Fake Israel's Vaccination Certificate - Here's How Easy It Is," *Haaretz*, February 14, 2021, available at <https://www.haaretz.com/israel-news/tech-news/.premium-anyone-can-fake-israel-s-vaccination-certificate-here-s-how-1.9537465>; Isabel Kershner, "Israel reopens to fully vaccinated 'Green Pass' holders — nearly half of the population," *The New York Times*, March 7, 2021, available at <https://www.nytimes.com/2021/03/07/world/israel-green-pass-covid.html>.
- 93 U.S. Department of Justice, "Section 508 Home Page," available at <https://www.justice.gov/crt/section-508-home-page-1> (last accessed April 2021).
- 94 Fowler, "We tested the first state 'vaccine passport.'"
- 95 Amy Schoenfeld Walker and others, "Pandemic's Racial Disparities Persist in Vaccine Rollout," *The New York Times*, March 5, 2021, available at <https://www.nytimes.com/interactive/2021/03/05/us/vaccine-racial-disparities.html>.
- 96 Claire Park, "Online vaccine sign-ups make Internet access a matter of life and death," *The Washington Post*, March 4, 2021, available at [https://www.washingtonpost.com/outlook/digital-divide-vaccine-registration/2021/03/03/873c8df4-7ba1-11eb-b3d1-9e5aa3d5220c\\_story.html](https://www.washingtonpost.com/outlook/digital-divide-vaccine-registration/2021/03/03/873c8df4-7ba1-11eb-b3d1-9e5aa3d5220c_story.html).
- 97 Lauren Weber and Hannah Recht, "Covid Vaccine Websites Violate Disability Laws, Create Inequity for the Blind," *Kaiser Health News*, February 25, 2021, available <https://khn.org/news/article/covid-vaccine-websites-violate-disability-laws-create-inequity-for-the-blind/>.
- 98 Michelle M. Hughes and others, "County-Level COVID-19 Vaccination Coverage and Social Vulnerability — United States, December 14, 2020–March 1, 2021," *Morbidity and Mortality Weekly Report* 70 (12) (2021): 431–436, available at <https://www.cdc.gov/mmwr/volumes/70/wr/mm7012e1.htm>.

- 99 Annie McDonough, "Vaccine passports raise equity, privacy concerns," *City & State*, April 9, 2021, available at <https://www.cityandstateny.com/articles/policy/health-care/vaccine-passports-raise-equity-privacy-concerns.html>.
- 100 European Commission, "Questions and Answers – Digital Green Certificate," available at [https://ec.europa.eu/commission/presscorner/detail/en/qanda\\_21\\_1187](https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_1187) (last accessed April 2021).
- 101 World Health Organization, "Smart Vaccination Certificate Working Group," available at <https://www.who.int/groups/smart-vaccination-certificate-working-group> (last accessed April 2021).
- 102 Mark A. Hall and David M. Studdert, "Vaccine Passport Certification — Policy and Ethical Considerations," *The New England Journal of Medicine*, March 31, 2021, available at <https://www.nejm.org/doi/full/10.1056/NEJMp2104289>.
- 103 Jake Holland, Jacquie Lee, and Robert Iafolla, "Big Tech Unleashes Vaccine Passports as Privacy Questions Loom," *Bloomberg Law*, April 19, 2021, available at <https://news.bloomberglaw.com/us-law-week/big-tech-unleashes-vaccine-passports-as-privacy-questions-loom>.
- 104 Centers for Disease Control and Prevention, "Vaccines & Immunizations: COVID-19 Breakthrough Case Investigations and Reporting," available at <https://www.cdc.gov/vaccines/covid-19/health-departments/breakthrough-cases.html>.
- 105 New York State COVID-19 Updates, "Excelsior Pass."
- 106 Julie Appleby, "Michigan's Outbreak Worries Scientists. Will Conservative Outposts Keep Pandemic Rolling?," *Kaiser Health News*, April 23, 2021, available at <https://khn.org/news/article/michigan-covid-outbreak-worries-scientists-will-conservative-outposts-keep-pandemic-rolling/>.