



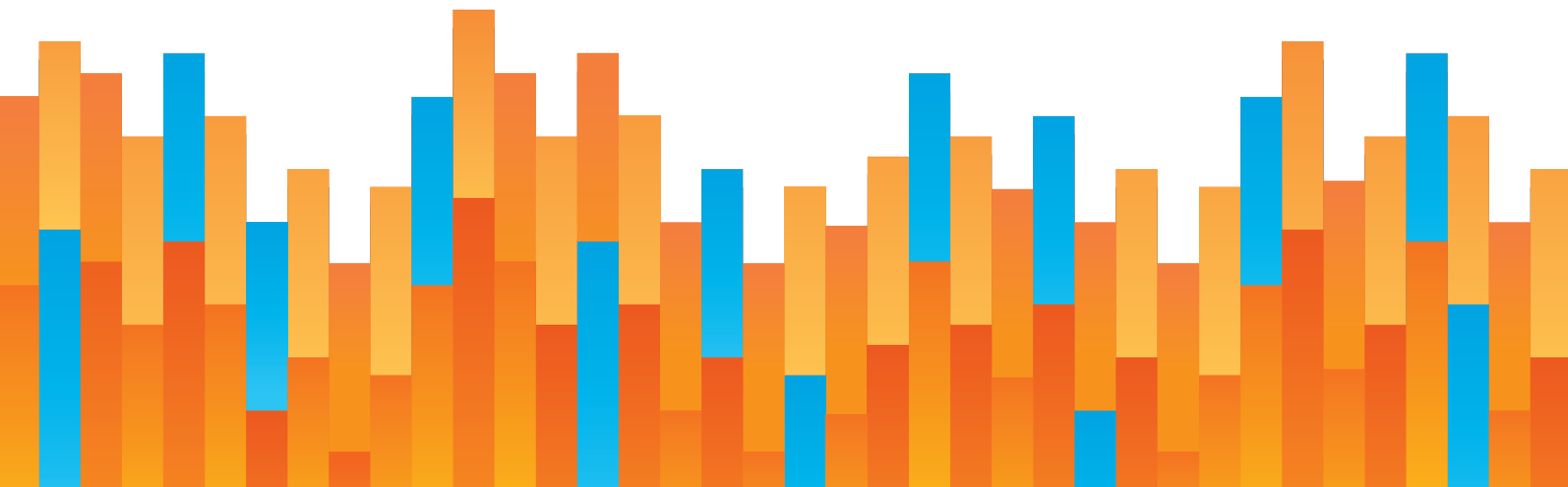
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RECOVERY FROM THE **CORONAVIRUS** CRISIS

COVID-19 LOCKDOWN PROBLEMS AND ALTERNATIVE STRATEGIES TO REOPENING THE ECONOMY

by Adrian Moore, Julian Morris, Marc Joffe, Geoffrey Lawrence and
Jacob James Rich

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BRIEFS IN THIS SERIES

Reason's series of policy briefs on *Recovery from the Coronavirus Crisis* includes:

- *Covid-19 Lockdown Problems and Alternative Strategies to Reopening the Economy*
- *Covid-19: Lessons from the Past and Other Jurisdictions*
- *The CV-19 Status App: A Risk-Based Tool to Enable Businesses to Reopen While Limiting the Spread of SARS-CoV-2*
- *Monitor-Test-Trace-Isolate: Policies for Understanding and Reacting to Covid-19 Infections*
- *Risk Management Tools for Covid-19: Information on Activity Risks and Industry Standards*
- *PPE: How to Increase Production and Distribution of Masks Amid Covid-19*

PART 1

INTRODUCTION

SARS-CoV-2, the virus that causes Covid-19, is now widespread across much of the world with over six million cases and 370,000 deaths.¹ The failure to contain the virus early on has had tragic consequences. This was nowhere more apparent than in parts of Northern Italy, where the health care system was overwhelmed, forcing medical practitioners to engage in the most awful triage decisions.²

To avoid similar tragedies, many jurisdictions, ranging from cities to entire countries, implemented mandatory lockdowns. Superficially, these seemed to have the desired effect of slowing transmission in the short term. However, while some studies find lockdowns effective in slowing transmission of the virus, several studies suggest that much if not all the reduction in transmission would have occurred anyway due to voluntary measures.³

¹ Johns Hopkins University. Coronavirus Resource Center. May 30, 2020. <https://coronavirus.jhu.edu/map.html>

² Rosenbaum, Lisa. "Facing Covid-19 in Italy – Ethics, Logistics, and Therapeutics on the Epidemic's Front Line." *New England Journal of Medicine*. March 18, 2020. DOI: 10.1056/NEJMp2005492.

³ A list of studies with positive, negative or mixed results is provided by Verbruggen, Robert, "Did the Lockdowns Work?" *National Review*. May 22, 2020. <https://www.nationalreview.com/2020/05/did-the-lockdowns-work/> Some often noted studies questioning the efficacy of lockdowns include: Meunier, Thomas. "Full lockdown policies in Western Europe countries have no evident impacts on the Covid-19 epidemic." *Medrxiv*. May 1, 2020. <https://www.medrxiv.org/content/10.1101/2020.04.24.20078717v1.full.pdf>; Villas-Boas, S. B, Sears, J., Villas-Boas, M., and V. Villas-Boas. "Are We #StayingHome to Flatten the Curve?" UC Berkeley: Department

Meanwhile, the lockdowns themselves have had devastating effects on economies, societies and even human health. Something needed to be done, but lockdowns are a blunt instrument, affecting all activities and locations equally even when the risks of different activities, businesses, workplaces, and locations are also quite different. The costs of not looking for more-refined ways to reduce risks from the virus were enormous.

of Agricultural and Resource Economics, 2020. <https://escholarship.org/uc/item/5h97n884>; Acemoglu, Daron, Victor Chernozhukov, Iván Werning and Michael D. Whinston. "Optimal Targeted Lockdowns in a Multi-Group SIR Model." NBER Working Paper No. 27102, May 2020. Revised June 2020. <https://www.nber.org/papers/w27102.pdf>

PART 2

THE PROBLEMS WITH LOCKDOWNS

Unemployment in the United States rose from under 4% in February to over 14% in May, and the real rate was estimated to be over 20%.⁴ While people reducing activities to reduce their risk of exposure to the virus would certainly have led to significant employment reductions eventually, lockdowns imposed huge job losses with no particular sensitivity to relative riskiness of activities or locations. Estimates of the likely economic effect vary, but by any measure it is enormous. A rough estimate by two economists published by the Mercatus Center in April suggests that growth in GDP would fall by approximately 5% for each month of lockdown.⁵ JP Morgan economists estimated that GDP might decline by 40%–50% in the second quarter of 2020.⁶ Economist Casey Mulligan and two colleagues at the University of Chicago put the cost of shutting down “non-essential” businesses at \$20 billion per day, which would be \$7 trillion over the course of a year (about a third of U.S.

⁴ Bureau of Labor Statistics. *The Unemployment Situation—May 2020*. U.S. Department of Labor. June 5, 2020. <https://www.bls.gov/news.release/pdf/empisit.pdf>

⁵ Makridis, Christos A. and Jonathan S. Hartley. *The Cost of Covid-19: A Rough Estimate of the 2020 US GDP Impact*. Mercatus Center. April 6, 2020. <https://www.mercatus.org/system/files/makridis-cost-covid-19-mercatus-v1.pdf>

⁶ Domm, Patti. “JPMorgan Now Sees Economy Contracting by 40% in Second Quarter, and Unemployment Reaching 20%.” *CNBC Markets*. 9 April, 2020, <https://www.cnbc.com/2020/04/09/jpmorgan-now-sees-economy-contracting-by-40percent-and-unemployment-reaching-20percent.html>.

GDP).⁷ A response based on test, trace and isolate⁸ rather than lockdowns would have prevented some, perhaps a lot, of these economic costs.



Financial stress in general and unemployment in particular are likely to lead to psychological problems, ranging from depression to suicide.



Financial stress in general and unemployment in particular are likely to lead to psychological problems, ranging from depression to suicide.⁹ In addition, many people have postponed health check-ups and even more urgent medical investigations and procedures as a result of the lockdowns, which is likely to lead to an increase in deaths from cancer and other diseases.¹⁰

⁷ Mulligan, Casey B., Kevin M. Murphy and Robert H. Topel. "Some basic economics of Covid-19 policy." *Chicago Booth Review*. April 27, 2020. <https://review.chicagobooth.edu/economics/2020/article/some-basic-economics-covid-19-policy>

⁸ Moore, Adrian and Julian Morris. "Recovery from the Coronavirus Crisis." A series of briefs published by Reason Foundation. <https://reason.org/policy-brief/recovery-coronavirus-crisis/>

⁹ Yunqiao, Wang, Jitender Sareen, Tracie O. Affifi, Shay-Lee Bolton, Edward A. Johnson and James M. Bolton. "A Population-Based Longitudinal Study of Recent Stressful Life Events as Risk Factors for Suicidal Behavior in Major Depressive Disorder." *Archives of Suicide Research*. Volume 19 (May 2015). 202-217. <https://www.tandfonline.com/doi/abs/10.1080/13811118.2014.957448>; Richardson T., P. Elliott P, R. Roberts. "The relationship between personal unsecured debt and mental and physical health: a systematic review and meta-analysis." *Clinical Psychology Review*. 33(8) (2013).1148-62. <https://www.ncbi.nlm.nih.gov/pubmed/24121465>; Blakely, TA, et. al. "Unemployment and Suicide. Evidence for a Causal Association?" *Journal of Epidemiology & Community Health*, Vol. 57 (2003). 594-600.; In addition to the increased propensity for suicide noted above, anxiety associated with the lockdowns, loss of income, and the fear of Covid-19 may impair immune function, making people more susceptible to Covid-19. Heisz, Jennifer J. "Anxiety about coronavirus can increase the risk of infection – but exercise can help." *The Conversation*. March 22, 2020. <https://theconversation.com/anxiety-about-coronavirus-can-increase-the-risk-of-infection-but-exercise-can-help-133427>

