

IBM Center for The Business of Government

Managing The Next Crisis:

Twelve Principles For Dealing With Viral Uncertainty

Katherine Barrett, Richard Greene and Donald F. Kettl



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Those who cannot remember the past are condemned to repeat it.



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FOREWORD

On behalf of the IBM Center for The Business of Government, we are pleased to publish this new report, *Managing the Next Crisis: Twelve Principles for Dealing With Viral Uncertainty*, by Katherine Barrett and Richard Greene—Senior Advisors, Columnists and co-chairs of the Advisory Board for Route Fifty and Donald F Kettl—Professor Emeritus and Former Dean of the University of Maryland School of Public Policy. All three authors are also advisors for the Volcker Alliance and Fellows of the National Academy of Public Administration.

Governments and societies continue to face the unforeseen and unprecedented challenges of responding to and recovering from the COVID-19 pandemic. The experiences of the last 18 months have pointed to the importance of well-managed actions at the local, national, and cross-border levels. Many of these steps address issues that are now well-documented, including medical support for testing, contact tracing, and vaccine management; supply chain challenges around vaccine production and distribution; impacts on local job markets; and the importance of addressing equity in delivering needed social services.

In this report, authors Barrett, Greene and Kettl—renowned experts on governance at all levels—step back to understand how governments have operated in developing strategies and programs to address these global, societal challenges. Based on extensive research and interviews, the authors develop twelve principles, each accompanied by a recommended set of actions, for government to follow in addressing future crises. Importantly, these principles and actions can enable government officials to help their constituencies advance through the current stages of COVID response and recovery, and to emerge stronger and more resilient.

The principles and associated actions identified in the report address three critical imperatives for managing through the pandemic and preparing for the future:

- Building partnerships with key organizations in the public, private, and nonprofit sectors.
- Managing networks needed to drive such partnerships to overcome challenges, through improving operations and service delivery.
- Steering outcomes across networks that lead to well-understood and measurable improvements in the health and well-being of the public.



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TIM PAYDOS

This report builds on recent work from our Center to help governments address and move forward in the face of the COVID pandemic, including [COVID-19 and its Impact: Seven Essays on reframing Government Management and Operations](#); a series of blogs from both Don Kettl (see [Lessons from COVID](#)); and a series of blogs with IBM expert perspectives around how governments can leverage resiliency to emerge stronger (see [COVID-19's final phase: How governments can emerge stronger, more resilient](#)). The report also continues the Center's work with leading experts in addressing crises over time, including [Responding to Global Health Crises: Lessons from the US Response to the 2014-16 West Africa Ebola Outbreak](#); and [Planning for the Inevitable: The Role of the Federal Supply Chain in Preparing For National Emergencies](#).

We hope this report provides useful insights for government officials at all levels to move forward effectively from the current pandemic, and better prepare for the inevitability of future crises.

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EXECUTIVE SUMMARY

The phrase “a crisis is a terrible thing to waste” was originally used by noted Stanford economist Paul Romer in 2002. Since then, it has been quoted or filched outright by many luminaries including Rahm Emmanuel as chief of staff to President Barack Obama, author Malcolm Gladwell, the Brookings Institution, and scores of academics, writers, and politicians.



Moving through the Delta variant of coronavirus and beyond, the nation continues struggling toward an era that historians may dub “the transition to a new reality”—and there may never be a time when Romer’s comment proved more demonstrably true.

One essential step to turning the pandemic crisis into something teachers call a “learning moment” involves identifying how governments at all levels might have better navigated the nation through a calamity the likes of which few living Americans can recall. As [argued](#) in an earlier blog post for the IBM Center for The Business of Government, COVID demonstrates that “democracy is hard—and federalism is harder.” America’s unique form of democratic government posed important challenges in combatting the virus—but it also frames important lessons for responding to future pandemics, as well as to a broad array of other and often-unpredictable crises.

As the nation transitions from the heights of the pandemic, an opportunity presents itself to go beyond that first step and reach the next crucial level: actionable steps that federal, state, and local governments can take in responding and recovering to future, if likely less widespread, traumas.

However, governments may be on the verge of wasting this opportunity. The race back to “normal” may move hard issues and lessons into the background—understandable given the natural human tendency to forget many painful memories. [Scientists have even found](#) that this capacity may have physical roots in a neuronal circuit that helps the mind to internally delete prior harsh events. Given this condition, governments must not lose the chance to learn how to make a better future after the tragic experiences of the last couple of years.

This report, assembled over the course of many months, addresses that goal of helping governments capture lessons learned for future action, relying not just on lessons from the pandemic but also from other tragic events of the near or intermediate past. Reflecting on this task, the report coins a new term for this particular moment when uncertainty mixes with opportunity: the “Pandoric,” based on the ancient Greek poet Hesiod’s mythic tale of the first woman on earth, Pandora. In this story, each of the gods presented Pandora with gifts of grace or beauty. One mysterious present, though, came as a dowry in the form of a large jar often used to contain oil. The jar was sealed carefully, but when her husband Epimetheus asked about its contents they opened it together. Out flew the pantheon of diseases, troubles, and worries that would forever afflict mankind. Once they had escaped, though, the box was not empty. Hope remained.

The first eighteen months of the pandemic posed a difficult, constantly mutating series of problems that challenged the very foundations of American government. In February 2020, a new condition began to cast its shadow across the country, but a condition the impact of which was not yet clear. By mid-March, the implications of the virus became clear—and so too its consequences.

The NCAA canceled its championship tournament, colleges and universities in just two weeks went to virtual learning, and states began closing their economies. Constant battles emerged over how best to attack the virus, from closing down restaurants to requiring face masks. Summer vacations in 2020 disappeared in the flurry of the virus’s attack.

Then, every time the country began to get ahead of the pandemic, the virus’ reach reared its head once again—first with a new and dangerous wave in January 2021, and then, when widespread vaccinations became available in the spring of 2021, with yet another wave in the late summer due largely to the Delta variant impact on the unvaccinated. The disease has proved highly unpredictable, and has caused deep economic, political, and social damage that has challenged the nation’s ability to respond.

Lessons learned over that period can and should apply to the current crisis, and those that will inevitably befall governments at all levels in months and years to come. Twelve principles follow for confronting and softening the impact of the next trial. These principles are based on conversations with experts, insights gained from academic and popular study of the pandemic and other similarly unpredictable yet devastating events, and reliance on a combined 120 years of experience the authors have accumulated in researching analyzing and writing about government.

Discussion of the twelve principles form the large portion of this report. The first four principles address how governments can build partnerships, the next four how governments can manage networks, and the last four how governments can steer outcomes. In brief:

1. Local governments inevitably sit on the frontlines in responding to a crisis, but the federal government plays a critical role in coordinating responses because when one community is under siege, others may soon follow.
2. The federal government can help lead the charge against a widespread crisis, but its primary responsibility often involves obtaining buy-in from and coordinating the efforts of states, counties, and cities.
3. Data is key to understanding a problem well enough to develop a solution. But the various players responding to a crisis must be able to communicate with one another using consistent terms, definitions, and methodology for the data.
4. Solutions to many major crises, from wildfires to hurricanes to the pandemic, require assets like hoses, sandbags, masks, and vaccines. Central coordination for their procurement prevents the various players involved from competing against one another, which can lead to higher prices and unnecessary shortages.
5. The pandemic demonstrated an increasing shortage of the necessary personnel to deal with a health care crisis. The nation must develop better means for growing the next generation of experts in multiple fields who can serve in times of need.
6. Technology is a central element to solving most modern problems, though not the only element. Artificial intelligence can help governments to better understand problems and form solutions.
7. Unlikely events that have high potential consequences still require preparation. Risk management can help weigh the odds and spell out plans for future calamities.
8. When addressing a major crisis, organizing all the participants trying to respond is necessary. Unfortunately, these kinds of networks must be consciously formed—they do not come together spontaneously.
9. When many people face great risk, they must trust those who lead response and recovery—or those interventions are severely impeded.
10. States and localities often help find solutions by trying a variety of different approaches to solving a problem. But ignoring the lessons learned across the states makes their experiments less productive.
11. For the United States to progress, the population as a whole must be treated fairly. The pandemic revealed that without addressing social and economic inequities, disasters will harm huge segments of the population disproportionately—and that, in turn, can unravel the fabric of society.
12. Holding institutions and individuals accountable helps ensure responsible actions. This requires knowing exactly how to define and measure success.

OVERVIEW

On January 21, 2020, the Centers for Disease Control confirmed the first case of a mysterious disease with origins in Asia: it would come to be known as COVID-19. Within ten days, the World Health Organization (WHO) issued a global health emergency, followed shortly by restrictions on air travel.



By February 3, the United States declared a public health emergency. But even at this point, the notion of social distancing and mask-wearing in the United States was not yet on most people's internal radar screens. [The New York Times that morning](#) focused far more on the disease's impact on the Chinese economy than on the rest of the world.

Soon, people began to bump elbows instead of shake hands, and even that was done in a light-hearted fashion through the beginning of March. But by March 11th WHO declared COVID-19 a pandemic, and eight days later California became the first state to issue a stay-at-home order.

And, with that, the United States and the world would be forever changed.

In the following months, more than 700,000 Americans have died of this disease, while over 4.5 million people have suffered fatalities worldwide. In mid-summer 2021, the Delta variant of the disease emerged as far more contagious than its predecessors, even as experts hoped that the pandemic's remaining days could be counted. At this point, with vaccinations demonstrating their capacity to contain the disease, no silver lining accompanies this cloud that has rained loss and devastation over the last 22 months.

But there are ways to learn from these significant challenges and missteps, many of which permitted the coronavirus to spread more widely, quickly, and deeply than might have otherwise occurred. The United States has effectively been a nation at war with a virus, and has done so with a notable absence of the kind of capabilities necessary to fight such a battle. Some of these include:

- Appropriate supplies and logistics for their delivery
- Clear-cut chains of command
- Communications between the various players who are essential to victory
- The capacity to identify risks, and then take steps to mitigate them
- Networks that rely on preexisting relationships of trust
- A means for measuring the results of policies taken to advance the good fight

The nation, including its towns, cities, counties, and states, perennially fight battles of one kind or another. In just the last year, the West Coast has dealt with destructive wildfires and droughts; Texans froze as the state's power grid collapsed during an extreme cold snap; wide-spread cyberattacks breached the security of multiple federal agencies and major companies; and more crises continue to cascade across the national and global governance systems.

Many of the lessons learned from the pandemic—if carefully considered and articulated—can help governments act when such incidents intrude, dramatically, on national life. Never has this kind of reflection been more important. The nation faces an accelerated pace of what former Secretary of Defense Donald Rumsfeld famously referred to as “unknown unknowns”—the category of unknowable events that “tend to be the difficult ones.”

