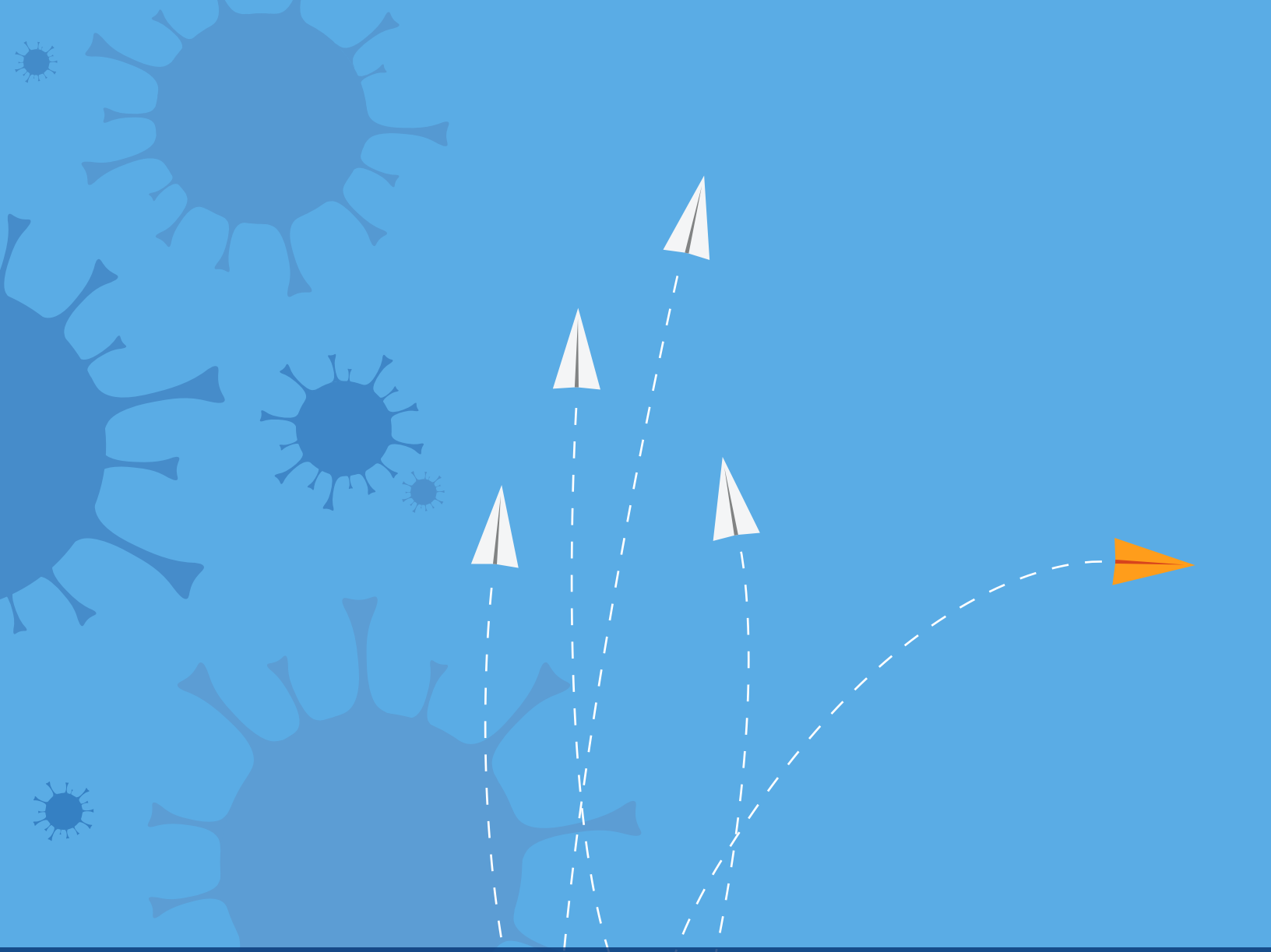

Resetting Our Response: Changes Needed in the US Approach to COVID-19

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Summary of Recommendations

1. Encourage and, where appropriate, mandate nonpharmaceutical interventions.
2. Close higher risk activities and settings in jurisdictions where the epidemic is worsening and reinstitute stay-at-home orders where healthcare systems are in crisis.
3. Bolster PPE supply chains and stockpiles and make information about the PPE manufacturing base and supply chain publicly available, with the goal of expanding PPE availability.
4. Bolster test supply chains, plan for shortages, and collaborate with states and commercial laboratories to expand capacity and improve test turnaround times.
5. Conduct and make public detailed analyses of epidemiologic data collected during case investigations and contact tracing.
6. Curate and fund a rapid research agenda to cope with major challenges that have arisen.
7. Scale up contact tracing and continue to improve performance.
8. Identify and disseminate best practices for improving the public health response.
9. Plan for a vaccine, including production, allocation, distribution, and community engagement, to ensure a successful rollout.
10. Develop policies and best practices to better protect group institutions.

Introduction

The impact of the COVID-19 pandemic in the United States has been profound. Despite initial declines in cases in May 2020 following implementation of stringent stay-at-home orders, cases are resurging in most states. The number of deaths has been rising in many states, with hospitalization rates for COVID-19 now again matching or exceeding numbers seen at the peak in New York City in March and April. Hospitals are under pressure or approaching a crisis in many places around the country. This resurgence is stressing many sectors of society, from businesses to education to health care. Unlike many countries in the world, the United States is not currently on course to get control of this epidemic. It's time to reset.

This brief report describes concrete policy actions at the federal, state, and local levels that are needed to get control of the COVID-19 pandemic in the United States.

Recommendations identify "quarterbacks," or responsible designees, to lead each policy action. However, leaders and stakeholders at all levels (federal, state, and local) will need to contribute commitment, technical expertise, insights, and funding to make the proposed actions possible.