¹⁰ A group of UK cancer experts estimated that the lockdowns there could lead to 60,000 additional cancer deaths in the UK alone. Sikora, Karol, "The potential impact of Covid-19 on cancer mortality in the UK." *Oncology Central*. 6 May 2020. <https://www.oncology-central.com/in-focus/in-focus-coronavirus/the-potential-impact-of-covid-19-on-cancer-mortality-in-the-uk/>

In other words, while the lockdowns might have reduced some incidence of disease and death from Covid-19, they are also causing increased disease and death from other causes. Among the factors driving unemployment—and thus contributing to its adverse psychological effects are:

- Many businesses, large and small, are unable to operate, or are only operating at a tiny fraction of the scale necessary to cover costs.
- Business closures have already constrained global supply chains,¹¹ including for food and agricultural products.¹²
- These dislocations will lead to supply shortages in the short term, as many manufacturers cannot procure needed input materials and farmers struggle to get crops to market.
- Few businesses maintain sufficient cash reserves to service fixed costs while suffering a sudden, near-total collapse of revenue over an indefinite time period. So, many businesses have closed or are expected to close permanently if the government-mandated shutdowns continue.¹³
- The permanent closure of many businesses within those supply chains, however, could mean that shortages continue beyond the short term, and building new businesses to replace them could become challenging since the world will need to consume capital to meet its ongoing consumption needs.
- While many people have been able to continue to work remotely, a large minority of people in a wide range of sectors are unable to work.
- Nations around the globe could be affected similarly, which would mean a sharp decline in global output.

¹¹ Deagon, Brian. "Coronavirus Business Closures Unmask Global Supply Chain Defects." *Investor's Business Daily*, 17 April 2020. <https://www.investors.com/news/technology/supply-chain-management-flaws-ripped-open-coronavirus-business-closures/>.

¹² Jadhav, Rajendra, et al. "Coronavirus Upends Global Food Supply Chains in Latest Economic Shock." *Reuters*, 3 April 2020. <https://www.reuters.com/article/us-health-coronavirus-food-supplies-insi/coronavirus-upends-global-food-supply-chains-in-latest-economic-shock-idUSKBN21L2V7>.

¹³ See, e.g., Peterson, Hayley. "Coronavirus Could Trigger a Second Coming of the Retail Apocalypse, with a New Wave of Bankruptcies and Store Closings Expected to Sweep the Nation." *Business Insider*, 9 April 2020. <https://www.businessinsider.com/coronavirus-could-trigger-retail-bankruptcies-and-mass-store-closings-2020-4>.

2.1

A ONE-SIZE POLICY THAT DOES NOT FIT ALL

Not all individuals pose the same risk of infection. And not all individuals are equally susceptible. The abundance of evidence suggests that younger people in general and children in particular are both much less susceptible to infection and are much less infectious.¹⁴

Meanwhile, the virus is far less risky for those under 65 years old. In fact, preliminary estimates from several countries and U.S. states indicate that the death risk posed by Covid-19 for persons under 65 years of age is statistically equivalent to the death risk from driving an automobile between 13 and 101 miles per day.¹⁵ And it is likely that the vast majority of people under 65 who have had Covid-19 and recovered have some level of immunity (though the extent of immunity is still unclear).¹⁶ However in a small number of instances, people with Covid-19, including younger and middle-aged patients, remain sick for a very long time or have relapses.¹⁷

At the time of writing, in the U.S. there have been approximately two million confirmed cases of Covid-19, and of those over 530,000, 26%, are classified as having “recovered.”¹⁸ But the number of people who have had Covid-19 may be much larger because many cases are asymptomatic or have gone undiagnosed. Random sampling studies have found that approximately half of those who test positive for SARS-CoV-2 have few or no symptoms.¹⁹

¹⁴ Mallapaty, Smriti. “How do children spread the coronavirus? The science still isn’t clear.” *Nature*, Vol. 581, 7 May 2020, 127-128. <https://www.nature.com/articles/d41586-020-01354-0>

¹⁵ Ioannidis, John, et al. “Population-Level Covid-19 Mortality Risk for Non-Elderly Individuals Overall and for Non-Elderly Individuals Without Underlying Diseases in Pandemic Epicenters.” MedRxiv, The Preprint Server for Health Sciences. May 5, 2020, https://www.medrxiv.org/content/10.1101/2020.04.05.20054361v2?fbclid=IwAR146eXj7U0b3OMtmYlnNhlvb_UHzVBEemb8lXBaTcPso1z0vR5vzbPG-8jg.

¹⁶ Kirkcaldy R.D., B.A. King and J.T. Brooks. “Covid-19 and Postinfection Immunity: Limited Evidence, Many Remaining Questions.” *JAMA*, May 11, 2020, doi:10.1001/jama.2020.7869

¹⁷ Yong, Ed. “COVID-19 Can Last for Several Months.” *The Atlantic*. June 4, 2020, <https://www.theatlantic.com/health/archive/2020/06/covid-19-coronavirus-longterm-symptoms-months/612679/> and Lowenstein, Fiona. “No one knows why these Covid-19 patients’ symptoms keep relapsing.” *Vox*. June 4, 2020, <https://www.vox.com/2020/6/4/21274727/covid-19-symptoms-timeline-nausea-relapse-long-term-effects>

¹⁸ Johns Hopkins University of Medicine. Coronavirus Resource Center. <https://coronavirus.jhu.edu/map.html>, accessed 6/10/2020

¹⁹ Gudbjartsson, Daniel F. et al. “Spread of SARS-CoV-2 in the Icelandic Population.” *New England Journal of Medicine*. April 14, 2020. <https://www.nejm.org/doi/full/10.1056/NEJMoa2006100>; See also: Day, Michael.

In the U.S. that would mean there are at least one million immune individuals, who logically should not be subject to the same kinds of restrictions as others. In a few weeks, as the vast majority of those currently infected recovers, the number of presumptively immune people will rise by hundreds of thousands.

Some recent studies suggest the number of people who have recovered from Covid-19 is even larger than that—because many people with symptoms weren't tested and so have not been included in official tallies. The availability of tests has been very limited across most of the U.S.—and many people with Covid-19 symptoms were not sufficiently ill to warrant hospitalization and so have not been tested. Serological antibody surveys in several U.S. cities suggest the proportion of people who have had Covid in those cities could be 20 to 50 times the number of confirmed cases.²⁰ While some critics have raised methodological concerns with these serological surveys,²¹ the results are consistent with similar surveys carried out in Switzerland and Germany.²² It seems plausible that across the U.S. the actual number of people who have had Covid-19 and recovered could be five million or more.

“Covid-19: identifying and isolating asymptomatic people helped eliminate virus in Italian village.” *British Medical Journal*. March 23, 2020. <https://www.bmj.com/content/368/bmj.m1165>

- ²⁰ Bendavid, Eran, et al. “Covid-19 Antibody Seroprevalence in Santa Clara County, California.” Preprint, April 17, 2020. <https://www.medrxiv.org/content/10.1101/2020.04.14.20062463v1>; Hopper, Leigh. “USC-LA County Study: Early Results of Antibody Testing Suggest Number of Covid-19 Infections Far Exceeds Number of Confirmed Cases in Los Angeles County.” Press Release: University of Southern California. April 20, 2020. <https://news.usc.edu/168987/antibody-testing-results-covid-19-infections-los-angeles-county/>; Abril, Patti and Diana Gonzalez. “Second round of Covid-19 community testing completed; Miami-Dade County and the University of Miami Miller School of Medicine announce initial findings.” News Release, Miami Dade County, April 24, 2020. <https://www.miamidade.gov/releases/2020-04-24-sample-testing-results.asp>; Lucking, Liz. “Coronavirus antibodies found in 21% of New Yorkers in early testing.” *MarketWatch*, April 23, 2020. <https://www.marketwatch.com/story/early-antibody-tests-find-21-of-new-yorkers-have-had-covid-19-2020-04-23>
- ²¹ Vogel, Gretchen. “Antibody surveys suggesting vast undercount of coronavirus infections may be unreliable.” *Science*. April 21, 2020. <https://www.sciencemag.org/news/2020/04/antibody-surveys-suggesting-vast-undercount-coronavirus-infections-may-be-unreliable>
- ²² Press Release. “Séroprévalence covid-19 : première estimation de la prévalence d’anticorps anti-sars-cov-2 igg dans la population genevoise.” Hôpitaux Universitaires Genève. April 22, 2020. <https://www.hug-ge.ch/medias/communiqué-presse/seroprevalence-covid-19-premiere-estimation>; Streeck, Hendrik. “Vorläufiges Ergebnis und Schlussfolgerungen der Covid-19 Case-ClusterStudy (Gemeinde Gangelt)”. Preprint. 9 April 2020. https://www.land.nrw/sites/default/files/asset/document/zwischenenergebnis_covid19_case_study_gangelt_0.pdf

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Not only is there wide variation in individual susceptibility to infection, there is also wide variation in the risk of infection in different parts of the country.

Not only is there wide variation in individual susceptibility to infection, there is also wide variation in the risk of infection in different parts of the country. The risk of contracting or spreading the virus also varies widely across activities. Many counties and regions in the U.S., especially in rural areas, have experienced very few infections and the risk of becoming infected with SARS-CoV-2 in such locations is very low.