Governments confront a cascade of such unknown unknowns, for which anticipatory measures can take years or decades to develop. Indeed, the nation will likely face far more uncertainty in the future, making the means for effective responses all the more important. Wishes that the “dead past bury its dead,” as the poet Henry Wadsworth Longfellow suggested, are futile. Crises will keep coming. Just a few of the reasons include:

- **Climate change.** As the global thermometer inexorably rises, the nation has been hit by an unprecedented number of natural disasters. For example, [researchers have determined](#) that hurricanes are becoming more severe than in the past. Meanwhile, [sea levels rising](#) at an ever-faster pace are damaging cities along the U.S. coastlines. Even on sunny days, [flooding is turning into a common occurrence](#) during high tides. Cities like Seattle and Portland, where many people lived happily for years without air conditioning, have struggled with heat that exceeded old records.
- **Cyberattacks.** Illicit incursions into the nation's computer systems for profit, or as a new kind of international tool of espionage, barely registered as news just a couple of decades ago. But according to a [report by BlueVoyant](#), since 2017 attacks against state, local, tribal and territorial technology rose by an average of fifty percent. [A report by Comparitech](#) shows that, over the last three years, U.S. government organizations faced over 240 ransomware attacks, potentially affecting over 173 million people with a price tag of over \$50 billion.
- **Deferrals of infrastructure maintenance.** Even though only five states publicly disclose the dollar amount necessary to modernize their infrastructure. [According to the Volcker Alliance](#), the problem of deferred maintenance has, as of 2019, led to pothole-festooned roads, dangerous bridges, and disintegrating, health-threatening pipes. In early 2021, the [American Society of Civil Engineers](#) found that the nation pays just about half of its infrastructure bill, while the total investment gap forecast is \$2.59 trillion over the next ten years—up from a little over \$2 trillion just four years ago.

Governments face a dire need to help build a societal infrastructure prepared to cope with catastrophes. Conventionally short memories often foster the belief that we tend to learn from prior crises and fix underlying problems before they happen again. However, this tends to be far from the truth.

Consider the Interstate 35W bridge over the Mississippi River in downtown Minneapolis. It collapsed in 2007, killing thirteen people, provoking state, local, and federal leaders to issue strong critiques about unsafe bridges. Today, even after improvements, according to a [2021 report by the American Society of Civil Engineers](#), “42 percent of all bridges are at least fifty years old, and 46,154 or 7.5 percent of the nation’s bridges, are considered structurally deficient, meaning they are in ‘poor’ condition.”

Even when spending huge sums of money—as with New Orleans levees in the wake of Hurricane Katrina—there are no guarantees that the nation, or specific regions, won’t have to respond quickly to reruns of previous crises. According to a [2019 article in Scientific American](#), “11 months after the Army Corps of Engineers completed one of the largest public works projects in world history (to deal with the problems that led to Hurricane Katrina), the agency says the system will stop providing adequate protection in as little as four years because of rising sea levels and shrinking levees.” The recent experience with Hurricane Ida, where the levees held but the region suffered great damage more broadly, demonstrates the pervasive need for disaster preparation over time.

World War II was perhaps the last national battle with a scope as wide as COVID. Indeed, COVID has taken more American lives than that six-year fight to “save the world for democracy.” Lessons learned from the two great world wars led to the creation of the Marshall Plan, a four-year effort that cost about \$114 billion in current dollars, to rebuild western Europe in such a way as to help prevent future wars across the continent.

If western Europe could gird against a replay of the great wars, then it seems just as possible—and necessary—for the United States to learn from its own recent past to help implement new efforts to dramatically lessen the severity of the next major blow to national serenity. There are three main strategies for accomplishing just that:

- Building partnerships
- Managing networks
- Steering outcomes

The following is a discussion of the principles that underlie and strengthen these approaches.

Building Partnerships



1 All crises are local—but there is wide variation in how localities respond

Most crises rarely begin at a national level, even if that's the direction in which they head. The first plane crash into the World Trade Center North Tower in New York City on September 11 triggered a fire alarm, and early reports suggested that a small plane had crashed into the building. The flooding of New Orleans during Hurricane Katrina came to light first as a report from a National Guard outpost of a small stream and then of a large wave of water coming down the street. On March 11, 1918, an army private in Fort Riley, Kansas, complained about a sore throat—by lunch, more than 100 soldiers were ill, and by 1919, more than 675,000 Americans had died from the flu.

This basic fact—that all crises are local—was a lesson taught again and again through COVID's rampage through the country. The first word of an American afflicted by the disease that had stricken Chinese cities, including Wuhan, involved an American who had visited that city and [returned to his home](#) in Snohomish County, Washington, on January 15, 2020. He developed symptoms and the disease soon spread to a Seattle-area nursing home, infecting many residents and medical staff—one of whom was the first American to die from the virus.

This Washington-state disease soon became a matter of national urgency. By January 2021, the virus had attacked [every county](#) in the U.S., including one of the most isolated parts of the nation: an enclave in Hawaii created a century before to isolate those suffering from leprosy.

The roots of crises often appear first locally, and frequently explode with little warning about the nature of the problem and its aftermath. Local governments have a prime responsibility to deal with these problems, but the diversity of politics in the U.S. often produces wildly varying responses. These decisions have spillovers, with the consequences of one state's decisions almost always affecting others.

Major crises where state and local governments need to make big decisions can lead to strong “race to the bottom” pressures, in which some governments can be reluctant to take strong steps that might disadvantage them in comparison with other governments. In COVID, no state wanted to lock down first or reopen last. This resulted in a collection of patchwork policies that produced a wide range of responses, but with large gaps that fed the already great risks that COVID created.

The rhetoric from Washington, D.C., which might have unified the nation, worked to the contrary because of the Trump administration's deflecting attention to the disease and responsibility for managing it, especially during a presidential election year.

That highlighted a major—and emerging—phenomenon. Crises increasingly take on a partisan cast, along with much else in American society, where perceptions become filtered through political ideology. From spring 2020 through spring 2021, Democrats who believed that the virus's “outbreak is a major threat to the U.S. population” was [steady](#) at about 82 percent. Among Republicans it was equally steady, but at half the level: about 41 percent.

These differences led to enormous practical consequences. Some states, including Washington, California, and New York, promoted tough guidelines. *The New York Times* [reported](#) that if other state and local governments had followed the policies established in the Seattle area, with carefully timed lockdowns based on data tracking and scientific advice, 300,000 lives could have been saved.

Other states were far more lenient with large consequences. In South Dakota, for example, the huge annual Sturgis motorcycle rally in August 2020 attracted nearly a half million people from all across the country. A research team [estimated](#) that the rally led to the spread of more than 260,000 COVID cases throughout the country, [one fifth of all the nation's cases](#) in August. However, South Dakota Governor Kristi Noem (R) labeled the study “[fiction](#)” and “[nothing short](#) of an attack on those who exercised their personal freedom to attend Sturgis.”

Tensions played themselves out as well in battles between state capitols (especially those controlled by Republican governors) and large cities (with elected Democrats usually in control). In Texas, for example, Gov. Greg Abbott (R) [attacked](#) decisions of Austin city officials who wanted to lock down the city tighter at the beginning and loosen the restrictions slowly.

In March 2021, the governor lifted the state's mask mandate. He told reporters, “Businesses don't need the state to tell them how to operate.” The president of the Texas State Teachers Association, [Ovidia Molina](#), [countered](#), “Governor Abbott needs to quit obeying his political impulses and listen to the health experts, who are warning that it is too soon to let our guard down without risking potentially disastrous consequences.” Austin City council member [Greg Casar](#) [added](#) that Abbott was “endangering Texans' lives so that he can score political points.”

Whatever the reason, the geographic diffusion of approaches to COVID in the United States has created a jigsaw puzzle of responses, not all of which can possibly be the best. The nation's founders created a system of federalism that deliberately shared power among governments and resisted a centralized hand on the wheel. At the same time, COVID has underlined the risks of go-it-alone-federalism, because the hazards to a state's own citizens can flow across state and local boundaries in many ways. The key for future crises involves putting the puzzle pieces together to form one clear picture.

Action item:

COVID showed that big crises inevitably start as local problems, and then percolate across borders in a way that proves a poor match for solving the larger crisis. Local governments—cities, counties, and states—have to lead the response, but the federal government has a primary responsibility to devise strategy and coordinate across the country, because one community's problems can quickly become every community's crisis.

2 Centralized policy does not matter—if it does not get local support

The federal government has influence everywhere, from the standards for drinking water to grants for social services. But in virtually every domestic policy issue, leaders in Washington, D.C., depend on administrative partners—state, county, and municipal governments, along with nonprofit organizations and private companies—to accomplish their work. The strength, focus, and governance of these partnerships often determine the effectiveness of national policies.

When the coronavirus struck in the first months of 2020, scientists knew of two ways to halt its spread. One way would have the virus sweep through the population and eventually kill or infect enough people that so-called herd immunity would develop. The cost of that, in the U.S. and around the world, would be incalculable. The other way was to develop a vaccine, but at that point the record for producing a new vaccine—that which proved effective in [preventing the mumps](#)—was [four years](#). This presented a simple choice, but making it happen was anything but: creating a vaccine that was both effective and safe seemed very like [John Kennedy's promise](#) to land a man on the moon in under nine years. In the early days, researchers hoped for something at least 75 percent effective. (By comparison, the 2019 flu vaccine was [45 percent effective](#).) They hypothesized that to stop the virus, 70 to 85 percent of the population would need a vaccination. That was a challenge in itself, when in a typical year only about [half](#) of Americans get a flu shot. Experts in the early months of the outbreak saw this as an almost-impossible dream.

With the launch of Operation Warp Speed on May 15, 2020, the Trump administration tackled these challenges. The [plan](#) was “to produce and deliver 300 million doses of safe and effective vaccines with the initial doses available by January 2021.”

Despite widespread skepticism, the vaccine began rolling out and into people's arms, with more than [35 million single doses](#) delivered by January 2021. The project was a unique [collaboration](#) between the Department of Defense (DOD) and the Department of Health and Human Services (HHS) on the government side, and a collection of [more than a dozen](#) pharmaceutical companies that received billions of dollars in governmental subsidies to research and produce vaccines in record time. This unique partnership between government and the private sector aimed at building on existing science and also pushed the boundaries past what researchers imagined possible in the first weeks of the outbreak.

The federal government assumed much of the risk, especially in providing financial subsidies to the drug companies. The government subsidized the grand experiment of vaccine manufacture not through a single approach, but by supporting competing approaches to ensure that at least one reached the finish line in time to save as many lives as possible.

Further, the government expedited regulatory review to move the best vaccine from the factory to people's arms as quickly as possible. That actually enabled one of the first manufacturers to produce a safe and effective vaccine without having received a federal subsidy under Operation Warp Speed.

The program was a truly remarkable experiment, both for its structure and for its quick results: emergency use authorization of vaccines in less than a year from the launch of the project, compared with the previous fastest process of four years (the development of the mumps vaccine).

