Introduction
Getting to and Sustaining the Next Normal: A Roadmap for Living with Covid

Introduction

After nearly two years of tragic deaths, missed family reunions, shuttered schools, disrupted workplaces, and social isolation, Americans are exhausted with the Covid pandemic. This fatigue has led some to throw caution to the wind. They are dining indoors at crowded restaurants, attending concerts and theaters, and even protesting vaccine and mask mandates. During Super Bowl LVI, millions gathered at homes and bars to watch the game with family and friends.

Many others are still deeply worried. They want to put Covid behind them but fret about their unvaccinated children, elderly family members, and their own risks of contracting long Covid. They remain vigilant — not yet dining indoors or inviting friends over for dinner. They withdraw their children from school and childcare when Covid cases arise. And they routinely swab their noses and those of their children to check infection status with at-home tests. Some immunocompromised individuals have had to alter their entire existence and fear they may never be able to go outside again.

Much of the country sits somewhere in between, with many making decisions on-the-fly about whether certain activities and gatherings are worth risking. These are the Americans who last summer cautiously began to travel, eat indoors, and resume social activities, only to hastily reverse course with the rise of Delta and then Omicron. Now that cases are declining again and the severity of symptoms from Omicron appear mild in the vaccinated or previously infected, they are venturing out despite high rates of death.

Everyone pines for their pre-pandemic routines and lives.

Regardless of where they fall on this spectrum, everyone pines for their pre-pandemic routines and lives. They want to know how and when they can return to those familiar and well-worn paths for themselves, their families, and their communities, even if they accept that some changes are likely permanent. They are looking for a roadmap of how to move forward, along with credible and understandable guidance on when it will be safe and how to reduce their risks. And in the absence of a roadmap, they seem to follow whichever expert or outlet is closest to their preferences.

The purpose of this report is to offer Americans guidance and lay out a roadmap for how to advance to and sustain the next normal.

A New Threat

Two years ago, a new virus came roaring out of China. Hospitals filled and morgues were piled with bodies. In the United States, President Trump publicly expressed confidence that the resulting epidemic would soon pass while privately acknowledging the deadly risks.

President Trump launched Operation Warp Speed, a public-private partnership to accelerate the development of vaccines. In part because of the initiative’s investments and encouragement, the first vaccines were authorized just 10 months after the pandemic officially began—a record for vaccine development.

But much of the Trump Administration’s other efforts were plagued by disorganization, confusion, and an abiding refusal to face the severity of the pandemic. Scientific advisors were ignored and basic public health strategies were minimized. Communication was confused and frequently contradictory. The nation’s testing infrastructure buckled under the strain of soaring demand, supply shortfalls, and government neglect, in part because President Trump believed that positive Covid test results reflected poorly on him.

When President Biden assumed office, cases and deaths were at record highs and vaccines were in short supply. On January 20th, Inauguration Day, about 16 million Americans — only 4 percent of the U.S. population — had been vaccinated. The Administration ramped up vaccinations by opening mass vaccination sites, distributing vaccines in pharmacies, and ensuring that vaccines would be free and accessible for all. The Ad Council and COVID Collaborative initiated a $250 million vaccination education campaign, coupled with administration efforts to boost vaccination uptake. And while efforts to improve testing faltered in some ways, the number of at-home tests grew exponentially.
The Biden Administration also focused resources on global distribution of vaccines. The top supplier of Covid vaccines worldwide, the United States has already shipped more than 415 million of the 1.1 billion doses the country committed to provide to low- and middle-income countries. These donations are part of a $4 billion allocation for global vaccine procurement, distribution, and administration. The Biden Administration rejoined the World Health Organization (WHO), helping to unify the global response to the virus, reinvigorate research networks that monitor viral variants, and signal the nation’s willingness to lead once again.

There have been other achievements. A significant one has been a concerted push to make care accessible to all. Over the past year, significant racial disparities in Covid death rates have plunged and in some parts of the country been eliminated. But problems remain, with the most frustrating being the refusal by one in five Americans to receive even one dose of a vaccine. This cannot be entirely pinned on individuals: Most notably, the government has not fully investigated and addressed the higher Covid mortality rates amongst black Americans, which may have contributed to black Americans’ lack of trust in the government’s response and subsequently lowered vaccine uptake, versus other racial groups.