The COVID-19 pandemic is a challenge far beyond what any 1 state, territory, or community can handle alone. It is only our collective action that will generate the change necessary to regain control of this epidemic, avoid cascading crises in our healthcare system and economy, and save great numbers of lives throughout the United States.

Recommendation 1: Encourage and, where appropriate, mandate nonpharmaceutical interventions.

The foundation for the response in every community should be what it has been for so many successful countries in the world: universal masking, individual physical distancing, hand hygiene, and avoiding large gatherings, particularly indoors. Without having these measures in place, it will be difficult to maintain control of outbreaks or turn the corner on an outbreak that is accelerating. Maintaining physical distance, wearing masks, avoiding large gatherings, and exercising hand hygiene can protect individuals, as well as those they interact with, including the 92.6 million adults in the United States who are at higher risk of severe outcomes from COVID because they have underlying medical conditions or are over age 65. COVID-19 has reached a point in the United States where these protective actions should no longer be called a matter of individual choice, but measures of societal responsibility.

Leaders at the state, local, and federal levels should mandate the use of nonmedical fabric face masks when in public, particularly in indoor settings. State and local leaders should also institute restrictions on large indoor gatherings, capping them at no more

than 10 people in places where there is substantial community transmission, and perhaps 25 in places where the epidemic is under better control. For indoor spaces that can easily and safely accommodate more than that, occupancy or square footage restrictions may be used instead. Schools, which could be considered large indoor gatherings, stand apart because of their important roles in the community and the unique epidemiology of children. Decisions about how and when to reopen schools for in-person learning are complex and require the consideration of many factors and the implementation of careful mitigation measures. As such, schools are beyond the scope of this particular report.

State, local, and federal officials should speak in unison in support of these core public health approaches to controlling this disease. Consistency of messaging will play an important role in overcoming the misinformation and ideological differences that are contributing to inconsistent implementation of public health guidance. Political and scientific leaders should work closely together, as they have in other countries that have successfully controlled their epidemics, both in the development of policy and also in its communication and guidance to the public.