In the early days of the campaign, [pilot plans](#) called for FEMA and DOD to set up and run mega-vaccination sites. Federal officials soon learned, however, that the local vaccination logistics—from communicating with citizens to determining where best to put vaccination sites—raised far too many complexities for federal agencies to administer. What [worked in West Virginia](#), at least in the early days of the campaign—a local system that sidestepped the central government in favor of a collection of local health departments, community pharmacies, and churches—was very different than what worked in Vermont, where high trust in the state government led citizens to listen to health authorities and to the [fastest vaccination program in the country](#). The diffuse approaches yielded a range of results. By mid-summer in 2021, the vaccination rate in Vermont and Massachusetts was [more than twice as high](#) as the rate in Alabama and Mississippi. Even though the federal government could not deliver the

vaccine directly, relying on the states produced enormous variation in the level of protection that citizens received.

There truly was no alternative to relying on the states and their local governments to deliver the vaccine, just as there was no realistic alternative to relying on private companies to develop and manufacture the vaccines. COVID-19 underlined a basic truth: the federal government can design policy, but implementation often requires close collaboration with local public and private players across the country.

Unfortunately, intergovernmental collaboration—between the feds and the states as well as between the states and the counties—fell short. One of the great flaws in the effort occurred, for example, because “states often did not have information critical to distribution at the local level, such as how many doses they would receive and when,” [according to the Government Accountability Office](#).

When a centralizing body—whether at the federal or state level—fails to adequately communicate to stakeholders, the approach faces a result far less than total success.

Many frustrations developed at the county level. Though counties represent the level of government that tends to get the least attention, they have historically served as the cornerstones of health policies, including immunizations that keep diseases like diphtheria, pertussis, and measles at bay. Yet when the Centers for Disease Control and Prevention issued a playbook to guide vaccination distribution in October of 2020, counties barely received a mention.

Not only did the federal government fail to communicate effectively with the counties, but the states often lacked similar actions. This left many counties swimming upstream as the rollout began to move forward. “There’s a lot to learn about intergovernmental relations through a pandemic,” Graham Knaus, executive director of the California State Association of Counties, [told Route Fifty](#). “It tests all our systems and one of the takeaways is about the importance of clear roles for different levels of government and the importance of transparent and collaborative decision-making.”

Throughout the process, though, there were very successful federal-state-local partnerships. The best of these had a shared focus on the importance of reducing the risk to citizens, instead of struggling over who was in charge; reliance on the best scientific advice, instead of junk science; good measurement systems to track success, instead of assumptions about what would work best; and a commitment to weave a seamless partnership in fighting a common enemy.

Action item:

COVID teaches that great expectations in Washington can evaporate without active partnerships to bring those expectations to life. Some partnerships must involve nongovernmental entities, like private companies and nonprofits, while others must involve state and local governments. The federal government’s foremost responsibility in crises is not only to design policies, but also to design the partnerships required to bring those policies to life.

3 Governments need a language to talk about crises—and the language is data

A crisis represents a radical change from the status quo that demands an instant response. By bringing tectonic shift in our lives, a crisis is self-evidently a *thing*. Often less clear is just what *kind of thing* it is. Data provides the language to explore these issues.

That became clear in the first weeks of the COVID-19 outbreak. Scientists projected very high infection rates and numbers of deaths. At the same time, bits of life crumbled, from the cancellation of the NCAA basketball tournament on March 12, to the closure of public schools, to the shutdown of restaurants and bars, to isolation orders requiring infected people to stay at home. The crisis transformed the lives of people around the world, almost instantly.

Questions outnumbered answers, many spawned by changing messages from the Centers for Disease Control (CDC) and the spread of disinformation on social media. What were the real benefits of wearing masks? When should workplaces or public facilities be shut down? Was the virus really more dangerous than the common cold?

As weeks and months and a year passed by, more questions emerged. Were vaccines safe? Did they work? Were they even necessary? How infectious was the Delta variant? How likely were vaccinated people to carry this new highly contagious virus?

All those questions could be addressed by data, the creation of which rested with a wide variety of experts who shared with little clarification about who was doing what. The federal government did not create clear, intelligible data systems to track the pandemic. State and local governments took widely varying approaches to measuring the virus, including such elemental issues as what constituted a “case,” which infections stemmed from the virus, and when the virus was the proximate cause of a death.

The CDC counted cases that were “suspected,” “probable,” and “confirmed.” Death counts were *different* depending on who collected the numbers. State and local agencies used different methodologies to report deaths due to COVID, while the National Center for Health Statistics (NCHS) identified those individuals whose death certificates listed COVID as the cause of death. The numbers often differed, and the NCHS numbers lagged the state/local reports by weeks.

Data on testing were even worse. As the Johns Hopkins Coronavirus Resource Center noted, “In the U.S., there are no federal standards for reporting COVID-19 testing data,” a problem that “makes it impossible to offer a fully apples-to-apples view of testing data at the national level.” The Center further reported, “States have been left to forge their own paths, and as a result, they report testing data differently.” To understand test positivity rates, which public health officials found critical in tracking the severity of the outbreak, the *rates varied widely*. States reported very differently about the same factors in large part due to the lack of federal standards.

The flawed data problem was accompanied by a simple absence of data. In June 2021, just as the country turned toward real progress in beating back the virus, two dozen states ended their daily data updates. Florida and Oklahoma reduced reporting to once a week, which crippled the nation’s ability to detect the resurgence in COVID, especially as new variants began making the rounds.

Transparency is key in fighting the battle against COVID or any other crisis, but this requires both data sharing among governments as well as open access to information for the public. Many state governments, including [New Jersey](#), [California](#) and [Ohio](#), set up COVID websites to provide critical, geographically specific information for their residents. Newspapers like *The New York Times* presented transparent, interactive maps based on the Center's data about the virus.

However, multiple governors as well as President Trump appeared to prefer opacity to transparency. The [former president claimed](#) the nation was “rounding the turn with or without the vaccine,” in early October 2020, at a time when the nation was reporting 85,000 cases a day.

Beth Blauer, executive director of the Centers for Civic Impact at Johns Hopkins University, helped to lead Hopkins' efforts to track COVID data. She [explained](#), “Without that kind of high-fidelity full view of the information, we're going to end up really falling short in our ability to appropriately respond from a public health perspective.” The government's data approach lacked organization, leading to different voices muddying the conversation and making it difficult to build policies rooted in facts.

A team of data scientists and public health experts from Hopkins sought to [assemble the information](#) that the media, the people, and even government officials came to rely on. Through the course of the pandemic, Hopkins collected data from countries across the world and received billions of hits.

The Hopkins story illustrates how reasonably assembled data, properly analyzed, can reveal the hidden underside of a crisis. For example, as the Hopkins team's concern grew that COVID might hit some groups in the population harder than others, they began asking that question. By forcing attention on the question, the data gradually began to paint the picture of how the virus was disproportionately affecting poorer communities and communities of color. That information transformed policy strategies that governments across the country developed.

Without the Hopkins data system, the nation—and much of the world—would have had a far more difficult time battling the pandemic. Absent this system, identifying where the problem was most serious and how it was changing would have been far harder, as would have been identifying those who COVID hit hardest—and focusing the attention of governments at all levels on reducing their suffering. The data system created a way to:

- Define the problem
- Understand the balance between competing definitions of the problem
- Determine how and when to shift from controlling the outbreak to reopening the economy
- Uncover who it affected most severely
- Shape government's response

The data was not so much a strategy for measurement but a language of communication. It helped answer four of the five standard journalistic questions: who, what, why, and where. With those four traditional W's in hand, researchers could seek out answers to the fifth question: How?

As much as the nation owes a debt of gratitude to the Johns Hopkins team, betting on non-governmental experts to produce critical information that the nation needs in major crises presents a risky proposition. While Hopkins did what the nation needed, this should have been an intergovernmental effort, spearheaded by the federal government.

Such an approach was helpful in the aftermath of Hurricane Katrina in 2005, when a simple code was created by FEMA, to be spray-painted on the doors of damaged homes. This provided a record of who had searched the building, when it was searched, and the number of those injured and killed by the storm. The code helped streamline search efforts, even as it showed a grim reminder of Katrina's toll.

Another example: when the drilling platform Deepwater Horizon exploded in 2010, spewing oil into the Gulf of Mexico, data allowed experts to track success in controlling the gusher of oil from the bottom and how much oil ended up where, and in understanding the risks to habitats and marine life. The National Oceanographic and Atmospheric Administration constructed a [data tracker](#), the "DIVER Explorer," designed "to identify potential injuries to natural resources and lost recreational uses," and to follow the programs to clean the Gulf.

These two examples demonstrate data and numbers as ways of measuring things. But more fundamentally, in the world of public affairs and especially during crises, data can create a language for talking about the problem, defining the problem, shaping responses most likely to work, and charting the degree to which responses succeed.

Action item:

COVID showed that data matter more than many government officials realized, and that data can help create a language for defining a crisis, laying out a plan for solving it, and tracking success. The federal government has to lead, with federal experts defining a common language to ensure coordinated communication about issues that matter—in a way that helps drive and track effective state and local action.

4 Emergencies are fought with goods, services, and logistics—but state and local governments cannot preserve supply chains alone

Americans are accustomed to being able to purchase anything as long as they have a credit card in hand or an insurance policy that covers the expense. But in the first months of the pandemic many people discovered that the personal protective equipment that could shield them—and medical professionals—from harm was often unavailable. Those problems quickly became apparent when a deluge of patients arriving in emergency rooms and intensive care units set off a scramble for hospital-grade face masks, gowns, gloves, and other supplies.

Even some communities that thought they had the necessary equipment on hand soon discovered how ill-prepared they were. San Diego County's director of purchasing and contracting assumed he had about 600,000 N95 masks waiting in the warehouse for such an occasion. But they had been there so long that the elastic bands had deteriorated, and could not provide a tight fit. The county had to retrofit the masks by buying a million number six rubber bands to replace the straps in the back.

In [New York](#), [there were photos](#) of nurses wearing plastic bags because they could not obtain hospital gowns. Masks were in such short supply that [volunteers](#) busily put their sewing machines to work to make more from scraps of cloth. The handmade masks proved most useful for visitors, but inadequate for frontline health professionals when the supply of hospital-grade masks fell short. Still, one volunteer [said that](#) “until we get the right masks, something is better than nothing.”

The federal government began placing larger orders for masks in late March, but the first supplies would not arrive for six weeks—long past the point when frontline workers needed them to cope with the virus’s surge. Experts had [warned](#) in mid-February about the “urgent but closing window” for obtaining needed supplies. At the end of March, the [Associated Press found](#) “a fragmented procurement system now descending into chaos.” President Trump blamed the problem on the states. “The states should have been building their stockpiles,” he [said at a press briefing](#). “We’re a backup. We’re not an ordering clerk.”

Particularly great alarm accompanied the widespread shortages of ventilators necessary to keep the more seriously afflicted alive. Reporters told [frightening stories](#) about the dwindling supplies—and about how manufacturers would take to catch up with the escalating demand. During this battle between states and cities for needed supplies, the laws of supply and demand prevailed.

