

Mask Mandates: Do They Work? Are There Better Ways to Control COVID-19 Outbreaks?

Doug Badger and Norbert J. Michel, PhD

KEY TAKEAWAYS

While mask-wearing can help to reduce transmission of COVID-19, data show that mask mandates in the U.S. and other countries did not prevent a surge of cases.

During the U.S. surge in the fall, 97 of the 100 counties with the most confirmed cases had either a county-level mask mandate, a state-level mandate, or both.

Governments should take more effective steps, such as protecting nursing home residents and approving rapid self-tests for widespread at-home testing.

A surge in COVID-19 cases in the United States and Europe has prompted calls for a national mask mandate here in America. Advocates of government edicts have asserted that these would bring the pandemic “under control” in a matter of weeks.

Public health officials here and throughout most of the world believe that *mask-wearing* has some value in reducing the rate at which the pandemic spreads. Accepting this premise, however, does not necessarily lead to the conclusion that government mask *mandates* will bring the contagion under control.

This *Backgrounder* examines the effects of mask mandates in the U.S. and Italy. While there is no national mask mandate in the U.S., many states and counties have imposed them. We (the authors) find that, of the 25 counties reporting the highest numbers of new cases during this latest surge, 21 had mask mandates in place since at least July.

This paper, in its entirety, can be found at <http://report.heritage.org/bg3578>

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Italy does have a national mask mandate that is backed by fines of up to 1,000 euros for non-compliance. We find that the mandate did not prevent a surge in cases in Italy that began in October, peaked in mid-November, and had not yet subsided in mid-December.

These findings do not deny the efficacy of mask-wearing per se. Nor should they discourage the practice.

Instead, they point to the inadequacy of public health strategies that rely predominantly on lockdowns and mask mandates. Governments should undertake more effective interventions. These include adopting better measures to protect nursing home residents, enabling nationwide screening through the widespread use of rapid self-tests, and establishing voluntary isolation centers where infected people can recover, rather than exposing their families to infection.

The Value of Masks

Mask-wearing has become a highly politicized practice in the U.S. Some detractors consider it an emblem of social submission. Others, such as Centers for Disease Control and Prevention (CDC) Director Robert Redfield, see masks as the best way to get the pandemic under control: “I think if we could get everybody to wear a mask now,” Redfield said in July, “I think in four, six, eight weeks, we could bring this epidemic under control.”¹

Mask-wearing has thus inspired both enthusiasm and revulsion that likely exaggerates its significance.

The CDC in general is a bit more tempered about mask-wearing than its Director. While the CDC has changed its guidance on masks numerous times throughout the pandemic, the agency’s recommendation (as of November 20) endorses mask-wearing both to reduce the risk of infecting others and to protect uninfected people from the contagion.²

The CDC and other public health authorities in the U.S. and abroad have been trying to determine the relative efficacy of mask-wearing for two different, though related, purposes. The first is “source control”—meaning the extent to which wearing a mask prevents an infected individual from spreading the virus. The second is “protection”—meaning the extent to which wearing a mask protects an uninfected individual from contracting the virus.

The CDC has, for many months, believed that masks have “source control” value.³ More specifically, it advises that “multi-layer cloth masks block release of exhaled respiratory particles into the environment.”⁴ According to this theory, by reducing the speed and volume of droplets that an infected person releases into the environment, masks help to protect the uninfected from the infected.

Since November 20, 2020, the CDC has also asserted that masks provide some protection for uninfected people who wear them: “Cloth mask materials can also reduce wearers’ exposure to infectious droplets through filtration.”⁵

The CDC bases its mask guidance on “experimental and epidemiological data,” rather than controlled studies.⁶ Experimental data is collected, for example, by squirting an aerosol through a cloth mask and measuring how far particles travel. Epidemiological studies or, as the CDC calls them, “real world” data, generally involve case studies of transmission.

In perhaps the most famous of these, two St. Louis hairstylists who had COVID-19 wore masks while they continued to service customers. They saw 139 clients over eight days. Of those, 67 consented to follow-up testing. None of those 67 tested positive for COVID-19.⁷ The CDC assigns great weight to this study.

The CDC more recently has cited studies that it believes show that mask-wearing can help protect uninfected people from the virus.⁸

One drawback of these studies is that they lack a control group. Danish researchers recently published the only controlled study of mask-wearing.⁹ It tests the hypothesis that wearing a mask protects uninfected people.

The researchers conducted the study, in which 6,000 Danes participated, in spring 2020, before Denmark instituted a mask mandate. The control group followed existing social distancing guidelines but did not wear masks. Researchers provided the experimental group with high-quality surgical masks with a filtration rate of 98 percent and instructed participants to wear them outside their homes.

Those who completed the study underwent COVID-19 tests one month later. Researchers found that 1.8 percent of those in the mask-wearing group tested positive, while 2.1 percent of the control group did. The results were not statistically significant. The researchers concluded that mask-wearing is compatible with a range of outcomes—from a 46 percent reduction in infections to a 23 percent increase.

It is important to note that the study examined the *prevention* value of masks (whether an uninfected person who wore a mask would be less likely to contract COVID-19). It did not test the *source control* value of face coverings (whether an infected person who wore one would be less likely to spread the disease).

Although the *Annals of Internal Medicine* published the study on November 18, the CDC did not cite it in its November 20 revised mask guidance. The Danish study casts doubt on the CDC’s advice about the protective value of masks.

The study does not, however, contradict the view that masks provide source control benefits, since it did not test that claim. A controlled study of that hypothesis would be unethical as it would require exposing uninfected people to people with the disease, some wearing masks and others not.

In sum, some studies support the source control value of masks, though none of those studies are controlled. Source control benefits also align with common sense: A face-covering will reduce the speed and distance that an infected person's droplets travel. The prevention value of masks is less well attested, and the only controlled study of the hypothesis contradicts it.