Recommendation 2: Close higher risk activities and settings in jurisdictions where the epidemic is worsening and reinstitute stay-at-home orders in jurisdictions where healthcare systems are in crisis. In places where the epidemic is worsening (increasing daily incidence and high or increasing test positivity), and hospital systems are in crisis or approaching it, governors should reinstitute stay-at-home orders until numbers improve for at least 2 weeks.

COVID-19 outbreaks have been accelerating in states around the country. Without concerted efforts, it is unlikely that transmission will slow. Leaders must implement control measures to prevent the pandemic from continuing to intensify.

In those jurisdictions where hospitalizations and diagnostic test positivity are rising, but where there are still no signs of hospital crisis or rising deaths, governors or local executives should re-close high-risk activities and settings.

In jurisdictions (eg, either whole states or individual counties or cities) where healthcare systems are in crisis or approaching it, or deaths are steadily rising, governors should reinstitute stay-at-home orders until numbers improve for at least 2 weeks. Following that 2-week period of improvement, reopening of low-risk activities and settings could begin, first by reintroducing a handful of activities and settings and then waiting at least 2 weeks to evaluate the impact on transmission before reopening further. These decisions can be made at the county or state level, depending on the geographic scope of community transmission and the balance of shared decision making between state and local officials.

Criteria for triggering re-closing higher risk activities or settings or for issuing new stay-at-home orders should include:

1. **Hospital systems on track to become stressed if current trajectories continue.** We define stressed healthcare systems as those that require exceptional arrangements to accommodate patients, including canceling elective procedures; relying on surge capacity of beds, spaces, or staff; relocating patients out of the local health system; and/or rationing care through implementation of crisis standards of care plans. Of note, because time from infection to hospitalization can be 2 to 3 weeks, leaders should not wait until hospitals are near capacity before taking action.

2. **Surging case numbers.** Either the incidence and/or the percent of tests that come back positive is steadily increasing over the course of 3 to 5 days, suggesting that community transmission is intensifying and that current test capacities are insufficient.

Other indicators of accelerating outbreaks include insufficient testing capacity, resulting in an average wait for test results exceeding 72 hours, and an inability to contact trace and implement case-based intervention. Experts suggest that the time from specimen collection to case isolation should not exceed 48 hours, and that at least 80% of new cases should be interviewed within 48 hours of specimen collection. These indicators should influence assessments of the ability of local capacities to slow transmission without returning to closures; jurisdictions with sufficient testing capacity and robust case-based intervention capacity may have more flexibility in outbreak management.

Closures do not need to mirror those implemented in the spring, when less was known about the epidemiology of COVID-19. Closures should include high-risk indoor settings where people congregate, like bars, restaurants, entertainment venues, gyms, and indoor religious spaces, and possibly indoor offices where transmission risk cannot be lowered through mitigation efforts. (If activities that would normally take place in indoor settings that are closed could be moved outdoors, that would enable them to continue operating more safely.) Low-risk activities could continue to operate, but mask use, physical distancing, and cleaning of high-touch surfaces should still be universally used. Leaders, particularly governors, should ensure that local officials have flexibility to implement more restrictive measures according to local epidemic conditions.

A decision to re-close will be disruptive for individuals, businesses, and communities. Without buy-in from the community, reducing spread will be difficult. Leaders should also prioritize clear and transparent communication with community members to convey the motivations, public health objectives, and anticipated timelines for closures. Expected closure timelines may begin at 2 weeks and be extended as necessary. More severe outbreaks will warrant longer closures.

The economic disruption of closures can be profound and can have a negative impact on the health and wellbeing of individuals, families, and communities if unmitigated. Federal and state programs to provide economic relief to those high-risk activities and settings that face re-closure should continue or restart as needed.

More information for conducting public health risk assessments to identify priority areas for closing is available in the Center for Health Security's Guidance for Governors report.