In April 2021, the U.S. government declared that all American adults were eligible for the Covid vaccine and in May 2021, the CDC declared that vaccinated Americans could go without masking and testing. Many Americans eased precautions and returned to social activities—traveling, eating in restaurants, and gathering with families. On July 4, President Biden declared “freedom from the virus.” And by July 29, 164 million Americans had been fully vaccinated and Covid cases dropped to near-record lows.

By mid-summer 2021, Delta emerged, followed by Omicron in November 2021. These variants infected even those who had been vaccinated. In the fall and winter, testing needs soared and again far outstripped supplies.

The Biden Administration established 20,000 free testing sites nationwide and mandated that private and public insurers pay for tests. Additionally, the Administration unveiled a plan to roll out 500 million at-home rapid tests free of charge, most of which have now arrived in American households. Finally, the Administration is also working to create a stockpile of four million doses of Covid therapeutics, including monoclonal antibodies, antivirals, and preventive drugs for immunocompromised patients.

Even as cases climbed, the vast majority of schools and businesses remained open, demonstrating a promising shift in school and workplace safety measures and public awareness on how to safely keep the economy open.

While trying to fight the SARS-CoV-2 virus, the federal government and scientists have had to contend with a politically motivated misinformation campaign about vaccines, therapeutics, and other aspects of the pandemic. This has inhibited an effective response and demoralized doctors, nurses, public health officials, and scientists, some of whom have been targeted in unusually vitriolic terms. Just as challenging, Americans are understandably fatigued and reluctant to continue mitigation measures.

Responding to an ever-evolving pandemic is intense, overwhelming, and endless work for public officials. Often, the sheer magnitude of things to do precludes long-term planning that the country needs to prepare for future variants of Covid, for other highly contagious viruses, and for facilitating a return to normal daily life.
Not Done Yet

Make no mistake, the United States is far from a normal situation. Going into March 2022, the country was still experiencing about 35,000 hospitalizations per day and 12,000 deaths per week from Covid, a toll exceeded only by the great modern killers of heart disease and cancer. To put this in perspective, the country has on occasion tolerated—meaning accepted without emergency mitigation efforts—as many as 1,150 deaths per week from major respiratory illnesses, including influenza and RSV. That Covid’s toll remains about 10 times higher than the flu’s modern worst is intolerable.

At the same time, many Americans wonder whether and when the current Omicron surge will fully subside, whether the number of cases and hospitalizations will continue to plateau, whether—or when—additional variants will emerge, and what this uncertainty means for 2022 and beyond. Some are not waiting to act. Several municipalities—including Boston, Philadelphia, and Denver—lifted vaccination requirements within certain indoor public settings based on only “improving” case counts but not near normal circumstances.

The mood of the American public, the demands of the economy and society, and the difficulties posed by a virus that constantly surprises the experts present new and unique challenges. Trying to eliminate Covid is not realistic. Instead, the nation must plan to mitigate its effects, prepare for variants, and build towards a next normal. This Roadmap’s authors envision that in the next normal, endemic Covid—or any other respiratory virus, circulating or novel—does not necessitate the massive societal disruptions endured these past two years. This Roadmap reimagines how America may live with Covid, which requires getting to and sustaining the next normal, and allows for the return of the routines and joys of everyday life for a majority of the population.
Equity must be a core tenet of solution design to mitigate health disparities made worse by the Covid pandemic.

Recognizing the luxury of a 30,000-foot view and the lack of responsibility for managing the day-to-day challenges of pandemic response, the Group tried to make its recommendations as actionable as possible. It focused only on critical areas and measures that could be fully implemented or at least initiated by the end of 2022. The focus is largely domestic, with some critical action steps targeted globally.

The objective of this document is to share suggestions with policy makers on practical steps needed at the federal, state, and local levels to get to and sustain the next normal. The intention is also to orient the American public by sharing ideas on what this next normal might actually look like and how to rapidly get there.

Parts of this transition will be complicated. Myriad areas need to be addressed simultaneously. There are public health considerations such as vaccines, therapeutics, testing and disease surveillance, the healthcare workforce, and air filtration. Communication and public education efforts need to be addressed. Equity must be a core tenet of solution design to mitigate health disparities made worse by the Covid pandemic and help restructure America’s healthcare system to better support all vulnerable populations.