Many states dove into the private market to purchase supplies their health care providers needed, but states often bid up prices by competing against each other. As [Forbes reported](#), “The effects of these bidding wars across the board find state healthcare and hospital systems receiving less resources at a higher cost at a much delayed pace.” In just a week, the price of masks [nearly quadrupled](#). Matters grew worse as factories in China closed because of that nation’s virus outbreak, which dramatically slowed their export of medical equipment.

Former assistant secretary for Homeland Security in the Obama administration, Juliette Kayyem, [wrote](#) in mid-March 2020 that COVID-19 was “America’s first fifty-state disaster.” She concluded, “If and when a surge of cases comes, every state is on its own.” She was sadly right, first with PPE, and then in the next phase of the virus with virus test kits. Pointing to the short-lived Articles of Confederation, Kayyem explained, “The nation’s Founders scrapped that early charter because it left states to fend for themselves in moments of crisis.” The founders replaced the Articles in favor of the new Constitution in 1787. This approach did not work well during the pandemic either.

The COVID-19 outbreak strained every government, however constituted, around the globe. But America’s configuration of federalism, with fifty independent states and a federal government was designed to allow governments to fulfill different roles. As President Josiah Bartlett, the fictional character who led the nation in the early-2000s hit television program [The West Wing](#), [eloquently stated](#): “There are times when we’re fifty states and there are times when we’re one country and have national needs, and the way I know this is that Florida didn’t fight Germany in World War II or establish civil rights.”

Such soaring rhetoric appeared forgotten when confronted by the pandemic. The competition among the state governments made it hard for any of them to respond effectively to the outbreak. Local health providers had difficulty dealing with the torrent of cases they encountered on a daily basis. Private companies faced complicated challenges in distributing scarce but badly needed supplies. And the American people became greatly confused about government’s role—[trust in just about everyone dropped](#) in the first six months of the outbreak.

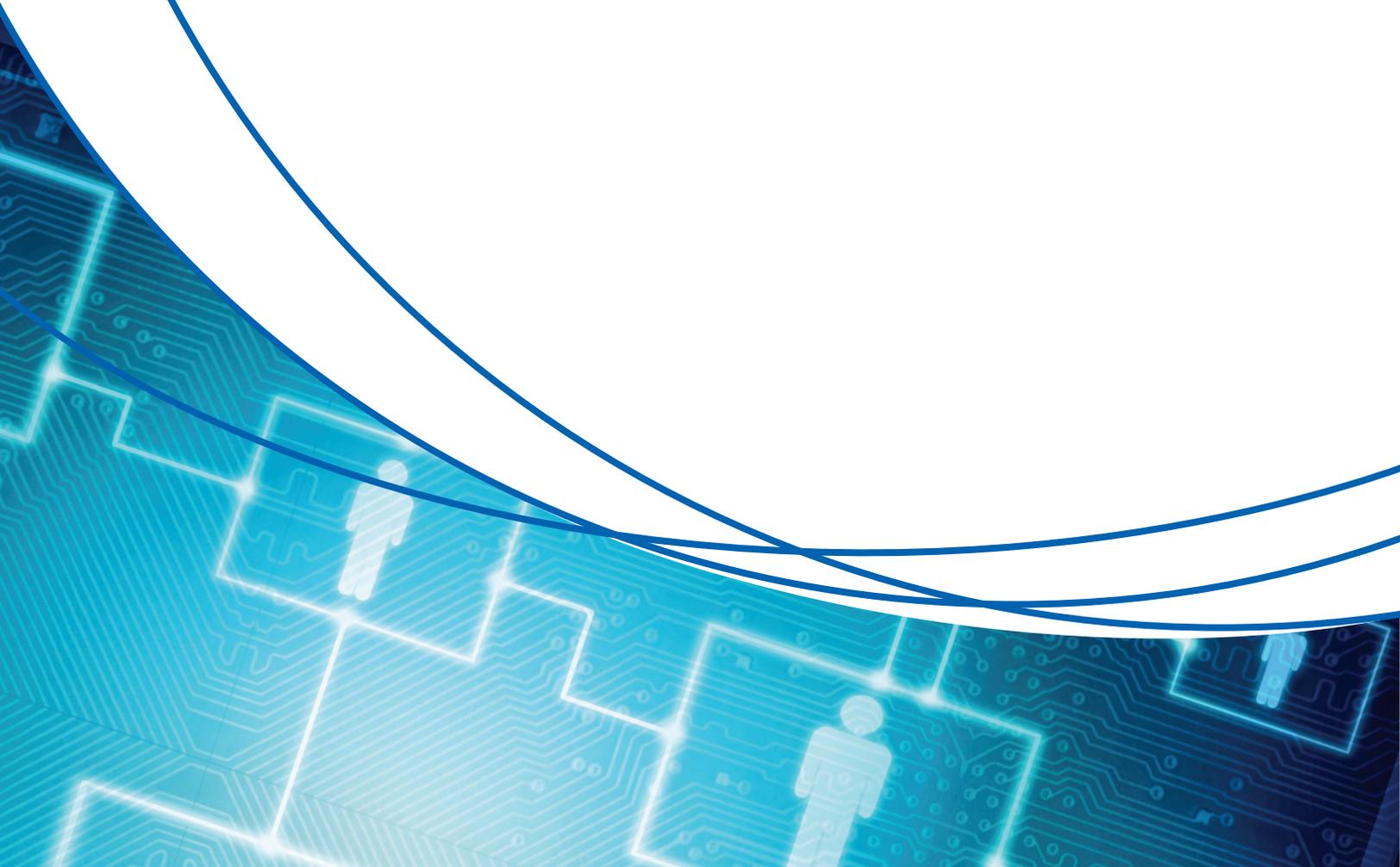
Even the largest states often lagged in managing the supplies and logistics needed to counter the virus. The federal government had much greater capacity, both in scale and in coordination, but chose not to step into that role. This combination of problems proved difficult for everyone concerned. As Robert Handfield [argues](#) in his work for the IBM Center for The Business of Government, COVID raised special risks because of the almost complete economic shutdown and the disruptions brought to the nation's productive capacity, especially for vitally needed supplies and equipment. Any crisis that requires the speedy procurement of goods and services requires enhancing what Handfield called national supply chain "immunity"—a process in the pandemic that made immunizing people against the pandemic itself possible.

The virus outflanked American governments and challenged their ability to obtain supplies needed for effective response. This might have been the nation's first true fifty-state disaster—but will certainly not be the last. The experience laid bare the challenges that even more limited crises pose for the American system.

Action item:

Large-scale crises often require large-scale mobilization of supplies and equipment; mobilization on a large, coordinated scale typically falls beyond the reach of even the largest of the nation's subgovernments. To achieve a rapid, effective response, the nation needs to rely on the federal government for creating and leveraging needed national supply chains.

Managing Networks



5 Governments must grow needed expertise—and wake from any delusions of confidence

Even as shortages of masks, ventilators, and hospital room space garnered most of the attention as the lines charting the pandemic's destruction reached Everest-like peaks, the nation's response was equally hobbled by a shortage of talent. This was most visible in the nation's public health system, especially at the local level where pandemic-related emotional and physical stress on local public health officials, hospitals, and medical professionals was debilitating.

Experts raising inconvenient truths about the virus have been attacked and, in some cases, driven from office. When the nation needed clear-eyed judgments, it often had difficulty finding them. The U.S. suffered far more than necessary as a result.

Given that the pandemic hit every American—indeed, everyone in the world—it was inevitable (and perhaps necessary) that the most basic scientific issues should inform important political judgments. Smart scientists never expect that their best instincts should always rule or go uncontested. But the response to COVID-19 saw powerful efforts to push those judgments to the side, and even to reject those that did not fit a particular ideological lens. Even worse, this fierce political pressure drove many public health experts—including those who had devoted much of their careers to steering policy—from public service, draining government of the experts needed just as it needed them most.

In California, Riverside County's chief medical officer, Dr. Cameron Kaiser, was stunned at the backlash he received from imposing lockdown orders. Angry citizens confronted him at a county board meeting, where they accused him of infringing on their rights and “trampling on the Constitution.” Others attacked him in a [fake Twitter account](#) featuring his picture with a Hitler-style mustache and a caption of “Führer Cameron Kaiser.” And after nine years on the job, the county board fired him, in just one of many firestorms that erupted in the space between angry citizens, distant feds, uncertain state officials, and local public health experts. Riverside symbolized a nationwide syndrome. Across the country, [more than 250 public health officials left their jobs](#) by spring 2021.

The CEO of the Robert Wood Johnson Foundation told ABC News, “This has been a major, unprecedented loss in public health leadership across the nation.” Over the last year, he explained, “You saw public health as a science and as a field being berated and belittled.” As a result, “We saw it being lifted up as the enemy of economic recovery—rather than the path to sustained economic recovery.” A [survey](#) of local public health officials found that 80 percent had suffered threats either to themselves or their property. Eighty percent also reported powerful political threats, either to cut their budgets or force changes in policy.

In the face of this rejection, many people who might once have seen public health as a prospect for a good, secure career are likely being put off. In an economy currently [grappling with shortages of workers](#) in many fields, why pick one that will place you under siege?

The impact of these important issues has been ignored by many, especially people inclined to be dubious about the value expenditures on public health, for some time. Even before the pandemic, public health had lost manpower. [According to the Trust for America's Health](#), America's “public health system has been chronically underfunded for decades. Analyses from the Institute of Medicine (IOM), The New York Academy of Medicine (NYAM), the U.S. Centers for Disease Control and Prevention (CDC), and a range of other experts have found that federal, state, and local public health departments have been hampered due to limited funds and have not been able to adequately carry out many core functions, including programs to prevent disease and prepare for health emergencies.”

In retrospect, governments could build this human infrastructure in normal times; it became essential to do so when the pandemic hit. Absent scientists who express, competing views, firm ideological perspectives can produce judgments if those views do not have to compete with science. To a degree often unappreciated, steering through complex crises depends on highly skilled experts. During COVID, too often decision-makers have pushed experts aside, in the process draining the government's capacity to deal with future crises as well.

In early spring 2021, as the first glimmers of hope began to emerge from the long darkness of COVID-19, a Swiss management analyst [wrote](#), "We suffer from a 'self-delusion of competence.'" Explaining the Swiss problem, Danny Buerkli held that the country was very good at building a broad base for legitimacy, moderation, long-term compromise, high responsiveness to interest groups, large regional variance, and nonaction for the sake of avoiding mistakes. However, he argued, "There's just one problem. In a fast-moving pandemic, the same mechanisms that produce all those lovely attributes, don't serve us well." The Swiss have excelled at many things. But these same things crippled the system in dealing with the COVID crisis. Much of the country believed its competence equipped it to deal with the virus. In fact, Switzerland suffered from "a crisis of ambition and of imagination."