Recommendation 3: Bolster PPE supply chains and stockpiles and make information about the PPE manufacturing base and supply chain publicly available, with the goal of expanding PPE availability as much as possible.

Personal protective equipment (PPE) enables people to undertake necessary activities and do their jobs with confidence that they are better protected. With the pandemic accelerating both in the United States and globally, we are seeing that increased demand for PPE is further stressing supply availability. Essential workers are on the frontlines of the pandemic, risking their health to serve others. It is unacceptable to ask them to do that work with inadequate protective supplies.

Healthcare workers, including nursing home staff, are a top priority because of both the nature of their work and their critical contribution to the pandemic response. There are people in other high-risk occupational settings who should also have access to and be supplied with PPE, assuming the PPE needs of healthcare workers can be met. Examples include workers in manufacturing and meatpacking plants, educators in school settings, individuals who are incarcerated and staff in those facilities, farm workers living in crowded housing, and grocery store and pharmacy workers who interact closely with each other and the public indoors on a regular basis.

Individuals at high risk of severe illness because of age or underlying health conditions may also benefit from more protective PPE than the nonmedical fabric face masks that are now recommended for use by the public. Because PPE—and specifically, medical masks—would decrease risks for individuals in these groups, it would also decrease the risks to their families and close contacts.

Despite the vital importance of PPE in decreasing SARS-CoV-2 spread, there are still critical gaps in PPE supply chains, even in the highest priority groups in healthcare settings. Media reports of shortages in hospitals continue to surface. Shortages in the healthcare system will prevent expansion of the use of PPE outside the healthcare system to other groups as described above, who will then remain at higher risk of exposure. In addition, lack of transparency about current and forecast PPE availability will also slow or limit the incorporation of medical-grade PPE into other settings and high-risk demographic groups, even if supplies are sufficient.

To address these gaps, we recommend that the Department of Health and Human Services (HHS) Assistant Secretary for Preparedness and Response (ASPR) conduct and make available an end-to-end analysis of the PPE supply chain. The analysis should clearly identify bottlenecks, estimate current and future production capacity, and highlight needs for additional funding or other actions to improve that capacity. This analysis should be regularly updated, such that the latest estimates and supply chain analyses are readily available to the state and local jurisdictions, healthcare institutions, and other purchasers, enabling them to understand the landscape. Most important, ASPR and its federal partners should take whatever action is necessary to substantially increase the country's supply of PPE, most particularly medical masks and N95 masks.

If they are not already doing so, healthcare systems and other users of PPE should disinfect and store used N95 masks according to protocols established by the Occupational Safety and Health Administration (OSHA) and other official sources so that any future interruptions in the supply chain could be mitigated by locally stockpiled supplies.

Recommendation 4: Bolster test supply chains, plan for shortages, and collaborate with states and commercial laboratories to expand capacity and improve test turnaround times.

Diagnostic testing plays a critical role in clinical care and epidemic control. Without a reliable and efficient system for testing for SARS-CoV-2, the US response will be severely constrained. Diagnostic testing capacity has been a persistent challenge in the United States, contributing to delays in identifying cases and hotspots and hindering case investigation and contact tracing, leading to delayed isolation and quarantine. While capacity has been dramatically expanded over the past several months, and it was largely keeping up with demand through May, with new and rapid growth in case numbers in states across the country in June and July, capacity is once again insufficient to meet demand. Despite new platforms and technologies coming to market, there are extended wait times for test results in most locations nationally. And as with PPE and other commodities, the demand for testing is expected to continue to increase both as the epidemic accelerates and as efforts to test asymptomatic people returning to school or work are initiated.

In addition to a general lack of testing availability, there are also persistent issues in turning specimens into test results in a timely manner. One major diagnostic test provider, Quest Laboratories, recently reported that nonpriority samples were taking approximately 7 days to process. Anecdotal reports from around the country suggest that some samples are taking even longer, sometimes on the order of 2 weeks. According to benchmarks set out by health experts, test results should be returned within 24 to 48 hours.