Successfully implementing these various reforms and initiatives will require a whole-of-government approach that leverages various federal agencies working in combination with state and local governments, as well as close collaboration with industry, academia, faith-based organizations, the private sector, and the public. A balance should be struck—and will be demanded, by some—to balance public safety with respect for personal liberty.

Humility is essential. There are multiple characteristics of SARS-CoV-2 pathogenesis and epidemiology that remain unclear, including the precise duration of immunity from vaccination or infection, whether it will become a largely seasonal infection, and how to reduce the risk and impact of long Covid. Perhaps the biggest unknown of all—and the most concerning—is whether even more transmissible, immune-evading, or virulent variants will arise after Omicron. While the shift from pandemic to endemic may already be underway, the characteristics of that eventual state remain unknowable. This Roadmap attempts to account for these variables in each area of day-to-day pandemic response while contributing to groundwork for addressing many of these unanswered questions through research and surveillance.

Too often with epidemics, past becomes prologue. In 2003, SARS—the first-ever pandemic threat of a novel and deadly coronavirus—spread to more than 25 countries. Tragically, few structural investments were made to the United States’ surveillance, control, and research capacities in preparation for the potential emergence of another such threat, despite many warnings. SARS-CoV-2 is just a far more transmissible version of the original SARS virus. If recommended steps had been taken over the past 20 years to strengthen public health infrastructure, the American experience with Covid might have looked very different.

The United States cannot resort to its old habits. The nation cannot let this Covid moment pass and move on as it did in 2003.

The nation cannot let this Covid moment pass and move on as it did in 2003.
Beyond responding to the immediate crisis, the United States must finally commit to creating the infrastructure to respond to national biosecurity threats including pandemics. This Roadmap is geared primarily towards the current situation. But many of its recommendations are essential starting points for building towards a more secure future. Spending on these measures is a long-term investment in America’s public health and safety.

The pandemic and its restrictive measures should end when Covid death rates decline to those of a bad influenza season. This is not to suggest that any deaths are acceptable. It is an interim period as approaches to addressing Covid change and the country transitions into the next normal.

The combined death toll from influenza and RSV can peak above 60,000 in a year—bad but still not considered an emergency or crisis. These numbers translate into an interim death threshold for the next normal of 0.5 deaths per one million people per day on average for major viral respiratory illnesses. In the United States, a country with 330 million people, the transition to the next normal can occur when the National Center of Health Statistics measures the direct mortality from major respiratory illnesses to average 165 deaths per day and 1,150 per week. The death toll from Covid going into March 2022 is over 10 times higher.

Making projections is always risky. The virus has repeatedly surprised scientists and evolved in unanticipated ways. Nevertheless, even in a pessimistic scenario, the outlook for the remainder of 2022 appears to be vastly better than the experiences of the past two years.

This report's authors anticipate that a pessimistic scenario is likely if two things occur. First, the virus' incidence or attack rate is high, with about 80 percent of Americans infected with a new SARS-CoV-2 variant. And second, the infection fatality rate, which is the number of infected people who die, hovers around 0.1 percent. Under these circumstances, the number of deaths from March 2022 through March 2023 would be approximately 264,000. In an optimistic scenario, a future annual death toll from Covid might be as low as 20,000.

This is less dire than many expected. Even the pessimistic scenario envisions deaths being about half the toll experienced in each of the past two years. This is mostly a result of higher population immunity through vaccination and infection rates.

The next normal with Covid requires a basic re-orientation. The national discussion needs to shift away from Covid alone to one that encompasses major viral respiratory illnesses like influenza and respiratory syncytial virus (RSV). Several key metrics need to be tracked to know when this transition is occurring. These metrics include health care workforce shortages, hospital bed occupancy, the threat of health care systems being overwhelmed, and deaths from major viral respiratory infections (see Chapter 1 for a proposed dashboard).

When hospitalizations caused by viral respiratory illnesses surge and force staffed bed occupancy to exceed 85%, the system begins to get overwhelmed. Patients suffer poor quality care. Avoidable complications and deaths increase. During the recent Omicron surge, many hospitals were over this staffed bed occupancy limit. Reducing cases of viral respiratory illnesses to a level that avoids such a high staffed bed occupancy rate is imperative.
While optimism is justified, inaction is not.