Buerkli's observations had broad application. Indeed, scrubbing out the name "Switzerland" and replacing it with "the U.S." would make his argument fit remarkably well. He wrote, "Heading into this pandemic, one could have thought that Switzerland should be able to nail this. And yet—judging by almost any metric—we did not nail this and we still are not nailing it." That is profoundly true of the United States experience as well—perhaps even more so.

Action item:

Steering through complex crises—and the complex systems we need to tackle them—relies on people. Listening to competing scientific views is not ever easy, but the more complex the crisis, the greater the need for insights from those trained to wrestle with them. The nation not only needs to find a place in public debate for experts, but also to build the people pipeline today to ensure a sufficient supply of experts now for the future.

6 Artificial intelligence and predictive analytics can help—there is no need to fly blind

One of the most difficult conundrums of the COVID-19 outbreak has faced leaders who desperately need a roadmap for the future—even as they travel on brand new roads without signs and for which no GPS in the world exists.

The pandemic of 1918 supplied useful evidence about the likely course of a respiratory outbreak. The nation also had invaluable information about the course of successful past vaccination campaigns for diseases ranging from polio to measles. But the hyper-speed in which the COVID crisis developed and spread made past experience a shaky base on which to build future policy decisions.

With little concrete information to guide policymakers, relying on the counsel of scientists was akin to searching for evidence-based flashlights in a dark room. Experts argued that once the virus began to spread in this country, it would be extremely difficult to stop. The only way to slow this spread, the theory followed, was to take very tough measures quickly—shutting down businesses and schools, wearing masks, and imposing stay-at-home orders. Those painful and difficult steps meant that the only way to make the case—scientifically, economically, and politically—was to contend that the course of the disease would be far worse without them.

Enter predictive analytics, [defined by Investopedia](#) as “the use of statistics and modeling techniques to make predictions about future outcomes and performance. Predictive analytics looks at current and historical data patterns to determine if those patterns are likely to emerge again.” Washington State, for example, relied heavily on the work of scientists in crafting its own response, including strategies (like masking and social distancing) most likely to prove effective, and knowing when to switch gears from one tactic to another. That approach relied on the sharing of knowledge across sectors, as the work at the University of Washington led by [Dr. Christopher J.L. Murray illustrates](#).

Murray and his team forecasted the likely spread of the disease and how different assumptions of COVID’s course would affect different states. The models showed the “best” and “worst” cases for the virus’s impact on the use of hospital resources, and how different decisions pertaining to variables like masking and social distancing could affect the number of cases and the deaths. The model showed how the virus was likely to impact people living in different states and in most of the world’s countries.

Scientists have projected the likely course of diseases for a very long time. Murray’s work became especially noteworthy, however, because it was policy-based (how much difference was masking and social distancing likely to make?), and in real time (in both the data used and the projections made). The projections were available online, in an easy-to-digest form as simple charts accessible to everyone. That accessibility made the projections invaluable to reporters and, in turn, to the people who paid attention to their reporting.

The rich supply of data about the virus supported artificial intelligence (AI) strategies to wrestle with the information. One source, [COVID19-projections.com](#), a website launched in April 2020 by independent data scientist Youyang Gu, used machine learning to dig deeper and forecast “return to normalcy” (the phrase first used by President Warren Harding in his campaign for the 1920 election to rally a world toward resembling the one that had preceded the First World War and the 1918 flu pandemic). Scientists from Gu’s team used artificial intelligence (AI) to create a “heat map” tracking the development of the virus in countries across the world. Other work focused on the details of hospital operations, including the [deterioration](#) of COVID patients in the emergency department. The team [maintains](#) that it achieved a high rate of accuracy.

Based on the work done with COVID, scientists [concluded](#) that AI has great potential for managing future crises. Most important, Dr. Eric Topol, founder and director of Scripps Research Translational Institute argued that AI gave physicians “the gift of time,” to understand better what they faced and strategies most likely to prove effective.

However, while AI can generate many proposed solutions, [most have been unproven, at least for the time being](#). As John Quakenbush, chair of Harvard’s Department of Biostatistics, [said](#), “I’ve heard a lot of hype about machine learning being applied to battling-19, but I haven’t seen very many concrete examples where you could imagine in the short- or medium-term something that is going to have a substantial effect.” Moreover, building an AI network also

demands creating secure and reliable technology to link across that network, a mission that must grow from private sector roots.

Moreover, with the collection of public health data so decentralized in the United States, rigorous comparisons—and projections—become very difficult. As data sets grow larger they tend to get “noisier,” experts have [explained](#), making projections for a larger population all the more difficult. Some public health experts have more hope about using AI for limited decisions, such as which drugs are most likely to work for which health issues, but remain cautious about applying machine learning at broad scale.

Nevertheless, the COVID-19 experience demonstrated that large-scale data collection and projection for the likely course of a virus, like the University of Washington system, could prove very useful. The use of AI could help physicians develop detailed action plans for particular problems and smaller groups of patients. In the long run, many physicians believe that better models supplied with sophisticated data could prove even more effective for navigating major crises like pandemics.

Most prominent models and projections during the COVID pandemic came from nongovernmental sources. This was a natural product of the experimentation in which many scientists engaged, and in the future such breakthroughs will also likely come from the work of nongovernmental scientists. That augurs well for innovation, but poses an additional challenge for how best to integrate nongovernmental projections into governmental policy, including how best to make the translation from private knowledge into public action.

Action item:

Despite high levels of skepticism and distrust of science by many individuals, the marriage of large quantities of data and more sophisticated models offers great promise for developing more effective strategies to address future health crises. The use of predictive analytics like artificial intelligence and machine learning could fuel far more useful strategies by experts. In the longer run, AI offers great potential for communicating with citizens and building trust in society's capacity to meet major health crises.

7 Managing risks helps to avoid crises from getting unnecessarily worse

“The need for effective risk management in government—and the consequences of a failure to adequately address risk—have become increasingly evident,” [wrote](#) Douglas W. Webster, former director of Government to Government Risk Management at the U. S. Agency for International Development and Thomas H. Stanton, former president of the Association for Federal Enterprise Risk Management. The impact of COVID-19 underlines that point vividly.

The important question to address through risk management was posed cogently by Emeritus Fellow of the IBM Center for The Business of Government, John Kamensky: “What could possibly go wrong?” Understanding what could go wrong—and understanding it well enough in advance to prevent wrong things from happening—represents one of the most important challenges in a world of inevitable crises.

COVID struck like a lightning bolt. And just like lightning, COVID's impact was far from inevitable but potentially foreseeable. Scientists had long worried about how a virus might produce a dangerous and widespread pandemic. Even though smallpox has long been thought eradicated, the Clinton administration took steps to prepare for the unlikely potential of a terrorist attack that could spread this one-time killer. According to Jonathan Rauch in a 2001 National Magazine Award winning [article in *The Atlantic*](#), "Realizing that existing stocks (about 12 million to 15 million doses of twenty-year-old vaccine) were too thin to cope with a serious crisis, in September of last year the government ordered up a new smallpox vaccine, with the first 40 million doses to be delivered in 2004 and more to come thereafter."

Although that threat has yet to come to pass, the world has experienced [outbreaks of other diseases](#) through the years, like Ebola. Dr. Anthony Fauci who has headed the National Institutes of Health's National Institute of Allergy and Infectious Diseases since 1984, spent most of his career preparing for the outbreak of a pandemic. In 2017, he [bluntly said](#), "If there's one message that I want to leave with you today based on my experience, it is that there is no question that there will be a challenge to the coming administration in the arena of infectious diseases."

Fauci could not have been more prescient. And the Obama administration left behind a 69-page [playbook](#) for how the nation might deal with such an outbreak, which began: "While each emerging infectious disease will present itself in a unique way, a consistent, capabilities-based approach to addressing these threats will allow for faster decisions with more targeted expert subject matter input"—the key for dealing with a novel coronavirus and precisely what the nation faced in early 2020.

COVID revealed two important risk management challenges. First, top public health officials constantly face overwhelming problems that demand immediate solutions, like the December 2020 [outbreak of *E. coli*](#) associated with consumption of romaine lettuce. At the same time, elected officials face enormous political demands, often from important constituents who possess their personal cell phone numbers. Advisers caution them to deal with the risks voters read about in the press or on social media. Incentives for dealing with these immediate risks are irresistible, even if this means pushing aside other risks that appear as distant blips on the early warning system.

Second, compounding these incentives is the perfectly reasonable calculus to ignore high-risk, low-probability "[black swan](#)" events, because of the very small odds that any elected official will have to face these issues during a term in office.

Risk management requires framing risks in ways that attract a leader's attention without creating a crisis of fear. The word epidemic has become so frequently used—to describe problems including [obesity](#), [hunger](#), [autism](#), and [peanut allergies](#)—that the term can be deprived of meaning. With "epidemics" around every corner, a foundation of fact is necessary for a leader to weigh one risk against others. This also requires an analysis that lays out a plan of action—or at least a plan for how to take action if the risk develops. It further requires creating the capacity for a quick pivot from the vast array of other priorities on a leader's agenda to an effective response, should a black swan swim across a particular leader's pond.

Top leaders do not need to engage personally in every issue and every risk. But they need to expect the unusual, and lead their team in building capacity for a quick and effective response when a major problem suddenly rears its head.

The IBM Center for The Business of Government [published a report in 2010](#) that offered recommendations for implementing a risk management process in government. These suggestions are as valid now as they were then, and include:

- Resolve to proactively manage risks rather than to react to them.
- Clarify the organization's risk philosophy.
- Develop a strategy.
- Think broadly and examine carefully events that may affect the organization's objectives.
- Assess risks. (Initially try to reach a consensus on the impact and likelihood of each risk.)
- Develop action plans and assign responsibilities.
- Maintain the flexibility to respond to new or unanticipated risks.
- Use metrics to monitor the effectiveness of the risk management process where possible.
- Communicate the risks identified as critical.
- Embed risk management into the culture.

Action item:

Risk management needs to be part of the basic game plan of every political leader. This does not mean that the leader needs to personally participate in and resolve every potential problem. But it does mean that the leader needs to be schooled in black swan events that might occur, to exercise responses for the events likely to demand attention, and to ensure that the team builds the capacity to act on even low probability events that could ultimately prove damaging. Risks must also be communicated throughout the organization and with the public so that they can be anticipated and addressed appropriately.

8 The key is networks—but they do not spontaneously organize themselves

Connecticut drove its high vaccination rate—69 percent of the population had received at least one shot by mid-July 2021 as had 87 percent of people over 65—with a [wide-ranging campaign](#) that provided access in many locations, all connected by various electronic networks. The venues where shots were available included CVS, Rite Aid, and Walgreens drug stores, Costco and local supermarkets, neighborhood pharmacies, health clinics, and even high school gymnasiums. Block parties scheduled with the state department of health allowed residents to come, celebrate, and get vaccinated.