All of this suggests that “just stay home” is a “one-size-fits-all” prescription that does not, in fact, fit all. Any reasonable system that seeks to limit infection risk must consider such variation. Indeed, the obvious starting point for a realistic approach to Covid-19 is to ensure that the public understands the prevalence of the disease in any location to assess personal risk on which to base decisions. Ensuring that the public has access to reliable information about relative risks and has the freedom to act on them is vastly superior to lockdown.²³

One MD writing in the *New England Journal of Medicine* observes that U.S. lockdowns have been implemented as a fallback strategy after failing to implement the better strategy of testing and tracing:

Having failed to test early enough to contain outbreaks, the country has fallen back on two mitigation strategies: accelerating drug and vaccine development and an unprecedented strategy of nonpharmacologic interventions (NPIs) involving draconian school and business closures, stay-at-home orders, and physical distancing. Drugs and vaccines are extremely unlikely to alter the early course of the pandemic. In the short term, only NPIs have slowed the spread of disease. Yet NPIs carry a heavy economic price as well as their own health burdens, as people fail to receive care for other conditions or

²³ Oster, Emily. “The ‘Just Stay Home’ Message Will Backfire.” *The Atlantic*. May 14, 2020. <https://www.theatlantic.com/ideas/archive/2020/05/just-stay-home-message-will-backfire/611623/>

*suffer mental health consequences from isolation, unemployment, and sudden poverty. Whether NPIs are maintained or not, serious health consequences appear inescapable.*²⁴

Even before SARS-CoV-2, some epidemiologists had questioned whether lockdowns were an effective strategy to address pandemic risks of the sort posed by SARS, MERS, and the more virulent flu strains:

*It is difficult to identify circumstances in the past half-century when large-scale quarantine has been effectively used in the control of any disease. The negative consequences of large-scale quarantine are so extreme (forced confinement of sick people with the well; complete restriction of movement of large populations; difficulty in getting critical supplies, medicines, and food to people inside the quarantine zone) that this mitigation measure should be eliminated from serious consideration.*²⁵

One reason lockdowns likely have had limited effects on virus transmission is that people were already taking numerous precautions, including reducing social interactions, before the lockdowns were imposed.²⁶ As one commenter observes: “Stay-at-home orders may have had less impact on people’s actual staying-at-home than news of deaths and declarations of a state of emergency. People in areas that had stay-at-home orders may not have acted dramatically differently from those in other places.”²⁷

²⁴ Schneider, Eric C., “Failing the Test – The Tragic Data Gap Undermining the U.S. Pandemic Response,” *New England Journal of Medicine*, May 15, 2020, <https://www.nejm.org/doi/full/10.1056/NEJMp2014836?query=RP>
For more on the alternative strategy of test, trace, isolate see: <https://reason.org/policy-brief/recovery-coronavirus-crisis/>

²⁵ Inglesby, Thomas, et. al. “Disease Mitigation Measures in the Control of Pandemic Influenza.” *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, Volume 4, Number 4, 2006. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.552.1109&rep=rep1&type=pdf>

²⁶ This *NYT* analysis shows that significant portions of the population voluntarily stayed at home before lockdowns across America, Glanz, James, et al. “Where America Didn’t Stay Home Even as the Virus Spread.” *The New York Times*, April 2, 2020. <https://www.nytimes.com/interactive/2020/04/02/us/coronavirus-social-distancing.html> and this much more detailed analysis in Florida shows extensive voluntary staying before lockdowns: Playford, Adam, et al. “How Florida slowed coronavirus: Everyone stayed home before they were told to.” *Tampa Bay Times*. May 10, 2020. <https://www.tampabay.com/news/health/2020/05/10/how-florida-slowed-coronavirus-everyone-stayed-home-before-they-were-told-to/>

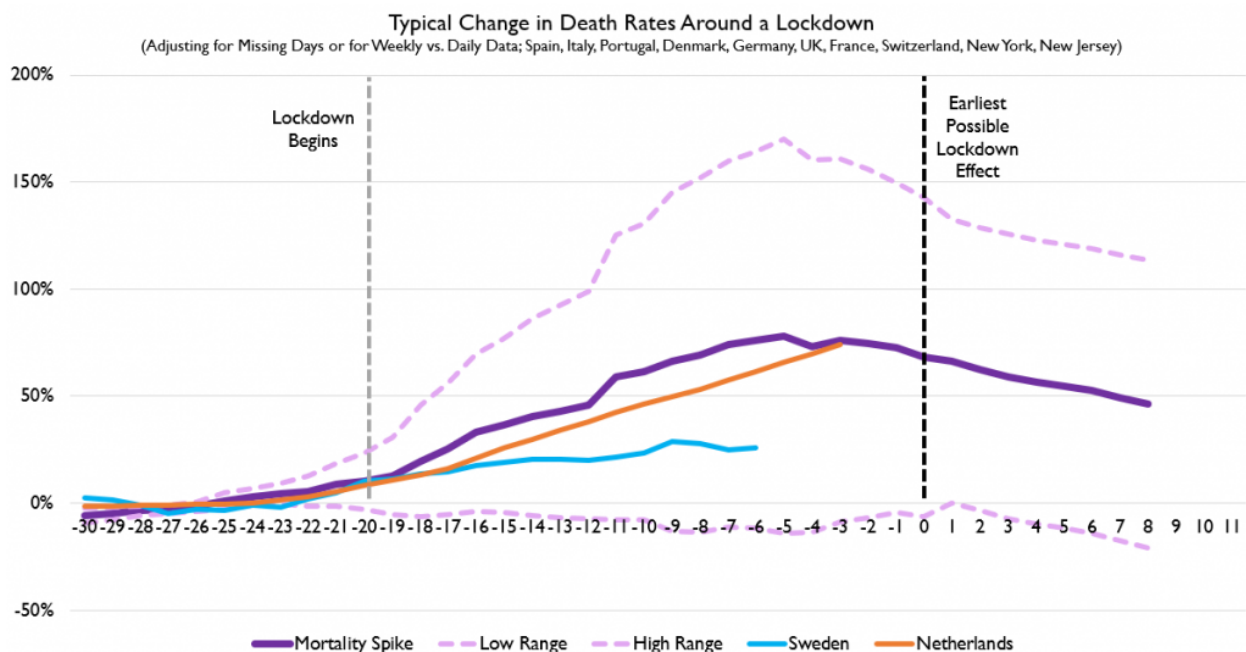
²⁷ Bastian, Hilda. “Social Distancing Has Become the Norm. What Have We Learned?” *Wired*. May 8, 2020. <https://www.wired.com/story/social-distancing-has-become-the-norm-what-have-we-learned/>

Indeed, Figure 1 shows results of an examination of data on trends in infections and deaths in various jurisdictions relative to when lockdowns went into effect and shows little positive effect.²⁸ Figure 2 show how restaurant visits plummeted before lockdowns. Statistical analyses that compare the growth rates of SARS-CoV-2 infections and deaths based on the pre-lockdown trends versus the actual trends show no significant difference in final outcomes from lockdown policies.²⁹ A study looking at job-vacancy and unemployment data to measure when businesses and employment began to contract due to the pandemic found:

The labor market collapsed at the same time across the U.S. irrespective of the state-level policies imposed. There is very little evidence that labor markets in states...that imposed stay-at-home orders earlier were differentially affected.

To the extent such analyses hold up, it will become clear that shelter-in-place orders produced huge costs with minimal benefit to human health.