The United States: State and County-Level Mask Mandates. The previous section considered the value of mask-wearing. This section considers the effectiveness of government mask *mandates*, examining whether jurisdictions that have adopted them resisted the current surge of COVID-19 cases.

The data show that mask mandates have not stemmed the surge. From October 1 through December 13, the U.S. saw an increase of 8.8 million confirmed COVID-19 cases.¹⁰ Of the 100 counties with the most confirmed cases during this period, 97 had either a county-level mask mandate, a state-level mandate, or both.¹¹ Chart 1 shows that, among this group of 97 counties, 87 began their mandate before October. (See Appendix Table 1 for a complete list of the counties.) In the remaining 10 counties, five issued their mask mandate in October, and five did so in November. However, several of the mandates that went into effect in either October or November actually tightened existing mask requirements.¹²

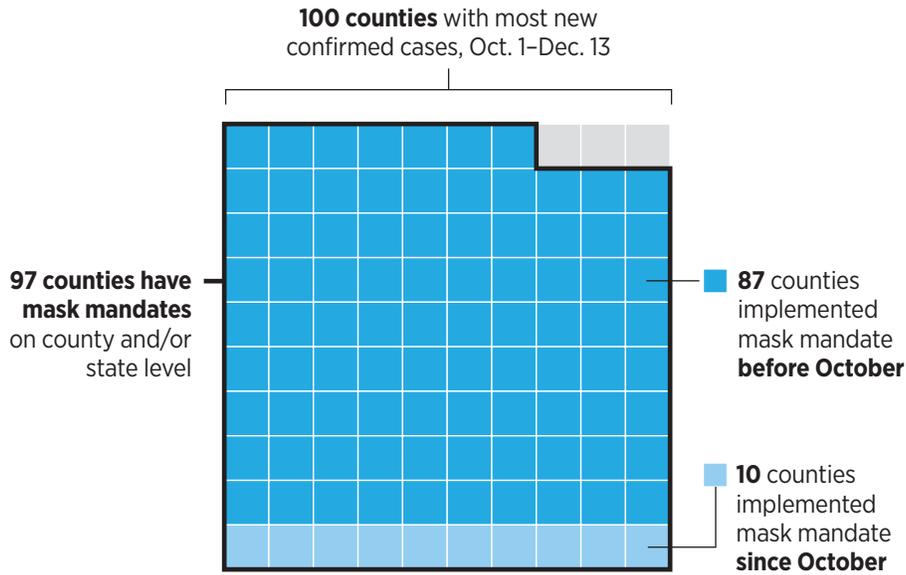
Of the 25 counties with the highest new case totals, all 25 had a mask mandate, and all but one implemented their directive prior to October; 21 of the counties implemented mandates prior to August.

Thus, most of the counties with the highest increase in cases during this fall surge have had mask mandates in place since (at least) the summer. The data also show that these 100 counties, spread throughout the U.S. (see Appendix Table 1), contain 39.6 percent of the total new COVID-19 cases in the U.S. and 39.4 percent of the population.¹³ Thus, unlike earlier in the pandemic, the growth in new cases is not disproportionate to the population.¹⁴

Italy: Nationwide Mask Mandate. Unlike the U.S., Italy has a national mask mandate. Italians must wear masks outdoors and indoors, except in their own homes.¹⁵ The government issued the order on October 8. On that date, Italy reported 3,677 new cases, its highest total since April 17.¹⁶ Its seven-day moving average of new confirmed infections per million stood at 45, lower than that of other European nations and less than one-third of the U.S. rate.¹⁷

CHART 1

Counties with Highest Levels of New COVID-19 Cases Already Have Mask Mandates



SOURCE: Authors' calculations. See Appendix Table 1.

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The imposition of a national mandate did not arrest the growth in infection rates. On October 17, Italy recorded more than 10,000 new cases. On November 14, Italy reported more than 40,000 new cases (678 cases per million people). New cases have subsided since then, but remain elevated. On December 11, Italian health authorities reported nearly 20,000 new cases, almost 5.5 times the number recorded on October 8.

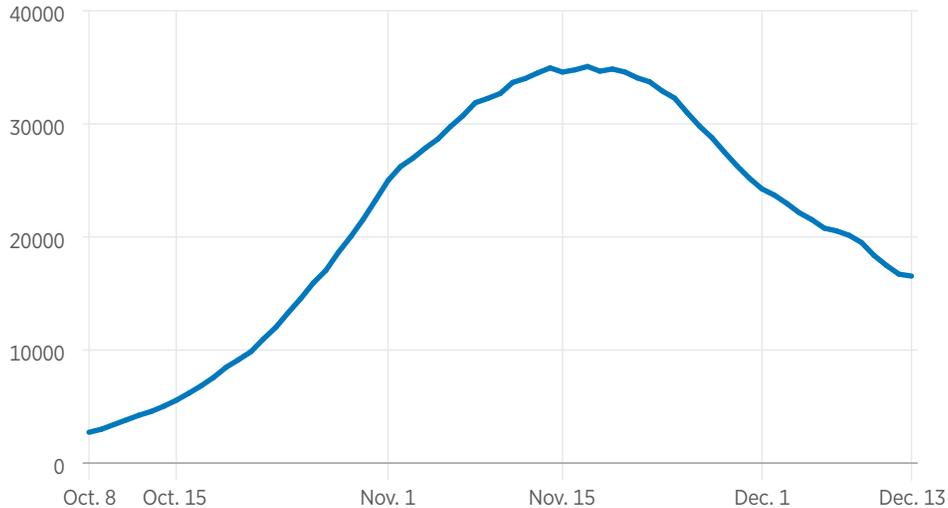
Italy's seven-day moving average of new cases per million population overtook that of the U.S. on October 23 (199 per million vs. 190 per million), just over two weeks after the government imposed the national mask mandate. It continued to rise over the next month, peaking at 678 per million on November 14. Both figures were higher than those in the U.S., which saw its seven-day moving average of new cases per million nearly quadruple between October 7 (134) and November 20 (498).