HHS should conduct and make public an end-to-end analysis of the diagnostic testing supply chain pipeline to better direct efforts to enhance testing capacity. This analysis should identify bottlenecks in the supply chain, as well as opportunities where rapid funding, regulatory flexibility, and clearer market signals from the federal government could bring new testing capacity online quickly. The analysis should also forecast future needs for testing based on different outbreak trajectory scenarios. It should look ahead to anticipated future resources—for example, widely available at-home testing—to identify challenges and opportunities that require further action. And such an analysis should inform Congress about opportunities to direct additional investments to best expand capacity and identify ways to better engage the private sector to meet testing goals.

Furthermore, the federal government should work with states and commercial laboratories, diagnostic manufacturers, and other stakeholders to identify the challenges preventing the timely return of test results to suspected cases and provide a roadmap for overcoming those challenges. In the interim, the Centers for Disease Control and Prevention (CDC) should issue guidance for public health officials and medical providers to manage cases presumptively when timely testing is not readily available. State and local leaders should publicly request that anyone with a pending COVID-19 test result quarantine at home until the result is returned. Similarly, political and business leaders should encourage individuals awaiting results to have their household contacts quarantine and notify other close contacts about the pending test and ask them to quarantine until the result is received. These actions could significantly decrease onward transmission, even in the face of confounding testing delays. Additional guidance from CDC on the appropriate settings and situations for pooled testing and other test-sparing strategies could also help to bridge the testing gap.

Recommendation 5: Conduct and make public detailed analyses of epidemiologic data collected during case investigations and contact tracing.

The COVID-19 situation in the United States is changing rapidly. In order to adapt response operations to best address the current circumstances, decision makers need up-to-date information about a number of indicators pertaining to incidence, diagnostic testing, and deaths. A list of "essential indicators" (published by Resolve to Save Lives) is a good synthesis of highly valuable data that health departments need to rely on to bring the outbreak under control. These data are most useful when stratified by age, sex, and race/ethnicity and should be time-varying in order to convey how trends have changed over time.

In many places, these data are already routinely collected in the course of public health surveillance and case investigation, and they should be used regularly to inform decision making. Even if these data are being collected only for a subset of new cases, they can reveal patterns and show where new or intensified public health interventions

are needed. Public health departments that do not have the capacity or expertise to regularly conduct detailed analyses on these data should partner with state, federal, or academic epidemiologists to make that work possible. Without this information, it is not possible to understand where new cases are coming from or what new interventions are most needed.

Beyond essential indicators, public health officials at every level of government should use data collected during contact tracing and case investigation to identify high-risk settings and activities where transmission is common. These insights should be used to inform decisions about allowing or prohibiting activities or industries to operate. For example, many public health officials have publicly shared in press briefings and other forums that coronavirus clusters are commonly linked to bars. However, data to support those observations—and to extend those observations to other settings—have not been shared and are mostly reported by the media. Such insights could guide decisions about closing bars or other high-risk settings and would also allow individuals to better assess the risk of visiting those places if they do remain open.

In addition to using these data to guide policy deliberations, it is critical that they be made available to the public. There are many stakeholders making decisions about how to safely navigate life during this pandemic. For example, school and healthcare system administrators, business leaders, and families and individuals all conduct regular risk assessments and make decisions based on little data because detailed, standardized, and high-quality data are not generally available. If public health departments are unable to collect and disseminate the information effectively due to lack of resources or technical expertise, then additional supplemental funds should be allocated to bolster this capacity. Leaders at the state and federal levels should see it as their duty to support public health systems in gathering and reporting these data, including through public support for transparent reporting and through resources to enable health departments to set up, staff, and maintain efforts to collect, analyze, and report this information.

Recommendation 6: Curate and fund a rapid research agenda to cope with major challenges that have arisen.