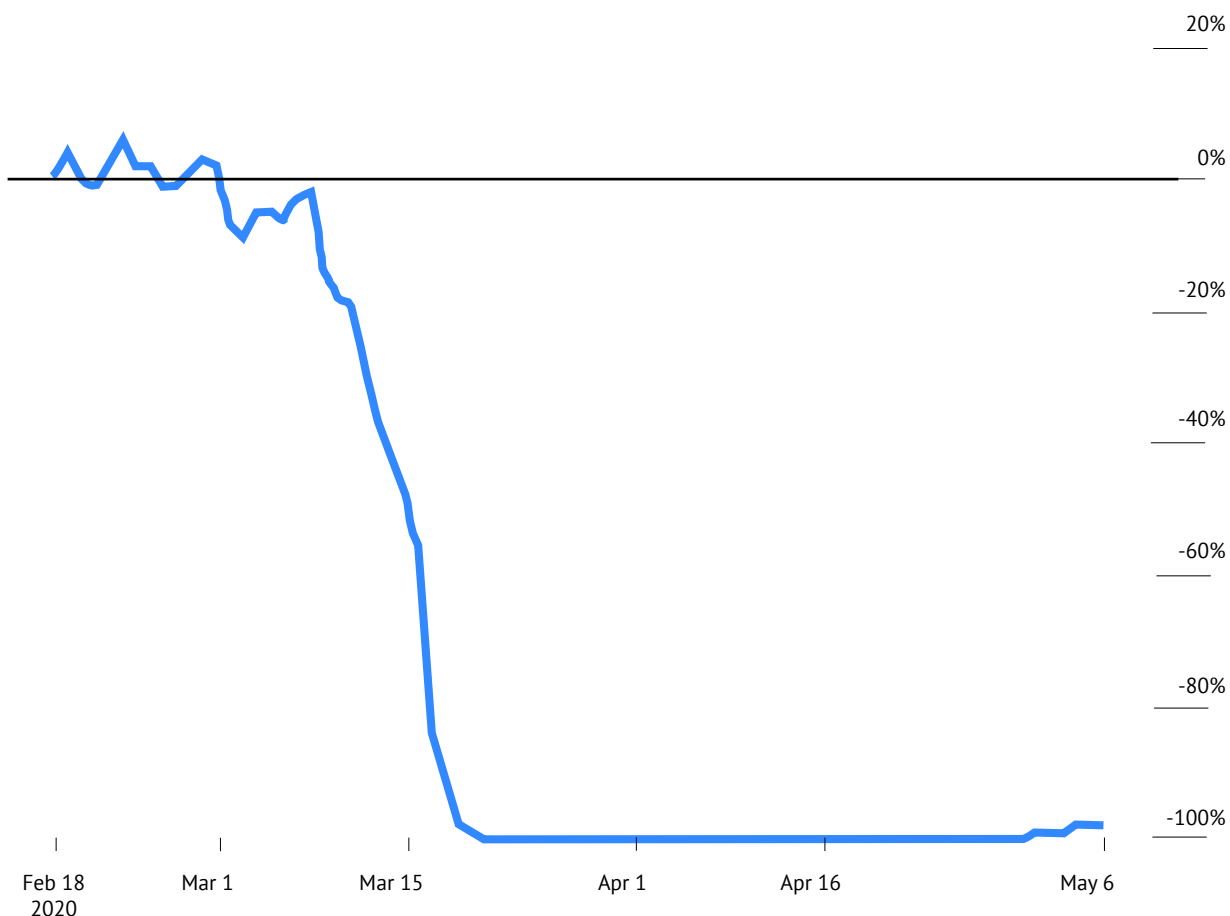
FIGURE 1: DEATH RATES BEFORE AND AFTER LOCKDOWNS



²⁸ Stone, Lyman. "Lockdowns don't work." American Enterprise Institute. April 21, 2020. <https://www.aei.org/articles/lockdowns-dont-work/>

²⁹ Meunier, Thomas. "Full lockdown policies in Western Europe countries have no evident impacts on the Covid-19 epidemic." *Medrxiv*, May 1, 2020. <https://www.medrxiv.org/content/10.1101/2020.04.24.20078717v1.full.pdf>

FIGURE 2: DINERS AVOIDED RESTAURANTS BEFORE LOCKDOWNS: CHANGE IN RESTAURANT RESERVATIONS COMPARED TO THE SAME DAY IN 2019



Source: Bloomberg, using data from OpenTable.³⁰

While it might seem logical that lockdowns *should* reduce transmission of the virus, the fact that they entail a massive imposition on people and their lives with extraordinarily high costs, and the fact that there are *more effective* alternatives make them a bad strategy.

³⁰ Smith, Noah. "Fear of Infection Hurt the Economy More Than Lockdowns." Bloomberg. June 18, 2020. <https://www.bloomberg.com/opinion/articles/2020-06-18/fear-of-coronavirus-infection-hurt-economy-more-than-lockdowns?sref=R8NfLgwS>

PART 3

EFFORTS TO RELAX LOCKDOWNS

Even if lockdowns have reduced the incidence of Covid-19, they cannot be maintained indefinitely. Frustration is already leading some people to call for a complete removal of all restrictions and may be partly responsible for widespread social unrest in the United States.³¹ Advocates for abolition can now cite numerous successful reopenings to support their case.

- Virtually all U.S. states have begun to relax shelter-in-place orders.³² Georgia aggressively led the pack, allowing businesses to begin opening, with some restrictions, on April 24. Since then, Covid-19 hospitalizations and ventilator usage in the state fell, then rose slightly and then fell again.³³ Many states experienced rising infection rates, but only a few saw rising hospitalization rates.³⁴

³¹ Britschgi, Christian. “Did Covid-19 Lockdown Orders Help Fuel Riots Nationwide?” *Reason Magazine*. June 2, 2020. <https://reason.com/2020/06/02/did-covid-19-lockdown-orders-help-fuel-riots-nationwide/>.

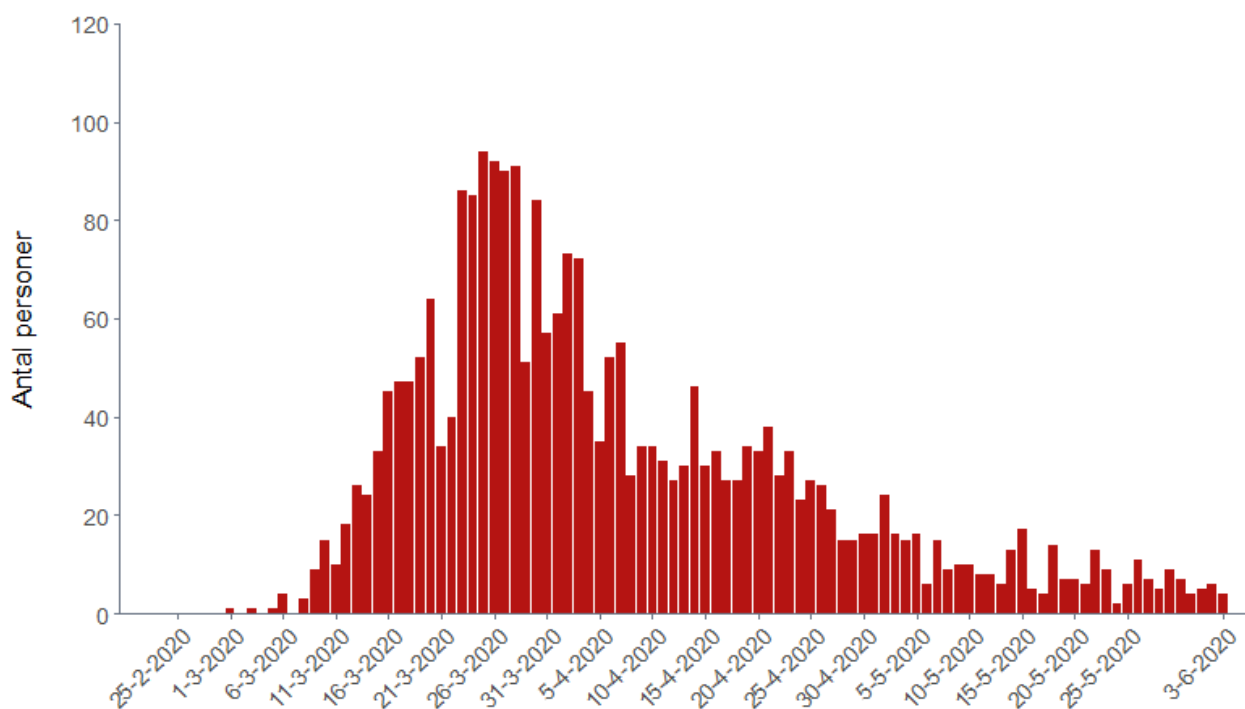
³² Mervosh, Sarah, Jasmine C. Lee, Lazaro Gamio and Nadja Popovic. “See How All 50 States Are Reopening.” *The New York Times*. <https://www.nytimes.com/interactive/2020/us/states-reopen-map-coronavirus.html>

³³ Georgia Department of Public Health. *Covid-19 Cases Over Time*. Available at: <https://dph.georgia.gov/covid-19-daily-status-report>, accessed 6/10/2020.

³⁴ Pell, Samantha, Candace Buckner and Jacqueline Dupree. “Coronavirus hospitalizations rise sharply in several states following Memorial Day.” *Washington Post*, June 9, 2020. <https://www.washingtonpost.com/health/2020/06/09/coronavirus-hospitalizations-rising/>

- Likewise, several European countries that imposed shelter-in-place orders have already begun to relax their restrictions. For example, Denmark reopened primary schools and day care centers on April 15th followed by hairdressers and small shops on April 20th.³⁵ The government opened several additional categories of facilities during May, including museums and zoos.³⁶ The country has not seen a spike in cases since taking these measures (Figure 2).³⁷

FIGURE 3: DENMARK, HOSPITAL ADMISSIONS PER DAY



Source: Danish Health Board, Numbers and monitoring of Covid-19, <https://www.sst.dk/da/corona/tal-og-overvaagning>
<https://www.sst.dk/da/corona/tal-og-overvaagning>

- Austria began easing restrictions in mid-April, allowing DIY stores, garden centers and smaller shops to reopen first. This was followed on May first by the reopening of

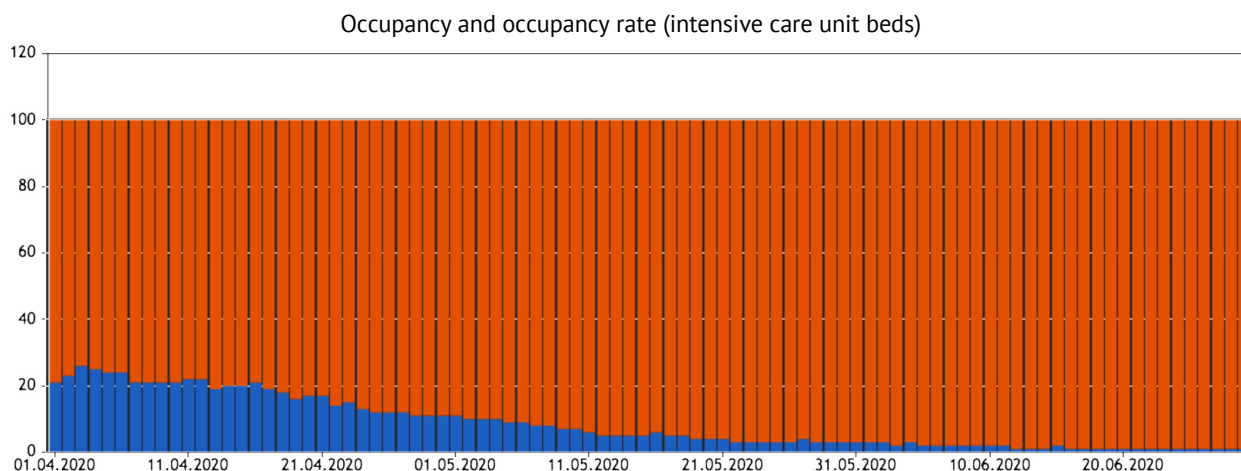
³⁵ “Danish Malls and Restaurants to Reopen Next as Virus Lockdown Eases.” *Reuters*. May 6, 2020. <https://www.reuters.com/article/us-health-coronavirus-denmark/danish-malls-and-restaurants-to-reopen-next-as-virus-lockdown-eases-idUSKBN22127R>

³⁶ AFP. “Denmark speeds up reopening as virus spread slows.” *Medical Express*. May 21, 2020. <https://medicalxpress.com/news/2020-05-denmark-reopening-virus.html>

³⁷ “Danish Malls and Restaurants to Reopen Next as Virus Lockdown Eases.”

larger retail stores and hairdressers, and permission for assemblies of up to 10 people. Beginning May 15th, Austria reopened restaurants, places of worship and cultural facilities.³⁸ Like Denmark, it has not seen an increase in serious illnesses.³⁹ See Figure 4.