On a population-adjusted basis, cases thus rose more rapidly in Italy over the six weeks after the government imposed a national mask mandate than in the U.S.¹⁸ The U.S. population-adjusted rate surpassed that of Italy on November 26 and has continued to eclipse it. Virtually all the U.S. counties with the largest number of new cases between October 1 and December 13

CHART 2

COVID-19 Cases in Italy

SEVEN-DAY MOVING AVERAGE OF NEW CASES



SOURCES: European Centre for Disease Prevention and Control, “Daily Update of New Reported Cases of COVID-19 by Country Worldwide,” <https://www.ecdc.europa.eu/en/publications-data/download-todays-data-geographic-distribution-covid-19-cases-worldwide> (accessed December 16, 2020); The COVID Tracking Project, “Data Download,” <https://covidtracking.com/data/download>, (accessed December 16, 2020); and the U.S. Census Bureau, “U.S. and World Population Clock,” <https://www.census.gov/popclock/> (accessed December 16, 2020).

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had mask mandates before the new wave of cases arose, and approximately 80 percent of the U.S. population was under a mask mandate by the end of the summer.

It is also worth noting that, based on survey data, mask-wearing was widely practiced both in the U.S. and Italy during this period. In late October, a Harris poll found that 92 percent of Americans reported wearing masks always, sometimes, or often.¹⁹ During the same period, polls conducted throughout Europe found that 99 percent of Italians reported wearing masks always, sometimes, or often, as of late October.²⁰ That is a statistically significant difference, but hardly one that suggests a large difference in mask-wearing between Italians and Americans during a period when cases were rising in both countries.

These data do not disprove that mask-wearing reduces infection risk. They do, however, demonstrate that nationwide mask mandates have not prevented large COVID-19 outbreaks.

Better Public Health Interventions

Instead of relying heavily on mask mandates, government should adopt policies aimed at those most susceptible to severe illness and death from the contagion. It should also broaden public health testing, making it easier for people to learn their infection status. And, it should provide some alternative to infected people who share living space with those at greater risk of illness.

Policies should prioritize informing citizens, not restricting their freedoms.

Improved Protection of Nursing Home Residents. The number of nursing home residents who have tested positive for COVID-19 has been rising.²¹ Between September 13 and October 18, the most recent date for which the American Health Care Association and the National Center for Assisted Living have provided data, the number of infected residents rose from 5,956 to 8,575, a 44 percent increase.²²

Although they represent less than 1 percent of the U.S. population and just over 0.5 percent of COVID-19 cases, nursing home residents accounted for nearly 39 percent of COVID-19 deaths through December 10.²³ A rise in cases among the frail elderly will thus produce a disproportionately large increase in COVID-19 deaths.

The government should redouble its efforts to keep nursing homes safe. The Center for Medicare and Medicaid Services (CMS) has established guidelines for testing nursing home staff, requiring more frequent testing in communities with high rates of COVID-19 infection.²⁴ The CMS also has distributed rapid-testing kits to thousands of nursing homes to facilitate testing.²⁵

These policies are not adequate, as the alarming rise in cases shows. The Heritage Foundation's Kevin Pham, MD, has recommended that the government take the following steps to improve nursing home safety.²⁶

- **Test nursing home visitors.** CMS guidelines advise nursing homes to screen visitors through temperature checks, questionnaires, and observing for COVID-19 symptoms. The CMS should advise nursing homes to screen visitors more systematically, using rapid tests, discussed in more detail in the next section.
- **Implement more robust mitigation measures for nursing home staff.** Nursing home administrators should test staff members every time they leave or re-enter the facility. That will require a larger supply of tests, especially rapid tests. It may also require keeping staff in a "bubble"—dedicated staff housing for several days at a time.

The approval of vaccines for COVID-19 in December 2020 will directly benefit nursing home residents and staff. Most states have prioritized immunizing residents and staff. That process, however, will take time. Government should adopt more aggressive policies now, as nursing-home-related cases and deaths are spiraling higher.

Nursing home safety is a daunting, labor-intensive, and costly task. Given the nature of this pandemic, in which 80 percent of COVID-19 deaths are among the elderly, and 39 percent are among nursing home residents, there is no higher priority for policymakers.²⁷

Approving Rapid Self-Testing for Population Screening. Redoubling efforts to protect nursing home residents will benefit those that the pandemic has hit the hardest. Government should also take steps to protect the general population. The availability of rapid, at-home tests that do not require a prescription or laboratory analysis would inform people of their COVID-19 status and limit the disease's transmission.

The U.S. government has taken several important steps in this direction, most recently approving the first rapid, over-the-counter test for which consumers can read results themselves. Most significantly, on December 15, the U.S. Food and Drug Administration (FDA) approved the Ellume COVID-19 Home Test, which yields results in about 15 minutes and will cost around \$30.²⁸ The Australian manufacturer believes that it can ship about 20 million units to the U.S. during the first half of 2021, with the first shipments to arrive during January.²⁹

That development, while encouraging, is inadequate. An effective public health testing strategy requires widespread self-testing, on the order of tens of millions, perhaps 50 million, per day.³⁰

Fortunately, the technology exists to produce large volumes of low-cost, rapid home tests.³¹ Unfortunately, the FDA has yet to approve any of these tests, which are affordable and can be produced in sufficient volume to regularly test vast swathes of the population.