But this plethora of options would have been useless unless people knew how to find them. The options came together under giant information umbrellas, including a website allowing residents to track places where vaccinations were available by zip code. Texting a special number produced a text in reply with information about vaccines and assistance, from transportation to childcare. The governor gave daily television addresses to highlight the various options available, including mobile vaccination clinics that could provide shots to up to 250 people a day for people in vulnerable communities who could not reach other locations.

The wide variety of Connecticut's points of access was not dissimilar from the vaccination strategies of many states: multiple points of entry (from the internet to phones to in-person connections), multiple points of access (with a large range of neighborhood facilities where people got their shots), and a means for pulling all these efforts together into a cohesive collection of many opportunities. These flexible interorganizational networks proved useful in delivering the vaccine from the national distribution system into individuals' arms.

That approach evolved gradually over the course of the vaccination campaign. Early on, with vaccines still in short supply, planners at the CDC set out to create a [national \\$44 million Vaccine Administration Management System \(VAMS\)](#) built by a private contractor. The system was designed to identify those with the top priority for the vaccine, and to match them with facilities that had shots available. Noam Arzt, the president of HLN Consulting, which builds health information systems, [explained](#), "VAMS was intended to fill a need that states and jurisdictions were not equipped to do themselves." But VAMS was riddled with problems and left many users frustrated. Its website portal had software problems, and left people showing up for appointments only to discover the supply had run dry. Others turned to efforts to circumvent the system by showing up at clinics hoping for [leftover shots](#), even before they were eligible (a frequently successful effort).

Meanwhile, [FEMA worked to create](#) 440 community vaccination centers across the country. The [mass centers delivered millions of doses](#) of the vaccine in the hectic first months of the rollout, a remarkable achievement given the lack of a playbook for creating such a system. (FEMA did release a [44-page playbook](#) in April 2021). After a couple of months of running the large-scale centers, the plan pivoted to a much greater reliance on loosely coupled networks like those that Connecticut developed.

This provided far more flexibility in deploying the vaccines to neighborhood facilities, which proved vital in helping hard-to-reach residents find doses of the vaccines. People tended to connect best with those they trusted the most. One [survey](#) found that 74 percent of adults trusted their local pharmacist to provide COVID vaccinations. Another [poll](#) showed that 4 in 10 Americans preferred to visit their local pharmacist as their first or second choice in getting the vaccine. Just 4 percent of those surveyed preferred mass-immunization events in parking lots or athletic facilities.

The vaccine campaign began with a top-down strategy in mega-centers like stadium parking lots in California and parking lots in Maryland theme parks, and pivoted to a bottom-up strategy based in community facilities. Once the immunization campaign reached the highest-risk, most-eager-to-be-vaccinated groups, the bottom-up effort proved more effective. The more the campaign shifted to the bottom-up approach, the more it relied on developing a tightly integrated network for identifying pharmacies, ensuring there were trained pharmacists, distributing supplies, and tracking vaccination data.

These networks extend far past government, at all levels, to multi-sector partnerships. The parking lot for the Maryland mass vaccination site was established in cooperation with a private park, Six Flags America. The federal government created partnerships with the nation's leading private pharmacy chains, including CVS and Walgreens. Neighborhood vaccination campaigns relied on churches and neighborhood associations. Managing networks needed to spread the vaccine required reaching into every corner of American life, far beyond the domain of government itself.

Beyond the effort to disseminate the vaccine as widely as possible, the data collection necessary for doing so efficiently has also relied on networked connections among many parts of the system. Such networks can take a while to form once a crisis strikes. They should ideally form prior to the need for them to rally into action. As Ryan Fernandes, director of technology services in the city of Weston, Florida, told *Government Finance Review* that in an attack, “you’re not necessarily going to have the time to start making calls if you haven’t already made them.”

Typically, Americans saw the topline numbers in news broadcasts and print media and may have assumed a single hidden hand behind frequently reported numbers like the number of COVID cases. But in reality, the source of these numbers in most states was the vast network of county health departments across the country. (Connecticut represented one exception, as the state has no counties with governmental functions, although they exist to make geographic distinctions).

Though often the forgotten layer of government, counties provide many of the most essential services. Public health has always been a state government function in the U.S., and most state governments have passed operating responsibility on to their counties for this and many other functions. In concert with their state health departments, county officials collected vital information like the number of cases, the number of deaths, the share of the population vaccinated. In many states, the counties served as the hub of the government’s COVID action—and especially of COVID data networks.

Most information collected and analyzed by groups like the Johns Hopkins Coronavirus Resource Center came from the efforts of analysts to scrape data from county and state sources. These sources collected the numbers from throughout a vast network of immunizers ranging from mega-vaccination centers to neighborhood pharmacies, and from physicians’ clinics to large hospitals. The numbers represented tremendously hard work by local health departments to track the community spread of a global pandemic. State and county governments—especially county officials—acted as systems integrators for this sprawling network of COVID professionals.

This state and county role—and, indeed, much of the COVID network—was largely invisible to anyone but the insiders who made it click. Without the network the nation’s campaign against the disease would have collapsed, because it would have been impossible to measure the disease’s spread and impact. The same holds true of the nation’s vaccination campaign, where metrics of progress came largely from the tens of thousands of pharmacies, clinics, and mega-vaccination sites from coast to coast, where county officials collected and tabulated them all. That is the lesson of many intergovernmental public policy puzzles, especially in health care, and it has proven especially true in the fight against COVID.

Action item:

Networks provide the core of the nation’s response to any crisis of any real scale. Local governments, especially counties, often are at the hub of these networks. Planning for any emergency requires recognizing and acting on these two inescapable truths, before crises occur—and strengthening the capacity of the networks to respond to evolving crises.

Steering Outcomes



9 Solutions to crises require trust—but trust is hard-earned

By mid-summer 2021, Vermont had the nation's [highest rate](#) of people fully vaccinated against COVID-19. The state's Republican governor, Phil Scott, [trumpeted](#), "Through it all, we've shown the nation and much of the world how to respond when there is no playbook, and how to do it with civility and respect." When asked the secret to the state's success, he pointed to straightforward communication about the virus's risks from the start, especially about the risks of not wearing masks and the chances that the virus would pass quickly.

That was not always the case, Governor Scott said, in messages emanating from other states and the federal government. "We maintained our consistency," the governor [continued](#). "Again, trying to be honest, when we saw things were going in the wrong direction, we made changes." In short, Vermont's nation-leading success in vaccinating its population was bolstered by the governor's efforts to build trust.

The uncertainty surrounding virtually every moment of the pandemic made it ripe for rumors, misinformation, and inequities, and sowed seeds of disbelief and disillusionment. Distrust swirled around the vaccine from its earliest days. A [June 2020 poll](#), for example, found that only half of Americans said they would get a vaccine when one was available. That number was even lower among Black Americans, only 25 percent of whom were planning on getting vaccinated. In another poll that month, researchers [found](#) that 42 percent of Black people agreed with the statement, "The coronavirus is being used to force a dangerous and unnecessary vaccine on Americans."

The Trump administration's early strategy to deflect debate about the virus' seriousness undoubtedly contributed to these concerns, but a Rutgers University [report found](#) that the roots went far deeper. The report concluded that at the core of the trust dilemma was an "overarching anti-government, anti-institution conspiracy theory" that created "resistance to both the COVID vaccine and various public health measures intended to combat the spread of COVID."

The world of science—populated by people [President Biden has repeatedly told](#) all Americans to trust—has apparently not been held in high esteem by too many Americans. According to a [paper from the Harvard School of Public Health](#), "A number of factors have combined to undermine public trust in science during the pandemic, including the rapid evolution of COVID-19 science, mixed messaging from leaders, a torrent of misinformation, political interference in federal science agencies, and political polarization, according to experts." For example, even as the Delta variant filled hospitals in Florida to overflowing, [Governor Ron DeSantis cast doubt](#) on the CDC's recommendations and findings, saying that Americans should not be "consigned to live in a Faustian dystopia in which we're governed by the whims of bureaucratic authorities who care little for our freedom, little for our aspirations, and little for our happiness."

Many Black Americans have a long—and understandable—distrust of the scientific community. [The Tuskegee experiment](#), a long-term study that began in the early 1930s, stands as emblematic for a society in which medical science undertreated, mistreated, ignored, or even lied to the Black community. In that case, hundreds of Black sharecroppers were told they were getting a cure for syphilis, but this was not the case. Tuskegee represented an extreme example, but the ruse continued to reside deep in the societal memory of Black communities. Today, Black pastors can have far more power as convincers than doctors thrust in front of television cameras.

Since few Americans can comprehend the technical language of scientific papers and might not trust this content, information from the internet prevailed for many. For example, [according to FactCheck.com](#), “A [14-minute long video](#) posted on January 13 . . . on Facebook and [Instagram](#) gives people five reasons why they ‘should definitely never vaccinate.’ The video has been liked since by 1,600 viewers on Facebook and viewed by over 50,000 on Instagram.”

The combination of widespread misinformation and lack of attention to reliable sources of news supplied a [never-ending cascade of reasons](#) why many Americans feared inoculations: the belief that vaccines in general are dangerous; that 5G cell towers caused the virus, and therefore vaccines were useless; that the Bill and Melinda Gates Foundation (or perhaps Elon Musk) were using the vaccines to inject microchips into Americans’ arms; and more. As one North Carolina resident [put it](#) to a *Time* reporter, “I do believe this was rushed. I’m reasonably healthy. Six months to a year just to get more data on it is what I need to be vaccinated.”

The most frequently cited reasons for refusing the vaccine were worries about its side effects (at 50.6 percent) and an overall lack of trust in the vaccine itself (47.6 percent). Concerns like these meant that, after a remarkable start, the race to immunize all Americans slowed to a crawl. [Vaccine hesitancy overall](#) declined, from 21.6 percent in January 2021 to 10.8 percent by early July. But in many states, including Alabama, Arkansas, Florida, Louisiana, and Tennessee, the hesitancy rate remained high, the resolutely unvaccinated—as opposed to people taking a “wait and see” approach—proved stubborn to convince, and the number of COVID cases rapidly grew as the [Delta variant of the disease gained traction](#).

Surgeon General Vivek Murthy issued a remarkable [report](#) on the problem in July 2021. The report began with a stark finding: “Health misinformation is a serious threat to public health. It can cause confusion, sow mistrust, harm people’s health, and undermine public health efforts. Limiting the spread of health misinformation is a moral and civic imperative that will require a whole-of-society effort.” The report outlined a series of steps that each of the nation’s sectors should take, and laid out five action items at the core:

- Helping Americans identify misinformation, so they did not become wrapped up in the false-information discussions
- Expanding research to learn better about how health misinformation spreads
- Improving technology platforms to slow the spread of this misinformation
- Investing in more training for journalists, librarians, health practitioners and others
- Convening key stakeholders (including federal, state, local, and tribal governments, as well as research partners) to identify best practices in sharing research and in building trust in health information

Beyond battling misinformation, trust can be earned by convincing people that their governments—at all levels—take their responsibilities seriously and deliver them effectively. Unkept promises—whether about fixing roads, reducing crime, or even dispatching a pandemic—can easily lead to a lack of faith that makes it difficult to accomplish estimable goals. Local government community surveys show that residents react well when the complaints they make one year are dealt with the following year.