FIGURE 4: AUSTRIA, INTENSIVE CARE UTILIZATION RATE



Source: Austria Federal Ministry of Social Affairs, Health, Care and Consumer Protection, https://info.gesundheitsministerium.at/dashboard_Hosp.html?l=en

³⁸ Worldaware. “Covid-19 Alert: Austria Gradually Eases Restrictions from May 15.” May 18, 2020. <https://www.worldaware.com/covid-19-alert-austria-gradually-eases-restrictions-may-15>

³⁹ Reuters. “Austria says reopening shops has not accelerated coronavirus infections.” May 5, 2020. <https://www.reuters.com/article/us-health-coronavirus-austria/austria-says-reopening-shops-has-not-accelerated-coronavirus-infections-idUSKBN22H1HP>

PART 4

REPLACING LOCKDOWNS WITH MORE-SENSIBLE POLICIES

Given the now-evident harms done by the lockdowns, there is an urgent need to find a way out. But just as lockdowns were a one-size policy that did not fit all (or, perhaps, any), so there is unlikely to be a single plan to end all lockdowns.

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This section offers a range of options that might constitute likely core elements of any realistic plan, along with suggestions for other elements that decision makers can use to

inform public policy.⁴⁰ The most extensive measures are most appropriate for high risk areas, activities and individuals, but we also discuss options for rural and low risk areas.

4.1

MEASURES INDIVIDUALS CAN TAKE TO REDUCE THE SPREAD OF THE VIRUS

While our understanding of the precise mechanisms by which the virus is transmitted remain inadequate, there is now reasonably good evidence that certain measures can reduce its spread. Most of these measures are things that individuals would likely wish to do voluntarily.

4.1.1 KEEP YOUR DISTANCE, CONSIDER WEARING A MASK (AND POSSIBLY OTHER PPE), AND PRACTICE GOOD HYGIENE

In order to avoid spreading SARS-Cov-2 to others and to reduce the chances of contracting it, individuals can take certain precautions when they find themselves in the proximity of others, especially when in close quarters.

- Limit unnecessary contact with people outside your household. That doesn't mean you can't meet friends and extended family, but extended get-togethers are best held outdoors.
- When contact is unavoidable, for example when in a store, bar, indoor restaurant, or other relatively crowded location, try to maintain a safe distance from others. In the U.S. and some other countries, authorities have advocated for a distance of six feet. In other countries, authorities have advocated shorter distances (such as three feet).
- When entering a location where contact with others is likely and where there may be virus particles in the air, wear a mask that is effective at preventing the virus from being spread to others and, if possible and practical, one that acts as a barrier

⁴⁰ Others have offered proposals with some similar elements. See e.g.: Cochrane, John H. "Flatten the Coronavirus Curve at a Lower Cost: A total shutdown could cost the economy \$1 trillion a month. We need more tailored measures." *The Wall Street Journal*, March 24, 2020. <https://www.wsj.com/articles/flatten-the-coronavirus-curve-at-a-lower-cost-11585067354>

to aerosols and other droplets entering the body. For more information on masks, reference our brief on PPE.⁴¹

The virus may be spread via hand-to-face contact. So, avoid touching your face when out and about. Also, both for your protection and that of others, wash hands regularly, and if that is not possible, use an effective alcohol-based hand sanitizer.

4.1.2 GET VITAMIN D

Numerous studies show that vitamin D helps reduce the incidence and severity of respiratory tract infections. Some recent studies suggest that vitamin D is protective against Covid-19.⁴² Since there are no serious side effects to taking vitamin D, except possibly in very large doses, it makes sense for everyone to ensure that they have an adequate amount, either from their diet, from spending time in the sun, or from supplements.

4.1.3 PROTECT THE ELDERLY AND THOSE WITH UNDERLYING CONDITIONS

While people of all age groups may become infected with SARS-CoV-2, the elderly and those with underlying conditions are most at risk of contracting and dying from Covid-19. Younger people without underlying conditions are far less likely to have symptomatic cases of Covid-19, let alone die.

While people young and old should be free to decide where they go and with whom they interact, in this era of a potentially deadly coronavirus we should take special care to avoid infecting those who might be at greater risk. That doesn't mean avoiding our parents and grandparents—human contact is essential for all of us—it means taking sensible precautions.

⁴¹ Moore, Adrian and Julian Morris. "Recovery from the Coronavirus Crisis." A series of briefs published by Reason Foundation. <https://reason.org/policy-brief/recovery-coronavirus-crisis/>

⁴² Mitchell, Fiona. "Vitamin-D and Covid-19: do deficient risk a poorer outcome?" *The Lancet Diabetes and Endocrinology*. May 20, 2020. [https://www.thelancet.com/journals/landia/article/PIIS2213-8587\(20\)30183-2/fulltext](https://www.thelancet.com/journals/landia/article/PIIS2213-8587(20)30183-2/fulltext)

Sadly, Covid-19 has spread like wildfire in hospitals and care homes, causing untold unnecessary deaths. This tragedy could have been prevented if more care had been taken to protect patients and care home residents. It is now incumbent on those facilities to improve their systems.

4.2

MEASURES BUSINESSES CAN TAKE TO REDUCE INFECTIONS

Businesses have strong incentives to reduce the likelihood of transmission on their premises, both to protect their employees and to reassure customers. Already businesses are seeking to adopt “best practices,” which range from the use of PPE to cleaning of surfaces, use of physical barriers to impose separation between individuals, where appropriate, and keeping distance between customers and employees as much as possible.

4.2.1 COVID-19 STANDARDS

There could also be value in the development of “Covid-19 Standards” that embody these best practices, as discussed in more detail in another brief in this series.⁴³ Such standards are likely to evolve over time as understanding of the most effective ways to limit transmission improve. In practice, such Covid-19 Standards will vary by activity and might include such things as: specific spacing of tables in restaurants, staggering seating at small gatherings, introducing one-way aisles at grocery stores, and similar measures to curtail physical proximity. Most businesses that remained open are already practicing such measures, and others are putting in place plans for when they reopen.⁴⁴ A clearly specified set of standards based on best practices would reassure individuals that these measures have been successfully adopted elsewhere. An illustrative list of measures is given below, based on a study by McKinsey (as with our own list above, this should be seen only as illustrative).⁴⁵

⁴³ Moore, Adrian and Julian Morris. “Recovery from the Coronavirus Crisis.” A series of briefs published by Reason Foundation. <https://reason.org/policy-brief/recovery-coronavirus-crisis/>

⁴⁴ See for example Wynn Las Vegas, <https://www.visitwynn.com/documents/Wynn-Health-Plan.pdf>

⁴⁵ Andres Cadena et al. *How to restart national economies during the coronavirus crisis*. McKinsey and Company. Exhibit 7. April 2020. <https://www.mckinsey.com/~media/McKinsey/Industries/Public%20Sector/Our%20Insights/How%20to%20Restart%20National%20Economies%20During%20the%20Coronavirus%20Crisis/Exhibit%207.pdf>

TABLE 1: COVID-19 MEASURES AND PROTOCOLS TEMPLATE

Illustrative measures		
Cross-cutting measures		Sector-specific protocols: Retail
Remote working	<ul style="list-style-type: none"> • Encourage remote work for the next 3–6 months • Create remote-work policies that offer employees productivity incentives 	<ul style="list-style-type: none"> • Implement communication and marketing campaigns to encourage e-commerce • Implement tax exemptions to e-commerce • Alternate remote work with face-to-face work as much as possible, especially for administrative staff • Restrict maximum capacity of stores on per square meter basis • Ensure that all large meetings are held online • Set differentiated work shifts (eg. Days, nights, weekends, holidays) for administrative staff • Set differentiated check-in, food, and check-out times • Create a carpooling scheme for employees in order to prevent them from moving by public transport • Extend opening times or commercial establishments • Set specific hours to serve high-risk population
Physical distancing	<ul style="list-style-type: none"> • Ensure a minimum distance of 1.5 meters between two people • Define regulation to establish maximum capacity in closed places • Suspend any in-person events that congregates more than 25 people 	
Temperature and control	<ul style="list-style-type: none"> • Monitor people’s temperature in all buildings and shops daily • Request employee quarantine when the slightest Covid-19 symptom shows up 	
Health and hygiene	<ul style="list-style-type: none"> • Establish daily disinfection procedures • Promote mandatory health and hygiene protocols for employees (eg. Washing hands, wearing masks and gloves) 	
Reporting	<ul style="list-style-type: none"> • Report to relevant health authorities of any case with Covid-19 symptoms • Report the chain of contagion to relevant health authorities 	
Enforcement	<ul style="list-style-type: none"> • Perform random checks across sectors to ensure compliance • Impose fines in case of noncompliance 	

* All of these protocols should be clearly defined by local authorities based on their context and needs.