Dr. Anthony Fauci, Director of the National Institute of Allergy and Infectious Diseases, recently explained how the availability of such tests would be an effective weapon against coronavirus transmission. Asked what his strategy on testing would be, Fauci said:

Surveillance testing. Literally flooding the system with tests. Getting a home test that you could do yourself, that's highly sensitive and highly specific. And you know why that would be terrific? Because if you decided that you wanted to have a small gathering with your mother-in-law and father-in-law and a couple of children, and you had a test right there. It isn't 100%. Don't let the

perfect be the enemy of the good. But the risk that you have—if everyone is tested before you get together to sit down for dinner—dramatically decreases. It might not ever be zero but, you know, we don't live in a completely risk-free society.³²

Fauci's comments encapsulate the arguments in favor of widespread testing: "Flooding the system" with affordable at-home tests that yield results in minutes would allow people to engage in social interactions more safely, and help to suppress the pandemic.

While the tests are not 100 percent accurate, the risk of transmission "dramatically decreases" when people use them before engaging in social interactions, as Fauci observed. Because the tests would be affordable and widely available, people could test themselves frequently, reducing the likelihood of false results. Testing tens of millions of people daily, instead of one or two million as is currently the case, and providing them instant results would be an effective tool against the pandemic.³³

The government should adopt this policy. The FDA should approve affordable rapid tests for home use. Moreover, the federal government should commit to pre-purchase hundreds of millions of these self-testing kits over the next two years, and the CDC should clarify its contradictory testing guidance.³⁴ This will enable companies that make these to ramp up production in advance of FDA approval. That will enable distribution of the tests to begin immediately after the agency clears the test, just as happened with vaccines under Operation Warp Speed. Distribution and administration of a COVID-19 vaccine has begun, but it will take many months to immunize tens of millions of people.³⁵ During that time the virus will continue to spread. The widespread availability of rapid tests is an essential complement to mass immunization.

Establishing Voluntary Isolation Facilities. From the earliest days of the pandemic, the CDC has advised people who know they are infected to quarantine at home with their families for 14 days. This practice is among the reasons that homes have become the principal vector of the pandemic.³⁶ Home quarantine is especially problematic for those who live in multi-generational households in multi-family units. It may at least partially account for racial disparities in COVID-19 infection rates.

State and local officials should consider establishing temporary facilities where people who need to isolate could recover from COVID-19 without exposing others to the disease. Such facilities could include hotels, many of which have lost considerable business to the pandemic. Use of the facilities should be strictly voluntary; the government should not

compel infected people to enter them or remain there. It should, however, encourage people to protect their families by making use of the facilities. It should also consider paying people who test positive and who need financial support who agree to enter and remain in such facilities until cleared of the infection.

Given the extent of the infection in many communities, state and local governments should establish priorities for allocating temporary isolation space. The highest priorities should be for nursing home workers and those in multigenerational housing, where an elderly family member may be susceptible to severe illness and death.

The combination of frequent testing and isolation can be a powerful one, as amateur and professional sports leagues have demonstrated. Athletes compete in games in which it is impossible to social distance, such as football and basketball, without touching off an explosion of cases. Some players have tested positive, but frequent testing, coupled with the isolation of players who test positive, has made outbreaks rare.

While it is not possible to strictly replicate this approach in broader society, widespread and repeated testing, along with the option of isolating outside the home to protect the most vulnerable, would likely improve prospects for suppressing the pandemic.

Conclusion

The U.S. and most European countries have relied on lockdown orders and mask-wearing as the primary means to combat COVID-19, at least until a vaccine becomes universally available. These policies have not prevented a renewed surge in cases. While there is evidence that mask-wearing may reduce the risk that asymptomatic people will infect others, many of the U.S. counties with the highest infection rates have mask mandates. Nor has a national mask mandate prevented a surge in cases in Italy.

These policies have become especially self-defeating during the 2020 holiday season. Mask-wearing and, in many of the most populous states and jurisdictions, partial lockdowns, proved inadequate to stop the spread. Political and public health officials called on people to curtail social interactions, even as the holidays increased them.

Some politicians who warned against travel and gatherings violated their own orders, undermining their credibility.³⁷ Some public officials suggested that citizens are the problem, for engaging in behaviors that are increasing cases and deaths.³⁸ Joe Biden predicted that a quarter million more Americans would die in December and January “because people aren’t paying attention.”³⁹

Public policy on COVID-19 has thus reached a dead-end on its current trajectory, at least until a sufficient number of people receive immunizations, perhaps by the middle of 2021. In the meantime, the toll of cases and deaths will continue to mount.

Policymakers should implement new interventions. These include redoubling efforts to protect nursing home residents, enabling broad-based population screening by “flooding the system,” as Dr. Fauci put it, with self-tests, and providing infected people who live with those most at risk of serious illness from the disease with safer alternatives to home isolation.

Widespread self-testing offers a promising policy direction. Unlike mask-wearing, lockdowns, and, even to some extent, vaccines, it has not been culturally or politically divisive, making it more likely to gain the sort of population-wide acceptance that has eluded other policy initiatives.

Self-testing also inverts the dynamic that has characterized pandemic policy in the U.S. and throughout the West. It combats the contagion by empowering and informing people, not confining them, restricting their activities, and blaming them for spreading the disease.

Equipping people to make the best decisions for themselves, their families, and their fellow citizens offers a promising new approach to combating the pandemic.

Doug Badger is Visiting Fellow in Domestic Policy Studies, of the Institute for Family, Community, and Opportunity, at The Heritage Foundation. **Norbert J. Michel, PhD**, is Director of the Center for Data Analysis, of the Institute for Economic Freedom, at The Heritage Foundation.