The United States should turn its deep science and engineering expertise to answering the most pressing coronavirus-related scientific and public health challenges. The federal government's scientific research institutions, notably the National Institutes of Health (NIH) and the National Science Foundation (NSF), should establish and fund a rapid research agenda that supports leading experts from around the country in efforts to do the work critical to bringing the epidemic under control in the United States. This effort should be spearheaded by the White House Director of the Office of Science and Technology Policy, who currently also directs the NSF. The priorities actions and results should all be publicly available.

Although far from comprehensive, a sample list of priority questions could include, for example:

- How can public communications around reducing risk of transmission be improved, and how can those messages be tailored to the highest risk groups? For example, how can mask use behaviors be improved and expanded?
- Are there engineering solutions to improve ventilation systems in buildings that can be done quickly and inexpensively?
- Can face coverings be improved to make them more comfortable and improve filtration?
- What do families and school communities need in order to facilitate safe and effective learning, either in person or remotely, and how can we ensure that vulnerable children and families are supported?
- What is the role of children—particularly asymptomatic children—in transmission? Do children transmit the virus at similar rates as adults?
- What is the relative contribution of aerosol and fomite transmission, and how should our mitigation practices be modified to address those findings?

Recommendation 7: Scale up contact tracing and continue to improve performance.

Case-based interventions—a suite of interventions that includes diagnostic testing, contact tracing, and isolation and quarantine—continue to be the gold standard for controlling SARS-CoV-2 transmission around the world. Scaling up case-based interventions is central to an exit strategy that will allow the country to reopen its businesses, schools, and economic activities more broadly over time, while continuing to manage cases of the disease at some low level.

The White House should release a call to action and national plan for contact tracing that provides a vision for what is needed for the country. The lack of such a vision and plan from the federal government has been a serious impediment to establishing this capacity.

Although some congressional funds have been allocated for contact tracing, and there has been significant concerted effort at the state and local levels to scale these capacities, most states and communities in the United States have not been able to successfully implement the full spectrum of case-based interventions for COVID-19. The reasons for this are many. The current burden of disease in most jurisdictions has outpaced what even a very strong contact tracing program could reasonably manage. In addition, most states have not scaled their contact tracing workforce to the levels recommended by public health experts and organizations to cope with a disease

like this. Furthermore, even successful contact tracing programs have identified big challenges in keeping up with accelerating cases, reaching people quickly, gaining the trust needed to effectively conduct interviews, and being able to facilitate quarantine for those contacts.

Public health departments, many of which are chronically under-resourced, require additional financial support for this huge and complex effort. Some may require additional technical expertise in order to successfully build the contact tracing programs necessary to deal with the unprecedented breadth, speed, and complexity of this pandemic. HHS should identify gaps in financial and technical resourcing at the state and local government levels and make the findings publicly available so that lawmakers can provide resources to fill those gaps. Technical gaps could be filled through issuance of additional CDC or other professional society guidance documents; direct support from outside groups (eg, CDC and academia); and "exchange" programs in which experts from less affected areas temporarily take on responsibilities in harder hit areas. Where possible, that financial and technical expertise should be specifically offered to those places that are under-resourced and disproportionately affected by the pandemic.

Recommendation 8: Identify and disseminate best practices for improving the public health response.

At this point in the pandemic, public health professionals, both domestically and internationally, have amassed a body of operational knowledge from which best practices should be identified and shared. These insights go beyond the foundational public health principles that are often issued in guidance documents; they are the challenges and solutions that frontline professionals have developed through lived experience. Highlighting and disseminating these best practices is critical during this period of resurgence in the United States, when implementing effective interventions is of critical importance.

NSF, or another federal agency, should rapidly fund short-term efforts to identify and assess these best practices for immediate use in public health practice. The results of these assessments should provide an evidence base for actionable guidance to help decision makers and public health agencies in their response. Given the diversity of population density, resource availability, and philosophical values in the United States, best practices may not be directly applicable in all localities, and efforts will be needed to adapt them to local circumstances. Guidance should reflect the expertise of social scientists, who can advise on how to engage meaningfully with individuals and communities, particularly those marginalized and underserved communities that are disproportionately affected by the pandemic.