Source: McKinsey & Company

4.2.2 COVID-19 STATUS APPS

In addition, businesses and civic organizations might develop or utilize commercial privacy- and-autonomy-protecting authenticated Covid-19 status app(s) for access to activities.⁴⁶ The purpose of these apps is to enable individuals voluntarily to share their status with others, in order to ensure both parties are able to take appropriate measures to limit risk of exposure. The apps could also be tied to a contact tracing system, thereby improving their

20restart%20national%20economies%20during%20the%20coronavirus%20crisis/How-to-restart-national-economies-during-the-coronavirus-crisis-vF.ashx

⁴⁶ See related brief on Risk Management Tools <https://reason.org/policy-brief/recovery-coronavirus-crisis/>

accuracy, and also incentivizing adoption of the contact tracing system. And the apps could be tied to voluntary symptom monitoring in order to further improve their accuracy.

4.2.3 DEVELOP AND IMPLEMENT BETTER TREATMENTS

While Covid-19 is still not well understood, treatments do seem to be improving. Sadly, mortality in the U.S. remains high. In part that is because a large proportion of reported infections are occurring in care homes and hospitals. In part it is because of a failure to treat people early. Paradoxically, the lockdowns may have increased mortality by discouraging people from obtaining treatment when it would have been most effective. In Hong Kong, the incidence of Covid-19 among the elderly has been kept low (the median age of those infected was 35 and only 5% of cases were in people 70 and older) and people with Covid-19 received treatment early.⁴⁷ Doctors in Hong Kong were also early adopters of several pharmaceuticals, such as Interferon beta-1b, ribavirin, and Kaletra, which seem to be effective at treating the cytokine storms that are the main cause of death in those with Covid-19.⁴⁸ The result is that the case fatality rate in Hong Kong is only 0.4%, compared to about 5.9% in the U.S.⁴⁹

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Paradoxically, the lockdowns may have increased mortality by discouraging people from obtaining treatment when it would have been most effective.

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⁴⁷ Purnell, Newley and Feliz Solomon. “Coronavirus Doesn’t Have to Be So Deadly. Just Look at Hong Kong and Singapore.” *The Wall Street Journal*. May 26, 2020. <https://www.wsj.com/articles/coronavirus-doesnt-have-to-be-so-deadly-just-look-at-hong-kong-and-singapore-11590491418>

⁴⁸ Fan-Ngai Hung, Ivan et al. “Triple combination of interferon beta-1b, lopinavir–ritonavir, and ribavirin in the treatment of patients admitted to hospital with Covid-19: an open-label, randomised, phase 2 trial.” *The Lancet*. May 8, 2020. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31042-4/fulltext?mod=article_inline](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31042-4/fulltext?mod=article_inline)

⁴⁹ Centre for Evidence-Based Medicine. “Global Covid-19 Case Fatality Rates.” May 26, 2020. <https://www.cebm.net/covid-19/global-covid-19-case-fatality-rates/>

Over the past couple of months, several other treatments have been undergoing trials in the U.S. and elsewhere, some of which seem to show promise. As we were writing this, news came of a breakthrough discovery of effectiveness of the common steroid dexamethasone in reducing severity of symptoms and deaths, especially among those most sick from Covid-19.⁵⁰

Of particular note are remdesivir,⁵¹ a new antiviral, and ivermectin,⁵² an old antiparasitic. It seems likely that as further research and trials are conducted, treatments will continue to improve, leading to lower mortality and morbidity from Covid-19.

4.3

MEASURES GOVERNMENTS CAN TAKE TO REDUCE THE LIKELIHOOD OF A SECOND WAVE

The lockdowns and the associated arbitrary restrictions on economic activity must end.⁵³ Meanwhile, the recent protests by various groups suggest that it is neither feasible nor equitable to continue to police the minutiae of our private lives through restrictions on social gatherings. Indeed early evidence indicates that Minneapolis protestors have a lower rate of positive tests for Covid-19 than the general population.⁵⁴ That may well be due to the fact that a large number wore masks, were relatively younger, and protests were out of doors where infection risk is low.

⁵⁰ Mueller, Benjamin and Roni Caryn Rabin. "Common Drug Reduces Coronavirus Deaths, Scientists Report." *The New York Times*. June 16, 2020. <https://www.nytimes.com/2020/06/16/world/europe/dexamethasone-coronavirus-covid.html>

⁵¹ Beigel, John H., et al. "Remdesivir for the Treatment of Covid-19 – Preliminary Report." *New England Journal of Medicine*. May 22, 2020. <https://www.nejm.org/doi/full/10.1056/NEJMoa2007764>

⁵² Rajter, Juliana Cepelowicz et al. "ICON (Ivermectin in COvid Nineteen) study: Use of Ivermectin is Associated with Lower Mortality in Hospitalized Patients with Covid19." MedRxiv. June 2020. <https://www.medrxiv.org/content/10.1101/2020.06.06.20124461v2>; Caly, Leon et al. The FDA-approved drug ivermectin inhibits the replication of SARS-CoV-2 in vitro." *Antiviral Research*, June 2020. <https://www.sciencedirect.com/science/article/pii/S0166354220302011>

⁵³ Fernandez, Marisa and Courtenay Brown. "The randomness of "essential" businesses." *Axios*. April 20, 2020. <https://www.axios.com/coronavirus-essential-businesses-22e0edfc-d838-4c2a-81eb-9fb81303ee13.html>

⁵⁴ Guzman, Joseph. "Few protesters test positive for COVID-19 in Minnesota, early data finds." *The Hill*, June 15, 2020, <https://thehill.com/changing-america/well-being/longevity/502837-few-protesters-test-positive-for-covid-19-in-minnesota>

Where appropriate, governments might seek to encourage businesses to adopt practices, standards and apps discussed in this brief and in more detail in the *Risk-Based Tools to Limit the Spread of SARS-CoV-2: Information on Activity Risks and Standards* brief in this series.⁵⁵ This will allow the vast majority of businesses quickly to resume operation, albeit with additional precautions in place. More generally, governments that still have restrictions in place that limit the movements and economic activities of the vast majority of people, including those who are at low risk of being hospitalized (or worse) with a system that encourages only those who are infected or likely infected to self-isolate (we assume that those at high risk for infection, such as elderly people with pre-existing conditions, will take appropriate precautions, which might include self-isolation for some). Those least likely to be infected are able return to work and more normal activities in relative safety.

More importantly, however, governments can now put in place systems that will reduce the likelihood of a second wave of the disease. We cannot stress more strongly that it is not necessary to put such systems in place *before* relaxing restrictions; the economic, social and health costs of current restrictions are simply too great. But governments should seek to do so as soon as they can. The following describes such a system.

4.3.1 SYSTEMS TO IDENTIFY AND CONTAIN CLUSTERS: TEST, TRACE, ISOLATE

First and foremost, governments, in partnership with the private sector and civil society, should seek to develop systems that would enable them to identify clusters of Covid-19, as described in the other policy briefs in this Coronavirus Crisis series.⁵⁶ These are really the classic epidemiological tools used since John Snow identified the Broad Street Pump as the source of the cholera outbreak in London in the 1850s. And they are the tools that have helped many countries to contain Covid-19.

The key policy actions focus on steps to discover how widespread Covid-19 is in a jurisdiction, identify emerging virus hotspots or “clusters,” contain those clusters and reduce transmission generally, and create data to understand the effects of behaviors and policies.

⁵⁵ Moore, Adrian and Julian Morris. “Recovery from the Coronavirus Crisis.” A series of briefs published by Reason Foundation. <https://reason.org/policy-brief/recovery-coronavirus-crisis/>

⁵⁶ Ibid.

- Put in place systems that will enable extensive testing for the virus (SARS-CoV-2), as well as antibodies to the virus, in order to locate clusters of current and past infection. While this testing should, as far as possible, be done privately, there would be great benefits from sharing information in an anonymized way through publicly accessible databases in order to enable individuals to manage their own risk and to understand infection rates, mortality and morbidity, as well as the extent and degree of immunity provided by antibodies.
- Simultaneously put in place systems that enable voluntary, targeted testing and contact tracing, both manually and through the use of private, privacy-preserving contact tracing apps, in order to identify as far as possible all those who have the virus and to inform those who may have been exposed to the virus.

Some governments have already begun putting these systems in place. However, few if any have done so either swiftly or very effectively. A considerable part of the problem has been over-reliance on centralized approaches. This is true not only in the U.S. but also other countries, such as the U.K., that have sought to implement testing and tracing through centralized bureaucracies. By contrast, countries that adopted decentralized approaches, such as Taiwan, South Korea, Germany, and Iceland, were able to test a greater proportion of the population far more quickly—and thereby more quickly identify clusters and isolate those who were infected.