APPENDIX TABLE 1

Mask Mandate Status for 100 Counties with Most New Confirmed COVID-19 Cases (Page 1 of 3)

County	State	New Cases, Oct. 1-Dec. 13	Population	Mandate Type	Date Implemented
Los Angeles County	CA	254,115	10,039,107	Both	June 20
Cook County	IL	206,257	5,150,233	State	April 20
Maricopa County	AZ	111,399	4,485,414	County	June 20
Miami-Dade County	FL	86,975	2,716,940	County	April 20
Clark County	NV	73,732	2,266,715	State	June 20
San Bernardino County	CA	71,344	2,180,085	State	June 20
El Paso County	TX	68,144	839,238	Both	July 20
Harris County	TX	63,247	4,713,325	State	July 20
Salt Lake County	UT	61,742	1,160,437	Both	Aug. 20
Dallas County	TX	59,562	2,635,516	Both	July 20
San Diego County	CA	57,471	3,338,330	Both	June 20
Tarrant County	TX	57,372	2,102,515	Both	July 20
Riverside County	CA	53,462	2,470,546	Both	June 20
Milwaukee County	WI	51,674	945,726	Both	July 20
Hennepin County	MN	51,261	1,265,843	State	July 20
Orange County	CA	48,605	3,175,692	Both	June 20
Philadelphia County	PA	43,059	1,584,064	State	July 20
Broward County	FL	42,733	1,952,778	County	July 20
Franklin County	OH	41,474	1,316,756	Both	July 20
Wayne County	MI	40,210	1,749,343	State	Oct. 20
Cuyahoga County	OH	38,801	1,235,072	Both	Aug. 20
Utah County	UT	37,667	636,235	State	Sept. 20
DuPage County	IL	36,660	922,921	State	April 20
Marion County	IN	36,323	964,582	Both	July 20
Bexar County	TX	36,246	2,003,554	State	July 20
Oakland County	MI	33,575	1,257,584	Both	Oct. 20
Kings County	NY	31,940	2,559,903	State	April 20
Will County	IL	31,934	690,743	State	April 20
King County	WA	31,398	2,252,782	Both	May 20
Middlesex County	MA	31,299	1,611,699	State	Nov. 20
Douglas County	NE	30,512	571,327	None	—
Oklahoma County	OK	30,429	797,434	County	July 20
St. Louis County	MO	30,278	994,205	County	July 20
Queens County	NY	29,818	2,253,858	State	April 20
Macomb County	MI	29,751	873,972	State	Oct. 20
Hamilton County	OH	29,471	817,473	State	July 20
Denver County	CO	29,104	727,211	Both	July 20
Kent County	MI	28,753	656,955	State	Oct. 20

NOTE: Mandate type “Both” means the mask mandate is on both the county and state level. “None” means no mandates are in place.

APPENDIX TABLE 1

Mask Mandate Status for 100 Counties with Most New Confirmed COVID-19 Cases (Page 2 of 3)

County	State	New Cases, Oct. 1-Dec. 13	Population	Mandate Type	Date Implemented
Jefferson County	KY	28,387	766,757	State	July 20
El Paso County	CO	28,096	720,403	State	July 20
Jackson County*	MO	27,869	703,011	County	July 20
Suffolk County	NY	27,804	1,476,601	State	April 20
Allegheny County	PA	27,670	1,216,045	State	July 20
Bernalillo County	NM	27,489	679,121	State	May 20
Providence County	RI	27,286	638,931	State	May 20
Santa Clara County	CA	26,558	1,927,852	Both	June 20
Fairfield County	CT	26,351	943,332	State	April 20
Palm Beach County	FL	26,010	1,496,770	County	Sept. 20
Pima County	AZ	25,941	1,047,279	County	June 20
Lake County	IL	25,842	696,535	State	April 20
Essex County	MA	25,697	789,034	State	Nov. 20
Adams County	CO	25,654	517,421	State	July 20
Sacramento County	CA	24,718	1,552,058	State	June 20
Waukesha County	WI	24,218	404,198	State	Aug. 20
Shelby County	TN	24,135	937,166	County	July 20
Lubbock County	TX	24,122	310,569	State	July 20
Lake County	IN	23,890	485,493	State	July 20
Sedgwick County	KS	23,607	516,042	State	July 20
Nassau County	NY	23,546	1,356,924	State	April 20
Arapahoe County	CO	23,465	656,590	State	July 20
Kane County	IL	23,436	532,403	State	April 20
Orange County	FL	23,329	1,393,452	County	May 20
New Haven County	CT	23,316	854,757	State	April 20
Davidson County	TN	23,168	694,144	County	July 20
Hillsborough County	FL	23,122	1,471,968	County	March 20
Ramsey County	MN	22,419	550,321	State	July 20
Mecklenburg County	NC	22,158	1,110,356	State	June 20
Tulsa County	OK	22,143	651,552	County	Oct. 20
Erie County	NY	21,435	918,702	State	April 20
Polk County	IA	21,295	490,161	State	Nov. 20
Hartford County	CT	21,004	891,720	State	April 20
Montgomery County	OH	20,887	531,687	State	July 20
Dane County	WI	20,836	546,695	State	Aug. 20
Washoe County	NV	20,693	471,519	State	June 20
Johnson County	KS	20,588	602,401	State	July 20

* Includes portions of Kansas City.

NOTE: Mandate type “Both” means the mask mandate is on both the county and state level. “None” means no mandates are in place.

APPENDIX TABLE 1

Mask Mandate Status for 100 Counties with Most New Confirmed COVID-19 Cases (Page 3 of 3)