In the early stages of the outbreak, the prospect of a vaccine to stop the virus kept hope alive in many people yearning for a return to normal. When the vaccine arrived, distribution soon sputtered because of a lack of trust in the science, especially in some parts of the population. The promise of a quick return to normal melted under the spread of new variants. In the first months, worries surrounded the question of how soon a vaccine would materialize; when it did

arrive, worries shifted to distrust over the vaccine itself. Not only did the virus continue to mutate—so too did public discourse.

Action item:

Distrust of the COVID-19 vaccine in particular, and of science in general, fueled substantial vaccine hesitancy and slowed the effort to stop the virus. The forces driving that distrust were deep and complex, and therefore proved not easy to resolve. The most effective remedies were those taken by states like Maine, Connecticut, New Jersey and others: embracing both realities and uncertainties surrounding the pandemic, bringing in trusted spokespeople in favor of vaccinations, providing regular information and reassurances about the vaccines from state leaders, making information widely available, and quickly replacing ineffective tactics with new approaches.

10 Experiments in the “laboratories of democracy” are great—but they are worthless without learning

Vermont and South Dakota are two states with older populations than average, rural, and dominantly White. They had, however, vastly different experiences in dealing with COVID, [explains](#) Ashish K. Jha, dean of Brown University’s School of Public Health. Jha found that the death rate in South Dakota was six times higher than in Vermont. Vermont’s vaccination rate was also far higher, with 75 percent of Vermont residents getting at least one shot by mid-July 2021, compared with half of South Dakota’s population.

Even a casual scan of data from around the country reveals many striking differences among the states on all fronts, from death, hospitalization and infection rates to the portions of the population vaccinated. In fact, by the end of July, a [growing number of observers](#) speculated that the United States increasingly split into two nations—one made up of the states with high levels of vaccination, the other consisting of places with low vaccine rates.

From a federalism perspective, this was not surprising. In 1932, U.S. Supreme Court Justice Louis Brandeis famously celebrated the states as “[laboratories of democracy](#),” where the nation could experiment with new ideas on a smaller scale and decide which experiments to embrace across the country. This played itself out in different ways as the first reports of COVID cases turned into a national nightmare.

First, as noted earlier in this report, some states took very different measures for dealing with their unvaccinated populations that produced very different results. California locked down early and stayed locked down far longer than Florida, which opened its doors more quickly than almost any other state. [Seattle](#), which had one of the nation’s highest death rates in March 2020, tried early and aggressive shutdown measures along with other steps, like [mandatory masking](#). That drove its COVID rate lower than any other large metropolitan area in the country one year later. Texas resisted imposing lockdown restrictions at the beginning of the pandemic, and lifted them sooner than most states in mid-2021.

For some analysts, these variations in approach provided natural opportunities to judge which strategies could prove most effective in countering the virus. Unfortunately, these variations often became exercises in political autonomy, rather than sincere desires to study outcomes and draw conclusions.

As any chemist will say, laboratories are not useful without the opportunity to assess which tactics produce which results. Most of American federalism, most of the time, leads to a focus more on licensing divergence, and less on learning what divergence produces. Flexible self-government has enormous virtue, but can also undermine the ability to learn quickly—which can prove devastating amidst a crisis.

To fully embrace the idea of “laboratories of democracy,” governments should take into account the entirety of Brandeis’ original commentary, in which he described the states as places to “try novel social and economic experiments without risk to the rest of the country.” The key word here is “experiments,” which are futile exercises absent learning from them.

A single approach to federalism does not necessarily fit all situations. The interstate highway system would never have been built with drivers able to pass seamlessly from state to state, if each state had planned on its own with unconnected roads, different signs and signals, varying lane widths, and different bridge heights. Similarly, the state of crime in local governments could not be assessed if they were free to report a “crime” in any way they chose—or not to report some crimes at all.

In cases involving infectious disease, one state’s insistence on going its own way can cause big problems for other states. New England leaders may have been generally successful at persuading high percentages of their populations to get vaccinated. But the airports remain open, and people who decide to take a family outing in Walt Disney World have to travel from their home to Florida, one of two states in which [every county was listed](#) by the CDC as having “high” levels of community transmission as of July 26, 2021.

For some problems like this, where local variations can produce national consequences, systems must be more tightly coupled. This concept is not just limited to the pandemic. Wildfires expand beyond state borders. Hurricanes travel up the east coast, and advance knowledge of where they will make landfall is often unpredictable. Large scale cyberattacks can have alarming consequences for national security in all fifty states.

Federalism in the United States involves neither an on/off switch, nor an either/or choice. Federalism brings remarkable flexibility, but in major crises, the system needs to be tightly coupled to prevent problems somewhere from becoming problems everywhere.

Action item:

Although the nation rightly celebrates the genius of American federalism and its vast range of self-determination and experimentation, that flexibility can sometimes prove dangerous: in handicapping the system’s ability to learn from experiments, and in preventing concerted action needed to deal with truly national crises. Governments at all levels can develop a far more sophisticated approach that views federalism on a continuum between national control and local flexibility—and can then determine which kinds of crises call for which kinds of action. The more sweeping and devastating the consequences, the greater need for federal steering of state and local action.

11 The nation faces inequities—and the pandemic helped to make the effects of inequity more transparent

The pandemic may have served as the single most visible petri dish in which to show how the bacterium of inequity has thrived since Reconstruction. Part of the problem flows from deeply rooted inequities in health care, and some comes from the fact that many state governments simply did not keep track of the impact of COVID on minority populations.

As Dr. Lisa Cooper of the Johns Hopkins University School of Public Health [explained](#), “It is increasingly clear that the disease is hitting the most vulnerable and disadvantaged populations in the U.S. the hardest.” Many states were slow in measuring the disease’s spread among Black Americans, for example, and by mid-summer 2021 some states still did not keep track of the racial background of those who died from the virus. Where there were data, Cooper reported, “While Black Americans represent only about 13 percent of the population in the states reporting racial/ethnic information, they account for about 34 percent of total COVID-19 deaths in those states.”

Some of the reasons for this were set forth early in the pandemic by the Brookings Institution, which provided the following explanation:

Blacks, relative to Whites, are more likely to live in neighborhoods with a lack of healthy food options, green spaces, recreational facilities, lighting, and safety. These subpar neighborhoods are rooted in the historical legacy of [redlining](#). Additionally, Blacks are more likely to live in densely populated areas, further heightening their potential contact with other people. They represent about one-quarter of all [public transit users](#). Blacks are also less likely to have equitable health care access—meaning hospitals are farther away and pharmacies are subpar, leading to more days waiting for urgent prescriptions.

Johns Hopkins’ Cooper [explained](#) that racial minorities were more likely to suffer from chronic medical conditions and less effective medical care. They were also more likely to hold jobs, ranging from transportation to food supply, that did not allow telework or paid sick leave.

Inequities also thrived in economic terms over the course of the pandemic. According to a [report released in July 2021 by the U.S. Census Bureau](#):

- “Black adults in households where someone had lost employment income since the start of the pandemic were more likely than White adults to report uncertainty about their ability to pay for housing in February.”
- “Black adults were more likely than White adults to have taken on debt to pay for household expenses in January.”
- “Black adults living in households where someone lost employment income since the start of the pandemic were also 11.1 percent more likely than White adults to report that they sometimes or often did not have enough to eat in January.”

Evidence of social inequities crop up in all manner of crises, not just the pandemic. In June 2021, a deadly heat wave hit the northwest, with Portland, Oregon, recording temperatures that soared to 116 degrees. Streetcars stopped in their tracks because power cables melted;

roads buckled; and pools shut down because the heat endangered lifeguards and pool staff. Portland's county of Multnomah experienced some 54 deaths.

This heat wave exposed potential of climate change to alter daily life, but even more so laid bare how crises often disproportionately hit poor neighborhoods. Better-off neighborhoods, with less concrete and more shady trees, sometimes hit 100 degrees. But areas in which poor people and people of color tended to live experienced readings over 120 degrees. The greater likelihood that people under the poverty line lived in housing without air conditioning only exacerbated the impact of heat in the streets.

Portland State University professor Vivek Shandas, who documented these differences in temperature by driving around the city with a thermal camera, saw this coming. A [study he co-authored in 2018](#) found: “Nonwhite, minimally educated, or poor English speakers . . . experience higher temperatures than their wealthy, White, educated, English-speaking counterparts.”

The northwest heat wave demonstrated clearly that the American ideal that all people are created equally does not mean that all people are treated equally. Inequitable treatment of large segments of society crops up in virtually every crisis, such as Hurricane Katrina in which [51 percent of deaths](#) were among Black people. The nation must deal with the underlying issues that cause these inequities before each succeeding disaster makes them even more transparent.

The prevalence of social injustice is relatively easy for many to ignore—except, of course, the Americans who suffer as a result, ranging from arrests for so-called “driving while Black,” to difficulties in getting jobs in private and public sectors even under policies prohibiting discrimination.

According to a [study by NEOGOV](#), which provides technology for hiring new applicants in more than 2,000 agencies in state and local government from coast to coast, for positions paying less than \$40,000 a year, Black people are 44 percent less likely than White people to make it to the interview process after they have been identified as qualified for the position and referred to agencies by an HR department.

For many Americans content to live in a nation full of disparities, alarmed on occasion by horrific incidents like the George Floyd killing, the pandemic provided inescapable evidence of these inequities. The pandemic has disproportionately afflicted some disenfranchised groups of Americans, and the data have made that problem transparent, regardless of whether individuals read newspapers, watched television, or even followed social media.

On January 26, 2021, President Joseph Biden [tweeted](#) to his 12.8 million followers that “America has never lived up to its founding promise of equality for all, but we’ve never stopped trying. Today, I’ll take action to advance racial equity and push us closer to that more perfect union we’ve always strived to be.” He was referring to an [executive order](#) stating the “policy of my administration [is] that the federal government should pursue a comprehensive approach to advancing equity for all, including people of color and others who have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality.”

The heightened awareness of deeply rooted biases during the pandemic translated to state and local governments, a growing number of which have hired chief equity officers and focused their budgets on providing a higher portion of funding toward previously underserved communities.

“Local governments have the potential to make a substantial and lasting impact in creating equity for all the people in their communities. One of the most powerful levers for change is the budget,” wrote Chris Fabian, CEO, of [ResourceX](#), a for-profit organization that attempts to help local governments make budget decisions based on data. Cities like [Louisville](#), [Denver](#), [Austin](#), and [Tacoma](#) have all moved forward on budgeting with equity in mind.