In the current crisis, we have already witnessed two colossal government failures. First, there was the inability of CDC and FDA to widely deploy test kits in the weeks after community spread began. CDC failed to follow its own manufacturing guidelines, resulting in the distribution of contaminated test kits.⁵⁷ And later on CDC was found to be “combining test results that diagnose current coronavirus infections with test results that measure whether someone has ever had the virus. The upshot is that the government’s disease-fighting agency is overstating the government’s ability to test people who are sick with

⁵⁷ Yeager, Ashley. “CDC Lab Contamination Delayed Coronavirus Testing.” *The Scientist*. April 20, 2020. <https://www.the-scientist.com/news-opinion/cdc-lab-contamination-delayed-coronavirus-testing-67438>

Covid-19.”⁵⁸ Meanwhile, stringent FDA regulations inhibited the CDC’s ability to quickly recover from its error.⁵⁹

After layoffs spiked in mid-March, state unemployment systems failed to keep up with the demand for benefits, with systems crashing and vast numbers of unemployed left waiting weeks for benefits.⁶⁰ Now, as Florida’s government rolls out mass testing for Covid-19, there are reports of waits of up to 10 days for results—a stark contrast to next day results (or at most 72 hours) that were promised—which calls into question the state’s ability to manage mass testing.⁶¹

The lesson is clear: do not rely on centralized government bureaucracies to undertake testing and tracing of those who have or might have Covid-19 (or any other infectious disease for that matter). Support, now and in the future, voluntary full isolation for all who test positive for the virus and anyone identified as at risk due to contact with an infected person until they are able to have a test. Consider focusing existing programs to offset individual hardships from self-isolation. The appropriate period for self-isolation will depend on how long a person is likely to be infectious, which should be determined by the best currently available evidence.

In contemplating these actions, it is important to remember that the aim is to limit contagion and re-establish trust, so that our lives return, as fast as possible, to normalcy. To that end, the actions taken must be consistent with the re-establishment of an economic and social system that is primarily based on private ordering. As such, wherever possible, actions should be undertaken in a decentralized manner, with priority given to private

⁵⁸ Madrigal, Alexis C. and Robinson Meyer. “How Could the CDC Make That Mistake?” *The Atlantic*. May 21, 2020. <https://www.theatlantic.com/health/archive/2020/05/cdc-and-states-are-misreporting-covid-19-test-data-pennsylvania-georgia-texas/611935/>

⁵⁹ DePillis, Lydia and Caroline Chen. “The FDA Is Forcing the CDC to Waste Time Double Testing Some Coronavirus Cases.” *ProPublica*. March 12, 2020. <https://www.propublica.org/article/the-fda-is-forcing-the-cdc-to-waste-time-double-testing-some-coronavirus-cases>

⁶⁰ Purnell, Spence. “State Unemployment Websites Crash as Covid-19 Shines Light on Government Technology Failures.” Reason Foundation. April 13, 2020. <https://reason.org/commentary/state-unemployment-websites-crash-as-covid-19-shines-light-on-government-technology-failures/>

⁶¹ Heath, Christopher and Sarah Wilson. “‘Designed to fail’: How systematic failures led to Florida’s jobless benefits filing woes.” WFTV.com. April 23, 2020. <https://www.wftv.com/news/local/designed-fail-how-systematic-failures-led-floridas-jobless-benefits-filing-woes/HXZVY4XMWRFRPPWVQWHGSQKHQI/> and Seidman, Carrie. “What good is a test if you can’t get results?” *Herald Tribune*. May 17, 2020. <https://www.heraldtribune.com/opinion/20200517/seidman-what-good-is-test-if-you-cant-get-results>

initiatives. Where government takes a role, whether it be in relation to testing, tracing, establishing a risk rating system, or building a status app, it should primarily be as the coordinator, sponsor, or funder of public-private partnerships.

4.3.2 CONSIDER WAYS TO ACHIEVE HERD IMMUNITY MORE QUICKLY

The aim of all these measures is to slow the spread of SARS-CoV-2 and reduce the death toll from Covid-19. With luck, they will reduce the reproductive rate—that is the number of susceptible people infected by each person with the disease—sufficiently that the virus dies out by itself and does not return. Unfortunately, however, it is quite likely that it will continue to spread slowly in numerous locations in the U.S. and may well be brought back by travelers coming from other countries. As such, continued vigilance will be required for some time.

Another possibility is that herd immunity could be achieved. This is the concept that when a sufficient proportion of the population has immunity to the disease, there are too few susceptible people to maintain a reservoir of infection. At the moment, there are widely varying views as to when and how that might be achieved for SARS-CoV-2, largely due to poor understanding of the reproductive rate and of susceptibility. For diseases such as measles, which has a reproductive rate of between 12 and 18, herd immunity requires that at least 90% of the population have immunity (e.g. through vaccination). For seasonal flu, which has a reproductive rate of between 0.9 and 2, herd immunity is achieved when only about 50% of the population are immune. For SARS-CoV-2, the reproductive rate is thought to be somewhere between 1.94 and 5.7. But the *effective* reproductive rate might be as low as 0.5 – due to a large proportion of the population not being susceptible to the disease. So, at the low end, herd immunity might be achieved once only 20% of the population are immune. But at the high end, herd immunity would require about 70% of the population to have immunity.⁶²

⁶² D'Souza, Gypsyamber and David Dowdy. "What is Herd Immunity and How Can We Achieve It With Covid-19?" Johns Hopkins School of Public Health. April 10, 2020. <https://www.jhsph.edu/covid-19/articles/achieving-herd-immunity-with-covid19.html>. On possible lower thresholds, see Gabriela, M., et. al. "Individual variation in susceptibility or exposure to SARS-CoV-2 lowers the herd immunity threshold." *MedRxiv*, May 2020. <https://doi.org/10.1101/2020.04.27.20081893>

Paradoxically, shelter-in-place orders, which were originally aimed to slow the rate of infection in order to avoid overwhelming health systems, may have delayed the development of herd immunity. More recently, some policymakers have hinted at keeping some form of social distancing in place until herd immunity could be achieved via vaccine rather than recovery. The timeline for widespread distribution of a vaccine is an extreme unknown and there's no guarantee that a vaccine will achieve the "safe and effective" criteria that the FDA requires to be demonstrated in human trials before any pharmaceutical can go to market. There is one experimental vaccine already undergoing human trials,⁶³ but even if those trials prove successful for both efficacy and safety, it could still take months to scale production to meet demand in just the U.S. and Europe, let alone the rest of the world. Meanwhile, many estimates suggest a vaccine will take until at least 2021 and might not be available for five years or more (at which point it would likely be redundant).⁶⁴ Never mind 18 months, waiting even another three months to resume most economic activities would expose humanity to an unacceptable loss of life and well-being resulting from economic depression alone.

Although there has been some debate about the degree of immunity conferred by having had Covid-19, most medical doctors believe recovery confers immunity for at least the short- to medium-term.⁶⁵ Whether developed through recovery or vaccination, the degree of immunity that antibodies offer does not generally differ.

Most individuals have a strong self-interest in safeguarding their own health, which explains why private actors were already taking precautionary measures before any government orders were issued. Infected individuals can impose negative externalities on others when they do not self-isolate and expose others to possible infection. So in self-interest many will demand that others wear masks, keep their distance, etc. as a condition of interactions like shopping, events, etc. However, suppression of the disease through

⁶³ Cheng, Aria and Luran Neergaard. U.K. "Covid-19 Study Aims to Immunize More Than 10,000 with Experimental Vaccine." Associated Press. May 22, 2020. <https://time.com/5841473/uk-coronavirus-vaccine-study/>

⁶⁴ On the highly compressed timeline of 18 months see Thompson, Stuart A. "How Long Will a Vaccine Really Take?" *The New York Times*. April 30, 2020. <https://www.nytimes.com/interactive/2020/04/30/opinion/coronavirus-covid-vaccine.html> On why a much longer timeline might be in the offing, see Weintraub, Arlene. "It could take 5 years for 2 leading Covid-19 vaccines to debut, AI analysis finds." *FiercePharma*. April 17, 2020. <https://www.fiercepharma.com/pharma/don-t-count-a-covid-19-vaccine-for-at-least-five-years-says-ai-based-forecast>

⁶⁵ Kirkcaldy, et al. "Covid-19 and Postinfection Immunity."

strict social distancing measures can also delay herd immunity and prolong the crisis, so there is also a positive externality of exposure to the extent that it hastens herd immunity. In the words of Casey Mulligan and his fellow Chicago economists, “[I]t might be better if those at low risk (such as the young) were quickly infected, while vulnerable groups were isolated.”⁶⁶

George Mason University economist Robin Hanson has even advocating incentivizing young people to become infected with low doses of the virus—by paying them.⁶⁷ This approach, called “variolaion” is similar to the types of inoculation that were adopted historically to deal with dangerous viral contagions such as smallpox.⁶⁸ There is good evidence that the severity of disease caused by a virus is proportional to the initial viral load—and this seems to be true for Covid-19.⁶⁹ Assuming this is the case, inoculating healthy younger individuals with a low dose of SARS-CoV-2 is likely to cause a mild or even asymptomatic form of the disease, following which the individuals will recover and be immune. In principle such an approach, which could be funded philanthropically, overcomes the incentive to avoid contagion among those people who are least at risk from the worst aspects of Covid-19.

It’s possible to envision from this suggestion a strategy for controlling the rate of contagion in a manageable fashion in order to increase the number of recovered individuals—our best resource. Recovered individuals can interact directly with vulnerable groups without risk of contagion. Recovered individuals would also be a source of antibodies that could be used both prophylactically among those at risk of exposure and therapeutically for those with Covid-19.⁷⁰ When a sufficient number of healthy young individuals have had and recovered from Covid-19, the population might achieve herd immunity, thereby dramatically reducing the risk of contagion to vulnerable populations over the medium term while medical

⁶⁶ Mulligan et al., “Some basic economics of Covid-19.”