County	State	New Cases, Oct. 1-Dec. 13	Population	Mandate Type	Date Implemented
Westchester County	NY	20,537	967,506	State	April 20
Anoka County	MN	20,172	356,921	State	July 20
Suffolk County	MA	20,011	803,907	State	Nov. 20
Essex County	NJ	19,932	798,975	State	July 20
Worcester County	MA	19,847	830,622	State	Nov. 20
Jefferson County	CO	19,846	582,881	State	July 20
Duval County	FL	19,564	957,755	County	June 20
Dakota County	MN	19,361	429,021	State	July 20
Jefferson County	AL	19,233	658,573	Both	July 20
New York County	NY	18,577	1,628,706	State	April 20
Kern County	CA	18,440	900,202	State	June 20
Collin County	TX	18,173	1,034,730	State	July 20
Bronx County	NY	18,094	1,418,207	State	April 20
Ada County	ID	17,971	481,587	None	—
Bergen County	NJ	17,904	932,202	State	July 20
Prince George's County	MD	17,671	909,327	Both	April 20
Allen County	IN	17,571	379,299	State	July 20
Wake County	NC	17,151	1,111,761	State	June 20
Monroe County	NY	17,082	741,770	State	April 20
Middlesex County	NJ	17,060	825,062	State	July 20
Montgomery County	MD	16,637	1,050,688	Both	June 20
Summit County	OH	16,434	541,013	Both	Aug. 20
Hudson County	NJ	16,420	672,391	State	July 20
Passaic County	NJ	16,233	501,826	State	July 20
Minnehaha County	SD	16,181	193,134	None	—

NOTE: Mandate type “Both” means the mask mandate is on both the county and state level. “None” means no mandates are in place.

SOURCES: Authors’ calculations based on data from Andy Markowitz, “State-by-State Guide to Face Mask Requirements,” AARP, December 21, 2020, <https://www.aarp.org/health/healthy-living/info-2020/states-mask-mandates-coronavirus.html> (accessed December 16, 2020), and Multistate, “COVID-19 State and Local Policy Dashboard,” <https://www.multistate.us/research/covid/public?level=local> (accessed December 16, 2020). Population data are from USAfacts.org, “U.S. Coronavirus Cases and Deaths,” <https://usafacts.org/visualizations/coronavirus-covid-19-spread-map/> (accessed December 16, 2020).

Endnotes

1. Miriam Berger et al., “Coronavirus Could Be ‘Under Control’ in Weeks, If Everyone Wore Masks, CDC Director Says,” *The Washington Post*, July 15, 2020, <https://www.washingtonpost.com/nation/2020/07/14/coronavirus-live-updates-us/> (accessed November 21, 2020).
2. The discussion of CDC guidance on mask-wearing represents claims that the agency made as of November 20, 2020. As noted, the agency changes its views frequently, and likely will continue to do so.
3. Centers for Disease Control and Prevention, “Scientific Brief: Community Use of Cloth Masks to Control the Spread of SARS-CoV-2,” November 20, 2020, <https://www.cdc.gov/coronavirus/2019-ncov/more/masking-science-sars-cov2.html> (accessed December 15, 2020).
4. Ibid.
5. Ibid.
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7. M. Joshua Hendrix et al., “Absence of Apparent Transmission of SARS-CoV-2 from Two Stylists After Exposure at a Hair Salon with a Universal Face Covering Policy—Springfield, Missouri, May 2020,” *Morbidity and Mortality Weekly Report*, Vol. 69, No. 28 (July 17, 2020), pp. 930–932, <https://www.ncbi.nlm.nih.gov/pubmed/32673300> (accessed December 15, 2020).
8. Centers for Disease Control and Prevention “Scientific Brief: Community Use of Cloth Masks to Control the Spread of SARS-CoV-2,” updated November 20, 2020, https://www.cdc.gov/coronavirus/2019-ncov/more/masking-science-sars-cov2.html?fbclid=IwAR28PppCa6x2uxwO8Z2baHMOKHS4JXx0inzMQs3zRHV1qqI_Oa8mxZfpCw (accessed December 22, 2020).
9. Henning Bundgaard et al., “Effectiveness of Adding a Mask Recommendation to Other Public Health Measures to Prevent SARS-CoV-2 Infection in Danish Mask Wearers,” *Annals of Internal Medicine*, November 18, 2020, <https://www.acpjournals.org/doi/10.7326/M20-6817> (accessed December 15, 2020).
10. USAfacts.org, “U.S. Coronavirus Cases and Deaths,” <https://usafacts.org/visualizations/coronavirus-covid-19-spread-map/> (accessed December 15, 2020).
11. The results reported in this *Backgrounder* are virtually identical to those found when running the same analysis from October to mid-November, closer to the beginning of the current surge.
12. For instance, starting in May, all Massachusetts counties were under state orders that required masks “where social distancing is not possible.” See Commonwealth of Massachusetts, “COVID-19 Order No. 31,” May 1, 2020, <https://www.mass.gov/doc/may-1-2020-masks-and-face-coverings/download> (accessed November 20, 2020). Four Massachusetts counties are on the list of counties with the 100 largest increases in cases. The same analysis for October through November 19—an additional 10 days—provides a nearly identical list of the top 100 counties and the same overall results. This list does not account for any states or counties that implemented a mask mandate after November 15, 2020.
13. A well-publicized study, published on October 23, claimed that mask mandates decreased COVID-19 hospitalizations in more than 1,000 U.S. counties. The authors withdrew the study on November 4 “because there are increased rates of SARS-CoV-2 cases in the areas that we originally analyzed in this study.” Dhaval Adjudah et al., “Decrease in Hospitalizations for COVID-19 after Mask Mandates in 1083 U.S. Counties,” medRxiv, November 4, 2020, <https://www.medrxiv.org/content/10.1101/2020.10.21.20208728v2> (accessed November 22, 2020). The findings presented in this *Backgrounder* are also consistent with new data released by a research team at Rational Ground. See Scott Morefield, “New Study Shows Mask Mandates Had Zero Effect in Florida or Nationwide, But the Lie Continues,” Townhall, December 21, 2020, <https://townhall.com/columnists/scottmorefield/2020/12/21/new-study-shows-mask-mandates-had-zero-effect-in-florida-or-nationwide-but-the-lie-continues-1-n2581879> (accessed December 22, 2020).
14. Other data sources indicate that between 70 percent to 80 percent of Americans were regularly wearing masks as of the summer. See Phillip Magness, “Case for Mask Mandate Rests on Bad Data,” *The Wall Street Journal*, November 11, 2020, <https://www.wsj.com/articles/case-for-mask-mandate-rests-on-bad-data-11605113310> (accessed December 15, 2020), and Nicholas Reimann, “Over 230 Million Americans Now Live with a Public Mask Mandate,” *Forbes*, July 22, 2020, <https://www.forbes.com/sites/nicholasreimann/2020/07/22/over-230-million-americans-now-live-with-a-public-mask-mandate/?sh=6e7f4b9742eb> (accessed December 15, 2020). More recent survey data (in a HealthDay/Harris Poll) suggest that the figure was higher (93 percent) by October. See Dennis Thompson, “Mask Use by Americans Now Tops 90%, Poll Finds,” WebMD, October 22, 2020, <https://www.webmd.com/lung/news/20201022/mask-use-by-americans-now-tops-90-poll-finds#1> (accessed December 15, 2020).
15. “Coronavirus: Masks Made Mandatory Outdoors Across Italy,” BBC News, October 8, 2020, <https://www.bbc.com/news/world-europe-54454450> (accessed December 21, 2020).
16. European Center for Disease Prevention and Control, “Daily Number of New Reported Cases of COVID-19 by Country Worldwide,” <https://www.ecdc.europa.eu/en/publications-data/download-todays-data-geographic-distribution-covid-19-cases-worldwide> (accessed November 21, 2020).
17. The COVID Tracking Project, *The Atlantic*, <https://covidtracking.com/data/download> (accessed November 21, 2020).