But while optimism is justified, inaction is not. After all, a more deadly variant could arise, there will be other novel viruses, and the country has yet to take many important steps to get to this next normal.

Indeed, getting to and sustaining the next normal requires serious work on many fronts. The Group identified 12 such areas, and each section includes specific recommendations. Several steps are critical for reducing virus transmission, mitigating adverse outcomes, and addressing long Covid.

**Air Quality**

Covid revealed the poor quality of the air inside many buildings, as well as the importance of improving air quality and filtration to reduce the transmission of Covid and other respiratory diseases. To start, all public buildings should have their air quality routinely monitored and publicly graded. The air handling systems of public buildings, schools, commercial buildings, and large apartment complexes should be upgraded to MERV 13. Going forward, building codes must require a minimum of MERV 13 filters on HVACs. Where heating and air conditioning systems cannot be upgraded, HEPA filters should be installed or portable HEPA air filtration machines deployed. Every classroom and childcare facility in the country should have either MERV 13 or HEPA filters.

**Therapeutics**

Fortunately, the nation now has some therapeutic interventions—oral antiviral pills, monoclonal antibodies, and immunomodulatory therapies—that can reduce hospitalizations and deaths. But the virus is expected to develop resistance to any single antiviral drug. Effective Covid therapy over the long term will most likely require a cocktail of two or three drugs. Hundreds of oral drugs are in development or clinical trials. The country needs a new Warp Speed-like program with advanced purchase agreements and other financial and regulatory incentives to facilitate development and production of a multi-drug oral antiviral cocktail.

Another important element in therapeutics is to have a rapid test-to-treat pathway. All Americans who have a positive PCR test should be contacted within a day and offered a treatment, enrollment in a clinical trial of a potential therapy, and advice on how to isolate and stay safe.

**These vaccines represent one of the most important tools on the road to the next normal.**

**Vaccines**

The United States developed, manufactured, and distributed an ample supply of safe and effective vaccines in record time. These vaccines brought tremendous hope to Americans. Unfortunately, near universal uptake was hindered by confusing public health recommendations and a campaign of misinformation. The realization that vaccines were not as effective at preventing mild infections as initially believed created a wave of uncertainty and disappointment. Additionally, initial distribution challenges and decision-making that insufficiently addressed transportation and economic barriers to access vaccines likely contributed to the ongoing racial disparities in vaccine uptake. Nevertheless, these vaccines represent one of the most important tools on the road to the next normal.

Going forward, the United States should continue to use advance purchasing agreements and other incentives to rapidly develop novel vaccine platforms, including mucosal vaccines and combination vaccines, with the aim of creating a pancoronavirus vaccine. The country needs to expand the industrial base for domestic and international manufacturing of vaccines and bolster the availability of vaccines globally.
Testing and Surveillance

Testing and surveillance is not yet at the level needed to provide policymakers and the public with a full and real-time picture of the number of cases in the United States. To change this, lab-based PCR tests should assess infections for not only SARS-CoV-2 virus, but all known viral respiratory pathogens. At-home tests also need to test for more than SARS-CoV-2, and they need to be ubiquitous, accessible, and either very cheap (under $3 per test) or free. Importantly, the results of reliable Covid and other viral tests need to be systematically collected and directly linked to appropriate treatment, clinical trial enrollment, and isolation guidance. An approach should also be developed to collect population-level data on immunity to SARS-CoV-2 and how this immunity is changing over time.

The United States should invest in four comprehensive, real-time surveillance systems. These systems should assess pathogens in the environment (wastewater and air) and animals (deer, rats, and other species). They should look for genetic variants of SARS-CoV-2 and other respiratory viruses. They should assess population immunity against respiratory viruses. And they need to track the numbers of hospitalizations, intensive care admissions, and fatalities. All of this information needs to be available to government and non-government researchers in real time for analysis and to anticipate potential infectious disease outbreaks.