⁶⁷ Hanson, Robin. “Variolaion (+ Isolation) May Cut Covid19 Deaths 3-30X.” *Overcoming Bias*. March 30, 2020. <http://www.overcomingbias.com/2020/03/variolaion-may-cut-covid19-deaths-3-30x.html>

⁶⁸ Boylston, Arthur. “The origins of inoculation.” *Journal of the Royal Society of Medicine*. Vol.105(7), July 2012. 309–313. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3407399/>

⁶⁹ Hogan, Alex. “How much of the coronavirus does it take to make you sick? The science, explained.” *Stat News*. April 14, 2020. <https://www.statnews.com/2020/04/14/how-much-of-the-coronavirus-does-it-take-to-make-you-sick/> ; Little, Paul, et al. “Reducing risks from coronavirus transmission in the home—the role of viral load.” *British Medical Journal*. Vol. 369, 2020. doi: <https://doi.org/10.1136/bmj.m1728>

⁷⁰ Abraham, Jonathan. “Passive antibody therapy in Covid-19.” *Nature Reviews Immunology*. 12 June 2020. <https://www.nature.com/articles/s41577-020-0365-7>

researchers attempt to develop a vaccine and get it approved, all the while using social distancing tools when interacting with others who may have different risks or preferences.

Given the disproportionate risks that Covid-19 poses to elderly populations and those with existing morbidities, vaccination clearly would be the optimal treatment for these groups before they are exposed to possibly infected persons. And remaining fairly isolated until then may continue to be their only safe option.

4.3.3 ISSUES TO CONSIDER AS GOVERNMENTS REMOVE RESTRICTIONS

As governments remove restrictions, it is important to remember that a great many individuals will be conservative about taking infection risks, and no one should be required to take risks they don't think worthwhile. For some time, many may choose to continue self-isolation, use of face masks/respirators and social distancing. Indeed, many people who are at increased risk from Covid-19, such as the elderly, may continue to self-isolate until a vaccine is available or until natural herd immunity eliminates the virus, if they can afford to do so. Businesses and workers who are able may continue telecommuting or at least avoid meetings and business travel, and parents may continue home or online schooling.

These are the natural reactions of rational individuals to a dangerous contagion and should be encouraged as the emergent, market-based order to combat a serious collective threat. And, in general, the resultant more gradual process of reintroducing physical social interaction will reduce likelihood of new clusters of disease occurring.

At the same time, for people to make good decisions, they need good information. Anonymized data from testing as well as basic information about infection, hospitalization and death rates should be readily available and very up to date, so that it can be incorporated into people's decisions. A good model is the website maintained by Iceland at www.covid.is (all of which is conveniently available in English!). Every effort should also be made to provide good information on risks and mitigation measures.

There is also a danger that policymakers may fail to communicate effectively the steps that are being taken. If they do so, many people may become more afraid, thereby undermining the process and slowing down a return to normalcy.

We have not specified which jurisdictions should have decision-making authority regarding the regulation of business. In the U.S., such decisions are partly a matter for the states and partly a matter for municipalities, counties, and other smaller jurisdictions. In general, we believe that states should delegate most of these matters to more-local jurisdictions. Policymakers should recognize the safety needs are more strenuous in an urban environment, where many individuals are in close, frequent physical proximity and contagion can spread more quickly. Rural areas—especially those that do not attract tourists—already benefit from a degree of isolation and may not need such restrictive regulations if there is no sign of infection. This could allow for approaches that vary both across and within states by county, city, or school district, for instance.⁷¹ It is most unlikely that the same policy will be appropriate to all jurisdictions, and policymakers should actively avoid such procrustean one-size-fits-all approaches.

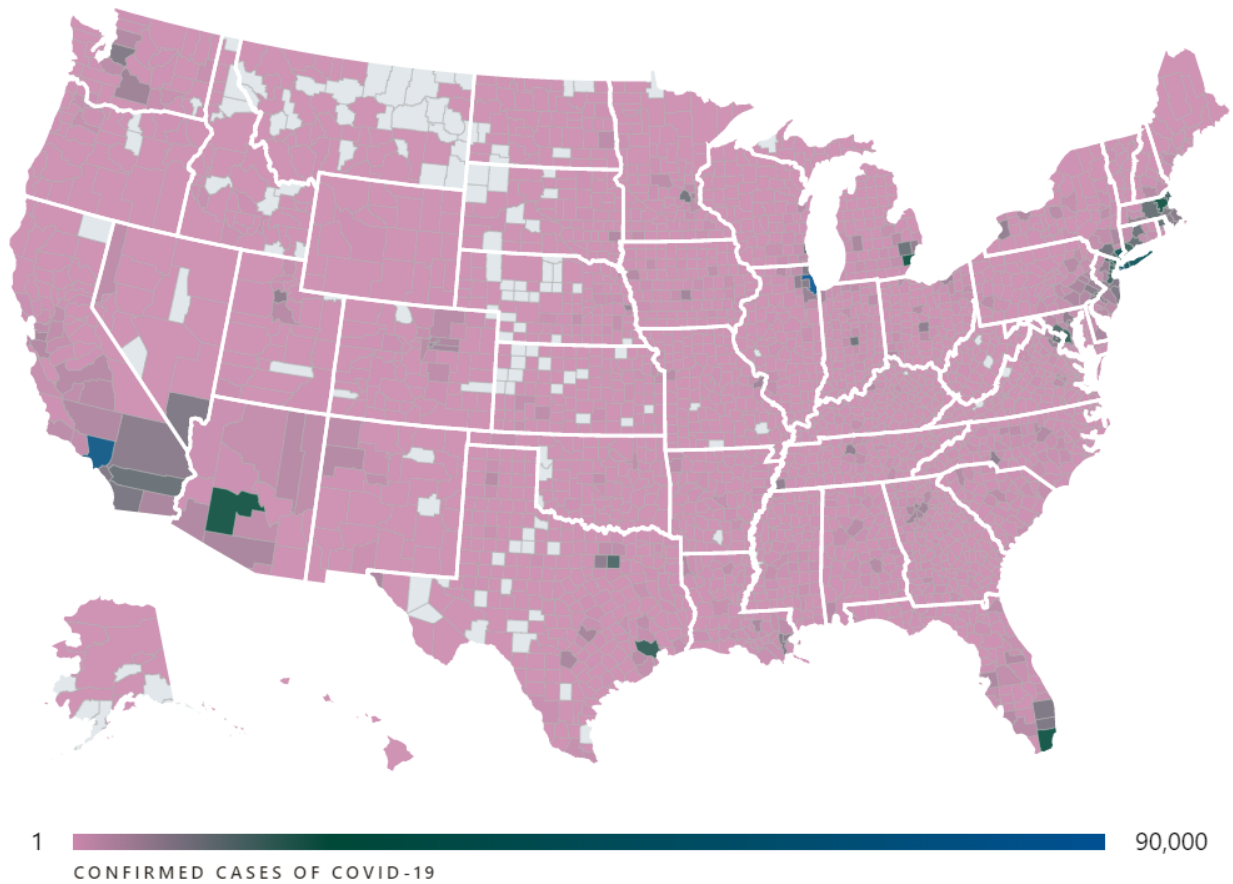
4.5

RURAL AND OTHER LOW RISK AREAS

It may also be the case that potentially costly mass testing and contact tracing in some jurisdictions, notably rural ones with low populations and limited tourism, may not be much more effective than alternative measures. As Figure 5 shows, many counties in the U.S. have no symptomatic and confirmed cases of Covid-19, and most counties only have a handful of symptomatic and confirmed cases. The virus is only a significant problem in urban counties.

⁷¹ For example, a legislative proposal in Michigan would create three tiers of counties with policy measures appropriate to their conditions. The most urban counties would be tier 1 with a continued stay at home order. Less urban counties would be tier 2 with a heightened risk and would be subject to a cap on gatherings, less travel restrictions, allowing remote and curbside sales but with enhanced safety protocols, allowing more elective, outpatient procedures, and allowing more outdoor recreation with appropriate social distancing. Tier 3 would be the lowest risk category with most restrictions relaxed for less-vulnerable individuals but retaining limits on hotel and vacation accommodations and reduced maximum occupancy for businesses. See LeBlanc, Beth. "House GOP floats regional plan to serve as 'framework' for state's reopening." *The Detroit News*. April 20, 2020. <https://www.detroitnews.com/story/news/local/michigan/2020/04/20/house-gop-floats-regional-reopening-plan/5163181002/>

FIGURE 5: U.S. COVID-19 CASES BY COUNTY (AS OF JUNE 16, 2020)



Source: USA Facts, "Coronavirus Locations: Covid-19 Map by County and State," <https://usafacts.org/visualizations/coronavirus-covid-19-spread-map/>

Clearly testing and tracing are crucial to improving Covid-19 risk management, and every jurisdiction can better understand its health threats and options with better data from testing. Testing and tracing also provide crucial information and risk management tools for individuals and businesses. Any public policy or private strategy will be more likely to succeed if informed by extensive testing and utilizing appropriate tracing.

But, it can be a struggle to implement and manage extensive test-and-trace approaches, and some jurisdictions have low risk and therefore less need to go all in on test and trace. So some jurisdictions should have strategies to mitigate and manage the risks of the virus, which can be improved by extensive testing and tracing, but don't require them in order to proceed.

Targeted protections intended to benefit vulnerable populations—primarily the elderly and those with existing morbidities—can provide safety for those most at risk, while leaving others to self-manage their risks. The Swedish and Icelandic approaches offer templates for different levels of testing and tracing combined with voluntary social distancing practices to manage spread of the virus.

PART 5

CONCLUSION

Its increasingly obvious that lockdowns were not well thought out and have caused massive economic and social disruption disproportionate to any reduction in Covid-19 risks. They are a blunt, one-size-fits-all policy that needs to be replaced immediately with more rational, less onerous policies.

The measures discussed here offer an adaptable range of options, recognizing that no single approach will work best everywhere. Individuals and businesses in rural areas may not need to use as many tools to reduce risk as those in urban areas. Communities with more vulnerable populations, such as retirees, may need to take different measures from college towns. As governments consider policies to prevent a second wave, more data-driven approaches based on test and trace are desirable.

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