18. This increase is even more remarkable since Prime Minister Giuseppe Conte imposed a series of national restrictions, in addition to the mask mandate, throughout this period. The Conte government, for example, established a 10 p.m. curfew, shuttered all museums and galleries, ordered bars and restaurants to close at 6 p.m., and limited public transport. In addition to these nationwide restrictions, Conte divided the country into red, orange, and yellow regions, establishing a hierarchy of limitations. For example, in red zones, the government orders all non-essential shops closed and prohibits “non-essential” movements. It also bans travel outside one’s city and region, shutters middle and high schools, and limits outdoor sports activities. See “At a Glance: What Are the Coronavirus Rules in My Region of Italy Now?” *The Local.it*, November 4, 2020 (updated December 1, 2020), <https://www.thelocal.it/20201104/at-a-glance-what-are-italys-coronavirus-rules-right-now> (accessed December 11, 2020). See also, “Italy Adds Two Regions to Red Zones as Daily COVID-19 Count Surges,” *CGTN*, November 14, 2020, <https://newsaf.cgtn.com/news/2020-11-14/Italy-adds-two-regions-to-red-zones-as-daily-COVID-19-count-surges-Vq70F9goUw/index.html> (accessed December 11, 2020).
19. Dennis Thompson, “Mask Use by Americans Now Tops 90%,” *HealthDay*, October 22, 2020, <https://www.webmd.com/lung/news/20201022/mask-use-by-americans-now-tops-90-poll-finds#1> (accessed December 21, 2020). A December 2020 survey conducted by the Kaiser Family Foundation found that 96 percent of respondents wore masks some, most, or all of the time, with 89 percent reporting that they wore masks at least most of the time. “KFF COVID-19 Vaccine Monitor,” December 2020, p. 4, <http://files.kff.org/attachment/Topline-KFF-COVID-19-Vaccine-Monitor-December-2020.pdf> (accessed December 21, 2020).
20. Statista, “How Often Have You Worn a Face Mask Outside Your Home to Protect Yourself or Others from Coronavirus (COVID-19)?” as of October 18, 2020, <https://www.statista.com/statistics/1114375/wearing-a-face-mask-outside-in-european-countries/> (accessed December 21, 2020). The survey data from other European countries show that mask-wearing in the U.S. was roughly the same as in the U.K. and Germany, and more widely practiced than in the Netherlands, Denmark, Finland, Norway, or Sweden.
21. American Health Care Association and National Center for Assisted Living, “Report: COVID-19 Cases in Nursing Homes,” November 10, 2020, <https://www.ahcancal.org/News-and-Communications/Fact-Sheets/FactSheets/Report-Nursing-Homes-Cases-Nov10-2020.pdf> (accessed December 21, 2020).
22. *Ibid.*
23. As of December 10, The COVID Tracking Project, sponsored by *The Atlantic*, reported 841,495 COVID-19 cases among nursing home residents, of a total of 15,360,841 cases in the U.S. It also reported 110,026 COVID-19-related deaths among nursing home residents, compared with a national total of 284,309. “The Long-Term Care COVID Tracker,” *The Atlantic*, <https://covidtracking.com/data/longtermcare> (accessed December 11, 2020). See also “U.S. Historical Data,” *The Atlantic*, <https://covidtracking.com/data/national> (accessed December 11, 2020).
24. Centers for Medicare and Medicaid Services Center for Clinical Standards and Quality/Survey and Certification Group, “Interim Final Rule (IFC), CMS-3401-IFC, Additional Policy and Regulatory Revisions in Response to the COVID-19 Public Health Emergency related to Long-Term Care (LTC) Facility Testing Requirements and Revised COVID-19 Focused Survey Tool,” *Memorandum*, August 26, 2020, <https://www.cms.gov/files/document/qso-20-38-nh.pdf> (accessed December 21, 2020).
25. Centers for Medicare and Medicaid Services, “Frequently Asked Questions: COVID-19 Testing at Skilled Nursing Facilities/ Nursing Homes,” <https://www.cms.gov/files/document/covid-faqs-snf-testing.pdf> (accessed November 22, 2020).
26. Kevin Pham, MD, “If We’re Going to Control COVID, We Need to Make This Crucial Change,” *Newsday*, November 20, 2020, <https://www.newsday.com/opinion/coronavirus/covid-19-coronavirus-control-change-america-elderly-nursing-homes-elder-care-precautions-1.50070870> (accessed December 21, 2020).
27. Centers for Disease Control and Prevention National Center for Health Statistics, “Weekly Updates by Select Demographic and Geographic Characteristics,” https://www.cdc.gov/nchs/nvss/vsrr/covid_weekly/index.htm#AgeAndSex (accessed November 23, 2020).
28. Rob Stein, “FDA Authorizes First Home Coronavirus Test that Doesn’t Require a Prescription,” *National Public Radio*, December 15, 2020, <https://www.npr.org/sections/health-shots/2020/12/15/946692950/fda-authorizes-first-home-coronavirus-test-that-doesnt-require-a-prescription> (accessed December 21, 2020).
29. News release, “FDA Authorizes Ellume COVID-19 Home Test as First Over-the-Counter Fully At-Home Diagnostic Test,” *Ellume*, December 15, 2020, <https://www.ellumehealth.com/2020/12/15/fda-authorizes-ellume-covid-19-home-test-as-first-over-the-counter-fully-at-home-diagnostic-test/> (accessed December 15, 2020).
30. Michael Mina, “How We Can Stop the Spread of COVID-19 by Christmas,” *Time*, November 17, 2020. <https://time.com/5912705/covid-19-stop-spread-christmas/> (accessed December 21, 2020).
31. For a nontechnical description of these tests and their capabilities, see *RapidTests.org*, <https://www.rapidtests.org/> (accessed December 21, 2020).
32. Elizabeth Rosenthal, “Take It From an Expert: Fauci’s Hierarchy of Safety During COVID,” *Kaiser Health News*, November 19, 2020, https://khn.org/news/qa-interview-dr-anthony-fauci-advice-on-hierarchy-of-safety-during-covid-pandemic/?utm_campaign=KFF-2020-The-Latest&utm_medium=email&_hsmt=100497655&_hsenc=p2ANqtz--uAAiuyXgj4Fyj-KG_QVzWvsFBqMfPLlCYT-jmz3wsvB9KuSHx2VYBCOQ7h5TOeicAdX8tQpYmn4ZTds6jxJcNSw&utm_content=100497655&utm_source=hs_email (accessed December 21, 2020).