Long Covid

The world knows too little about long Covid, and this must change. The first step should be the creation of a coordinated national research program that uses existing patient cohort studies to form a new cohort that includes individuals with various health and vaccination statuses, and from diverse socio-demographic backgrounds. Fundamental questions that urgently need answers within the next year include determining the frequency of long Covid, whether asymptomatic or mild Covid infections are less liable to evolve into long Covid, how well vaccinations protect Americans against long Covid, and what factors, medications, or other interventions mitigate long Covid. The government should also accelerate ongoing long Covid research, including the NIH’s RECOVER initiative, the CDC’s INSPIRE study, and other meritorious research projects and programs. Additionally, research into the specific causes and effects of long Covid amongst children and racial minorities is necessary, to support America’s future and better address health disparities. A research program should determine what immunological factors predispose people to or protect them from long Covid so that targeted therapies can be developed and rapidly tested. Finally a comprehensive assessment is needed to ensure that the health, social, and disability services necessary for sufferers of long Covid are provided.

Staffing shortages are the main limit on the system's ability to provide quality care.

Workforce

Health care workers have been on the front lines of the Covid pandemic. They have worked valiantly to serve the infected and uninfected alike, sometimes with inadequate supplies of PPE, ventilators, beds, and most critically, other colleagues. There are a record number of health care jobs still unfilled, burnout among those working is dangerously high, and thousands of health care workers have died of Covid. Staffing shortages are the main limit on the system’s ability to provide quality care. The limitation on beds is driven less by physical space constraints than by the lack of physicians, nurses, respiratory technologists, perfusionists, and other personnel needed to staff them.

To get to the next normal, the United States must have a fully functioning health care system in which routine visits, tests, and treatments can be provided to people across the full range of illnesses, including but not limited to viral respiratory illnesses. Regulatory flexibility will be needed to facilitate care provision in both normal and emergency circumstances. Protecting the workforce from physical and mental health threats during crises is vital, and support for everyday wellbeing is important, too. Additionally, it is important to create a pool of flexible health care workers to deploy in emergencies. The U.S. government should
also invest in partnerships with faith-based groups and other organizations that supported vaccination and testing efforts throughout the pandemic, to identify opportunities for these organizations to provide ongoing health screenings and education.

**Equity**

The Covid pandemic has disproportionately impacted people of color, rural communities, tribal lands, and other underserved groups and locations, exacerbating existing health disparities. Solutions and strategies must prioritize health equity and the reduction of health disparities, with the end goal of building a public health system capable of reaching vulnerable and historically neglected populations. In the near term, public health leaders must recognize variations in need across different communities, and tailor investments, outreach, and public health programming to individual communities. Specifically, research into Covid-related health disparities and potential solutions is necessary to keep these disparities from persisting in the future. Government actors should acknowledge historic and current factors leading to distrust of the government and healthcare system and design and launch interventions to restore minority communities’ trust in these institutions. Additionally, government actors should establish innovative payment models that reward community actors and faith-based organizations’ efforts to support community health. The former should involve meaningful investment in the recruitment and training of minority health care workers. Finally, the U.S. must make a renewed and sincere commitment to address diseases endemic in minority communities, such as diabetes, which can both bolster minority communities’ trust in government and reduce long-term government health expenditures.

**Global Investment**

Although this report will focus primarily on opportunities for domestic actions and investments, lowering global Covid cases will slow the mutation of the virus and reduce the likelihood that a more virulent or transmissible variant emerges. Ultimately, if Covid continues to circulate widely in the Global South, realization of the next normal will be difficult to impossible in the United States, so the U.S. has both a moral imperative and economic and health incentives to support other countries’ public health efforts.

---

**Financing the Process of Getting to the Next Normal**

The next normal with Covid can be an improvement over life before the virus emerged. There is likely to be a better work-life balance with more teleworking and less commuting, a reimagining of the education system, a platform for rapid development of highly effective vaccines and therapeutics, better indoor air quality, fewer respiratory infections of all kinds, and more effective surveillance to anticipate and respond to new viral threats.

Getting to this better place by creating some of the tools outlined in this report will require Congressional and state legislation, as well as significant resources. Funding is especially critical. Unfunded mandates and requirements may make some difference, but most of the needed changes are challenging or impossible to implement without funding. Financing both the response to Covid and preparation for future biosecurity threats will be a wise investment with high returns to the nation.
The economic costs of the Covid pandemic have been significant. By the end of April 2020, nearly half of all businesses closed at least temporarily. Indeed, the first two quarters of the pandemic were disastrous for the economy, with GDP contracting nearly 10% and unemployment nearing 15%. The country has recovered to some degree, but employment is still 2.3% below pre-pandemic levels, with service industries including travel and hospitality hit particularly hard. Additionally, there was and continues to be substantial cost to individual families, with 20 million Americans living in households without enough to eat in the fall of 2021 and 12 million American adults reporting they were unable to pay rent.