Even with the greater evidence from the pandemic of an inequitable nation, the nation has a long way to go. The roots of these issues reach back hundreds of years, and change will likely come in small steps. But the clear message that those steps need to be taken may be one of the few long-term benefits that remain for society brought upon by COVID.

Action item:

Many people have ignored the inequities sweeping through America for generations. But the pandemic has made it difficult to continue along that path of ignorance. Heightened awareness may well lead to solutions at all levels of government, including sharing more resources with disenfranchised neighborhoods, hiring chief equity officers to keep issues of inequality in the forefront, ensuring that government data does not perpetuate racial bias, and using the power of public discourse soapbox to keep people from falling back into a state of ignorance. These actions are important far beyond COVID, and can help to address problems of inequity during disasters and for obvious moral and ethical reasons.

12 Accountability is often the first casualty in a crisis—even when governments know the results of their efforts

COVID-19—and, indeed, all crises—demonstrates that the larger and more complicated the situation, the less likely is any individual entity unquestionably in charge of finding and implementing solutions that work.

That means that accountability represents both an operational and a political challenge. It is an operational challenge because coordinating a vast and complex network of federal, state, local, private, and nonprofit organizations constitutes an enormous burden. It is a political challenge because the public’s view of government’s response to crises can produce searing consequences. The point at which negative public views of President George W. Bush’s performance exceeded positive opinion—and never recovered—occurred immediately after Hurricane Katrina. After a rough start, the government’s leadership became more effective in dealing with the hurricane’s aftermath, but the initial struggles formed a powerful narrative that the Bush administration could never shake.

This challenge of accountability reflects an eternal and universal, but differential, problem of government. Firefighters, for example, consistently score highest in trust among all government professions, not only in the U.S. (where the level of trust is 93 percent), but also in Germany (96 percent), Brazil (93 percent), Russia (89 percent), and Iran (100 percent). This arises because the connection between people and firefighters is direct and immediate. When people call for help, firefighters arrive and lend assistance in whatever form is necessary, including providing medical care or putting out a blaze.

In many localities, repeated instances in which a fire department fails to do its job well can lead a performance auditor to step in and gather data about such pertinent issues as response time, the adequacy of the equipment, or the frequency of inspections of a burned building. Clear accountability here is easily measured using these, and other, metrics.

The scenario is not nearly as clear-cut with more complex problems like COVID. Problems associated with the pandemic advanced far faster than solutions. When proposed solutions arrived, from masks to social distancing to vaccines, there was a lack of consensus around those efforts, framed by both scientific uncertainty and the considerable political dissensus that surrounded the virus, as well as efforts by some political leaders to avoid close contact with the issue.

While it's unimaginable that anyone would oppose speedy fire departments as being unnecessary for public safety, tweets supporting unmasked children have abounded. Science has pushed back. For example, Dr. Shelly Vaziri Flais, MD, who teaches at the Northwestern University Feinberg School of Medicine, posted a video online in which she represented the [American Academy of Pediatrics](#) view that "All children over two should wear masks."

The core issue of crises in general—and COVID in particular—is the [challenge](#) of complex problems that can only be solved through complex systems. For many years, there has been justifiable resistance to holding any single individual or agency responsible for crime waves. The police may be on the line much of the time, but the quality of schools, the efficacy and funding of departments of mental health, and the rehabilitative success of departments of corrections are also part of the picture.

Complex problems defy accountability because they go beyond the capacity of any organization to understand fully the problem's cause or how best to solve it. Moreover, there is often a high level of uncertainty about the best constellation of players, how best to focus their attention, and how to coordinate the effort to produce effective results—and accountable strategies.

Things become more complicated given disagreement about the exact nature of the problem. Has COVID been a major public health emergency or a trigger for economic crisis? If an economic crisis, then part of the solution involves returning people to their communities as quickly as possible, so they can engage in economic activities (e.g., shop, go to the movies, and attend large concerts). If a health problem, then all of these issues can combine to magnify the problems that COVID caused.

Together with the challenge of inequities, accountability ranks among the most difficult problems in times when public safety is at high risk—especially in the aftermath of these events. Moreover, as crises proliferate and become more complex, strategies for attacking them will grow even more difficult to isolate. And that multiplies the challenges for accountability. This inescapable challenge of modern life is certain to grow.

The capacity to hold people and institutions accountable provides a powerful driver to improve the world. When cities began to mandate that restaurants display cleanliness-related letter grades given by departments of health, these institutions grew measurably cleaner. But finding mouse droppings is far easier effort than creating a nationwide program to test people for COVID—efforts now in decline in localities that want to declare victory.

Though solutions remain elusive, effective progress is possible. Indeed, the keys to attacking the dilemma of accountability lie in earlier sections of this report: stronger partnerships between levels of government, as well as government and the private sector; investment in data as a language and the use of that language to drive the supplies and logistics that crises demand; honing the use of artificial intelligence and predictive analytics; risk management that helps leaders anticipate the problems they are most likely to face; and networks focused on outcomes.

Action item:

Accountability is a bedrock problem in dealing with crises, and their growing complexity makes that problem even worse. But solutions include coming to a consensus about the problem, and developing measurements of performance that determine success or failure without placing broad-scale blame on any individual player involved. “Gotcha” is not a helpful word to use in holding individuals and institutions accountable in a complex world.

CONCLUSION



What would have happened if the nation's leaders had been following all twelve of the preceding principles when the first cases of COVID were identified in China? No matter how closely they pursued the steps recommended in this report, there still would have been an enormous number of cases and deaths in the United States. However, the numbers would most likely have been substantially smaller than what the nation experienced, which ranks among the highest per capita rates among the world's largest countries. The country would have also likely emerged from the COVID crisis with far more trust in government's institutions.

Crises will come and go, regardless of the lessons learned (or ignored). Good governance will not stop hurricanes, terrorists, floods, wildfires, heat waves, or cyberattacks from disturbing society's smooth functioning.

Improvements in the way government manages crises, however, can soften their impact in demonstrable ways, lessening their impact and abbreviating recovery. Consider principle number nine, which argues for the benefits of improved trust in government. If more Americans had faith in leaders pleading for more people to be vaccinated, the spike in new COVID cases after the arrival of the Delta variant in mid-2021, would almost certainly have been reduced dramatically, and the nation's economy would have bounced back more quickly.

Consider as well the critical notion to develop a strategy for countering unforeseen calamities before they hit, as espoused in principle number seven, which calls for risk management. The Trump administration chose to ignore the playbook for a pandemic established by the Obama administration, a lapse now being filled.

The principal takeaway from all of these principles: Even in a nation consumed with politics, the other two facets of government—policy and management—make ambitious efforts succeed or fail, and profoundly shape the politics that surround crises. Without sensible results-oriented policies and the means for implementing them, elected leaders who proclaim that they will lead to a better future may find themselves in rhetorical houses made of cards, not stone and wood.

Applying most of these principles is not easy. Maintaining them as a crisis ebbs away may be even harder. In fact, once a crisis becomes a memory, it is often easy to forget the painful journey, to ignore the steps needed to prevent a recurrence, and to yearn for a return to a past that, almost always, has vanished forever.

All of that builds on the conversations with and across governments and communities, which builds on principle number three: “We need a language to talk about crises—and the language is data.” This became obvious when the pandemic hit a peak as residents of communities awaited word in their local news about the degree of risk in their area.

But in mid-June, just before the Delta variant began to turn the trend lines for new cases upward again, Beth Blauer with the Coronavirus Resource Center at Johns Hopkins University told [National Public Radio](#): “One of the most troubling trends recently has been that states are making the decision to either slow down or wind down their reporting efforts.” At that point, [at least two dozen states](#) had stopped reporting data on a daily basis, even as the Delta variant was getting a toehold on America. Like sailors in a growing gale whose compass was tossed overboard, some states grew more blind when they most needed a strong hand on the wheel with a clear course to sail.

Hope for applying the dozen principles spelled out in this paper relies on a fragile commodity—a long memory about the consequences of the past and a firm resolve to do better in the future. This paper sets forth details for building a new kind of national roof to protect from future unanticipated rainstorms. The key is to continue to keep the roof in good repair, even when the rain stops and the roof ceases leaking. That is the government that Americans deserve.

APPENDIX

Rudolph's Nose

No individual team member can ever pull the weight of solving a complex problem. In many complex situations, however, one team member needs to take the lead. That is the lesson of Rudolph and Santa's reindeer. On an especially foggy night, Santa needed Rudolph's special talents to guide his sleigh. The lessons of COVID teach the same lesson. When dealing with crises, responsibility is sometimes spread evenly across all levels of government. To meet some challenges, however, multiple levels of government need to be involved—even when one player often needs to guide the sleigh—as the following figure shows.

	Federal	State	Local
1. Remember all crises are local		●	●
2. Frame central policy to build local support	●		
3. Establish data as a language	●		
4. Coordinate goods, services, and logistics	●		
5. Grow the experts we need	●	●	●
6. Use artificial intelligence and create predictive analytics	●		
7. Manage risks		●	●
8. Build networks	●	●	●
9. Earn trust	●	●	●
10. Learn from the "laboratories of democracy"	●		
11. Ensure that accountability isn't a casualty of crisis	●	●	●
12. Pursue equity as prime goal	●	●	●

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Katherine Barrett and Richard Greene. Over the course of about 30 years, Katherine Barrett and Richard Greene, principals of Barrett and Greene, Inc. have done much-praised analysis, research and writing about state and local governments. Described by Peter Harkness, founder of *Governing Magazine* as "by far the most experienced journalists in the country covering public performance," they pioneered "grading the cities, counties and states" in management.

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Over the course of years, Barrett and Greene have served in an advisory or contractual capacity to many organizations central to the study of states and localities. For more than 20 years they were columnists for *Governing Magazine* and they have also served as senior advisors at the Pew Charitable Trusts; senior fellows for the Council of State Governments and more.

One of Barrett and Greene's most significant contributions was as founders of the Government Performance Project, which was funded by the Pew Charitable Trusts and published in *Governing Magazine*.

Though they work on virtually all projects as a team, the one exception is that Greene has served as a long-time chair of the Center for Accountability and Performance at the American Society for Public Administration.



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He has received three lifetime achievement awards: the American Political Science Association's John Gaus Award, the Warner W. Stockberger Achievement Award of the International Public Management Association for Human Resources, and the Donald C. Stone Award of the American Society for Public Administration.

Kettl has twice won the Louis Brownlow Book Award of the National Academy of Public Administration for *The Transformation of Governance* (2002); and *System under Stress: Homeland Security and American Politics* (2005). His book, *Escaping Jurassic Government: How to Recover America's Lost Commitment to Competence*, won the 2016 award for book of the year from the American Society for Public Administration.

Kettl has consulted for government organizations at all levels, including most recently the U.S. Department of Veterans Affairs. He has appeared frequently in national and international media. He is chaired two gubernatorial blue-ribbon commissions for the Wisconsin state government, one on campaign finance reform and the other on government structure and finance.



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