33. Two recent studies have modeled the tradeoff between test sensitivity and test frequency and turnaround time. Both concluded that frequent screening tests with rapid results were effective at controlling pandemic spread. Both also drew a distinction between the requirements for clinical diagnostic testing, for which accuracy is paramount, and surveillance testing (screening), for which speed of reporting is more important than test sensitivity. Daniel Larremore and the coauthors of a recent study employed two epidemiological models to examine the efficacy of rapid antigen tests. They concluded: "Testing frequency was found to be the primary driver of population-level epidemic control, with only a small margin of improvement provided by using a more sensitive test. Direct examination of simulations showed that with no surveillance or biweekly testing, infections were uncontrolled, whereas surveillance testing weekly...effectively attenuated surges of infections." Daniel B. Larremore et al., "Test Sensitivity Is Secondary to Frequency and Turnaround Time for COVID-19 Surveillance," medRxiv preprint, June 27, 2020, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7325181/> (accessed December 21, 2020). Thomas Hellmann and Veikko Thiele similarly modeled the epidemiological and economic effects of voluntary self-testing. They concluded: "Our central insight is that the equilibrium infection risk falls when home-based testing becomes cheaper and easier to use, even if tests are not always accurate. Our results challenge the clinical mainstream view that diagnostic testing is a prerogative of the medical profession, and supports the notion that frequent self-testing is vital for an economy facing an ongoing pandemic." Thomas F. Hellmann and Veikko Thiele, "A Theory of Voluntary Testing and Self-Isolation in an Ongoing Pandemic," National Bureau of Economic Research *Working Paper* No. 27941, October 2020, <https://www.nber.org/papers/w27941> (accessed December 21, 2020).
34. Virginia B. Allen, "How Rapid-Result, At-Home Tests for COVID-19 Could Slash Infection Rate," *The Daily Signal*, December 11, 2020, <https://www.dailysignal.com/2020/12/11/how-rapid-result-at-home-tests-for-covid-19-could-slash-infection-rate/>.
35. Peter Loftus and Betsy McKay, "The COVID-19 Vaccine: When Will It Be Available to You?" *The Wall Street Journal*, December 11, 2020, <https://www.wsj.com/articles/the-covid-19-vaccine-when-will-it-be-available-for-you-11606339361> (accessed December 21, 2020).
36. Nathaniel M. Lewis et al., "Household Transmission of SARS-CoV-2 in the United States," *Clinical Infectious Diseases*, August 16, 2020, <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa1166/5893024> (accessed December 21, 2020).
37. White House Coronavirus Task Force head Dr. Deborah Birx, for example, spent a portion of the Thanksgiving weekend with family members from different households. The celebration took place in Delaware, to which she and other family members traveled. While there, she appeared on CBS's "Face The Nation." During the appearance she noted that some Americans "went across the country or even the next state" over the holiday. She did not acknowledge that she was one of them. She further stated that "some people may have made mistakes over the Thanksgiving time period." Her 50-hour trip to Delaware, Birx says, was not "for the purpose of celebrating Thanksgiving" but to winterize her Delaware property to prepare for its potential sale. Aamer Madhani and Brian Slodysko, "Birx Travels, Family Visits Highlight Pandemic Safety Perils," Associated Press, December 20, 2020, <https://apnews.com/article/travel-pandemics-only-on-ap-delaware-thanksgiving-52810c22488ff7e6bb70746bdc9bc61> (accessed December 22, 2020).
38. "The Latest: Biden Gives Dire Virus Warning for Next Two Months," AP News, December 2, 2020, <https://apnews.com/article/joe-biden-donald-trump-global-trade-china-united-states-14ae69eb51583276d1d8aa762e4b3ce3> (accessed December 21, 2020).
39. Ibid.