This economic hardship occurred despite substantial government assistance. The government thus far has provided about $6 trillion in stimulus and support for individual American households, while the Federal Reserve kept interest rates historically low to further stimulate the economy.

It will take years to fully quantify the economic costs of the pandemic, but they are enormous. Early estimates suggest that lockdowns cost the United States between $20 and $35 billion per day\(^1\)\(^,\)^\(^2\). Preliminary estimates of the pandemic’s total economic impact—separate from the health costs—will be over $7.5 trillion in losses.

Given such enormous costs, “policies that can materially reduce the spread of SARS-CoV-2 have enormous social value.”\(^3\) Investing billions per year now to reduce the risks of a pandemic and its economic and health impacts—even if one occurs only every century—would return about $4 for every $1 invested, placing it among the best investment decisions in American history.

What will the various policies and programs proposed in this Roadmap cost the United States government? While this report’s authors are not budget analysts, it is possible to provide reasonable estimates. Overall, estimate annual costs at around $100 billion in the first year, around $30 billion in each of years 2 and 3 of implementation, with annual costs thereafter ranging from $10 to $15 billion.

The costs would be front loaded. Larger expenditures would be necessary to initiate projects, such as establishing a series of surveillance platforms, upgrading the country’s health data infrastructure, improving indoor air quality in schools and public buildings, and developing a multi-drug antiviral therapeutic. For example, there are just under 100,000 school buildings in the U.S. The GAO estimates that about 36,000 need upgraded or new HVAC systems, which would cost approximately $72 billion.\(^4\),\(^5\)

After these start-up costs, annual expenditures would be much lower. For instance, estimates suggest maintaining a comprehensive infectious pathogen surveillance system and accompanying data infrastructure would cost approximately $2 billion per year.\(^6\) A system of 20,000 permanent community health workers to provide public health services for approximately 20 million vulnerable Americans would cost about $2 billion per year. Expanding long Covid cohorts to arrive at definitive answers and assess potential therapeutics would cost about $1.5 billion.

Next, DARPA (created to catalyze the development of technologies supporting the technical superiority of the U.S. military) has a $3 billion annual budget. Investing $3 billion per year in ARPA-H or a similar organization to catalyze the development of biosecurity and pandemic preparedness technologies—vaccines, diagnostics, and therapeutics—seems prudent.

---

Conclusion

Unfortunately, health crises in the United States are often followed by collective amnesia. Few obelisks or markers are erected to commemorate those lost. The sense of helplessness in the face of an unrelenting and implacable adversary leads many to try to forget the appalling deaths and terrible disruptions. Americans often want to move on rather than remember and build better.

But, after the Covid pandemic, this American predilection for moving on would be a mistake. Covid is not going to be the last pandemic, biosecurity threat, or public health emergency. Ensuring that the country is prepared the next time requires remembrance and concerted work. This report lays out a Roadmap for 2022 to rapidly get the United States to the next normal and to begin building the infrastructure and systems the country needs to reduce both the risk of another pandemic and the consequences if one occurs.

This report specifically addresses how the United States might:

- **Achieve, define, and characterize the next normal**
  (Chapter 1: Next Normal and Chapter 2: Possible Scenarios)

- **Reduce Covid transmission**
  (Chapter 3: Testing and Surveillance, Chapter 4: Cleaner, Safer Indoor Air, and Chapter 5: Personal Protective Equipment)

- **Reduce the severity of Covid**
  (Chapter 6: Vaccines, Chapter 7: Therapeutics, and Chapter 8: Long Covid)

- **Build the infrastructure necessary to address Covid and future biosecurity threats**
  (Chapter 9: Health Data Infrastructure, Chapter 10: Public Health Infrastructure, Chapter 11: Healthcare Workforce, and Chapter 12: Communication and Education)

- **Tailor these strategies to specific high-risk settings**
  (Chapter 13: Schools and Childcare and Chapter 14: Worker Safety)