Recommendation 9: Plan for a vaccine, including production, allocation, distribution, and community engagement, to ensure a successful rollout.

A vaccine for COVID-19 will dramatically change the course of the response and offer the opportunity to enhance protection of those most vulnerable individuals. However, the identification of a safe and effective vaccine is only the start. The federal government, in partnership with state and local governments, needs to fully implement plans now for creating the maximum possible manufacturing capacity; a transparent, ethical, and practical allocation system; and a distribution and administration strategy at the local level. Although much of this planning is reportedly already under way, the magnitude of the challenge warrants reiteration.

There are substantial challenges to manufacturing novel vaccines. The United States has committed to manufacturing multiple vaccine candidates without knowing which one might eventually prove safe and effective. Other scale-up challenges include having sufficient syringes and vials and establishing the cold chain, if it will be needed. Plans for establishing all of these activities should be made public now so that state and local planning efforts can build around them and so that independent review of the plans can take place in order to identify any additional resources or gaps that need to be addressed.

In addition to technical hurdles, there is also much work to be done around community acceptance and engagement. With misinformation and vaccine hesitancy remaining prominent issues affecting public health, vaccination campaigns will not be successful if they are not executed with sensitivity to the current climate around trust of public institutions and if they do not incorporate multidisciplinary expertise in decision-making groups. *The Public's Role in COVID-19 Vaccination*, a recently released report led by Monica Shoch-Spana in collaboration with experts in both vaccinology and social science, directly addresses the issue of public uptake of COVID-19 vaccines. The report's recommendations include:

- **Communicate in terms proven to be meaningful and relevant, crowding out vaccine misinformation**—Urgent, ongoing study of what the diverse US public knows, believes, and feels about COVID-19 vaccines (and how that may change) can strengthen communication strategies that support uptake, especially in light of mixed messages, misinformation, and widespread social media use.
- **Earn the public's confidence that vaccine allocation and distribution are evenhanded**—In the currently charged US social and political context, greater transparency about the application of vaccine supplies can boost public confidence that operations planning is neither capricious nor unjustly weighted in favor of some people over others.

- **Make vaccination available in safe, familiar, and convenient places**—To make vaccines widely available, public health authorities should expand distribution to incorporate nontraditional locations (eg, senior centers, faith centers) that are readily accessible and also feel safe to vulnerable groups.
- **Establish independent bodies to instill public ownership of the vaccination program**—State-level accountability mechanisms with public oversight, community involvement, and rubrics to evaluate effectiveness and equity can inspire more confidence in COVID-19 vaccines and help ensure that allocation is fair and that target groups receive vaccine.

Schoch-Spana and colleagues recommend that Congress require a portion of supplemental funds issued to Operation Warp Speed be allocated for rapid social science research on these issues, and that additional funding be routed through CDC's Public Health Emergency Preparedness grants to ensure state and local public health departments are resourced for equitable and effective vaccine delivery strategies. (For the full report and recommendations, please visit this link.)

Recommendation 10: Develop policies and best practices to better protect group institutions.

Settings such as nursing homes, manufacturing facilities, and carceral institutions (eg, prisons and jails) are foci of transmission, contributing a large proportion of cases and fatalities. At present, most of the responsibility for implementing interventions has fallen on individual facilities. Often, these facilities and institutions are chronically under-resourced, and so relying on them to fund and implement appropriate measures to reduce risk from COVID-19 is not sufficient to ensure the safety of individuals in these settings. HHS should strengthen its policies and recommendations, drawing on best practices that have emerged, data from around the country, and expert analysis, in order to reduce risks of SARS-CoV-2 transmission in group settings.

Conclusion

The coronavirus pandemic is the most serious epidemic threat to the United States in a century. The United States has reached a critical point in the outbreak trajectory, and serious consideration needs to be given to ways in which the response can be improved. The time is now to move forward to reduce transmission and save lives.

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