

MEMORANDUM

FROM: DAVID RUBIN, DIRECTOR OF POLICYLAB, PAUL OFFIT, DIVISION OF INFECTIOUS DISEASES
SUBJECT: COVID-19: CONSIDERATIONS FOR REOPENING ECONOMY
DATE: APRIL 20, 2020 (COMPANION TO MARCH 19 AND MARCH 24 ADVISORIES)

As the nation works quickly to respond to COVID-19, we are offering our consultation and detailing on a more precise public health approach to manage this epidemic. We issued on March 24 a memo suggesting a staged strategy to more intentionally guide us through this crisis. This companion memo focuses on how to safely reopen society.

Our cautious guidance is that while this virus may not be as fatal as previously thought, it remains highly contagious, thus compounding the risk of overwhelming health care resources if we don't manage transmissibility following society's reopening. Therefore, this memo emphasizes: 1) managing transmission to preserve health care capacity and protect high-risk groups, 2) identifying strategies that are responsive to the needs of children and families, 3) outlining preparedness actions to mitigate the impact of seasonal influenza and COVID-19; and 4) building herd immunity to prevent a simultaneous surge of COVID-19 and influenza in the late fall and winter.

Specific considerations:

- **Declining mortality estimates:** New data reveal there may be more infected—and less symptomatic—individuals than previously known. The evidence for this includes serologic data from Germany and population PCR data from Iceland suggesting mortality rates between 0.37%-0.56%; [a U.S. Department of Homeland Security task force report](#) and [recent study of seroprevalence from Los Angeles](#) estimating the mortality rate nearer 0.15%; and [an analysis from Penn State University](#) of influenza-like illness activity across the U.S., suggesting that 10 million people may have been infected by mid-March when we had measured only 30,000 cases. Nonetheless, seroprevalence studies at low community prevalence are prone to inaccuracies that would underestimate mortality, which for now, is likely to be 0.3%-0.6%. Population-dense cities that have greater racial disparities in access to care and more high-exposure service workers who are at greater risk for higher inocula of the virus may also have higher mortality than average mortality estimates.
- **High transmission rates:** Models at Children's Hospital of Philadelphia (CHOP) and elsewhere have demonstrated transmissibility rates that may far exceed influenza and are exacerbated in population-dense areas. Risk for increased aggregate mortality is high if we don't effectively manage transmission over the next year. This magnifies the need for: 1) consistent workplace safety recommendations; 2) surveillance and testing that can quickly detect outbreaks and aid in targeted testing and community-level mitigation strategies; and 3) universal, social distancing recommendations, including masking, that reduce the pace of transmission. We will need more intensive distancing and protection for high-risk populations.
- **Competing impacts:** Ending the current shelter-in-place strategy must be weighed against the increasing and often inequitable risk of joblessness, homelessness, food insecurity, and access to services for the greater majority who are at lower risk for severe COVID-19 complications, particularly those in the service and entertainment industries. We also acknowledge that older and chronically ill individuals, who are at highest risk, are increasingly likely to face competing mortality if they miss treatments or supportive services for other health conditions.
- **Children are low risk:** Because children are at extremely low risk of severe disease, recommendations around reopening schools, camps and sports leagues will be important in building herd immunity. Many European countries are reopening schools, and we will need to monitor disease resurgence from this. That we are seeing milder infections in children does not minimize risk to teachers and vulnerable caregivers. Robust school hygiene, staffing, and distancing protocols in accordance with Occupational Safety and Health Administration (OSHA) recommendations will be required.
- **Child care:** Before this crisis, child care providers were financially under-resourced and reliant on weekly and monthly child attendance for payroll. The collapse of early infant child care is a significant public policy challenge,

as early re-openings are critical for workers who are entirely reliant on its availability. At the same time, the setting itself is high-risk for viral transmission, given difficulty in practicing social distancing and high contact with bodily fluids. Safety protections for the child care workforce should be a priority for reopening strategies.

Recommendations for Reopening Society: Federal and state leaders are likely to consider reopening our society starting in May given the knowledge that many areas are past the epidemic's first peak. ***Significantly reduced transmission and circulating cases should be an absolute checkpoint for reopening.*** Other checkpoints for reopening include: 1) deploying adequate supplies of hand sanitizers, masks, and disinfectants to the public and businesses; 2) issuing guidance to employers for mitigation strategies to reduce employee risk; and 3) deploying a surveillance and testing strategy that identifies outbreaks early and allows for rapid quarantine and contact tracing.

- **Timing of Reopening:** [New modeling currently underway at CHOP](#) is demonstrating benefit of higher temperatures in reducing transmission in less-dense areas, an effect that is not as strong in densely populated cities. It is therefore possible that a staged, climate-based reopening strategy may hasten reopening in some areas as we head toward summer. Local businesses, child-serving systems, and restaurants should reopen incrementally out of caution and to provide a window for measuring impacts on resurgent infections. Communities with lower forecasts for summer outbreaks should not be falsely reassured by fewer circulating cases early in summer. All counties, regardless of size, will need to deploy mitigation strategies to ensure that circulating cases remain as low as possible heading into the fall—declining temperatures will increase the risk for significant outbreaks across a greater proportion of counties than forecasted during the summer months.
- Reopening parameters would include universal and targeted approaches for transmission mitigation, including:
 - **Continuation of targeted social distancing and quarantine measures:** In a tiered-risk model to manage population risks, continued social distancing measures would be recommended for high-risk populations. Alternative work arrangements would be recommended for high-risk employees and for non-public facing employees, where appropriate. Telework would continue to reduce commuting risk on transmission. Universal recommendations might include gathering size restrictions in community and occupational settings and continued masking in public, particularly in cities and within common indoor locations.
 - **Strategies for child-serving systems, including schools, child care, camps and youth leagues:** Lower risk of infection presents an opportunity to build herd immunity in younger populations. School districts should consider early school opening in late summer to preserve an extended winter break of several weeks to abate both influenza and COVID-19 transmission. Participation in remote learning for children in families with high-risk caregivers may be advisable. Hygiene and safety protocols will need to be tailored to strict sick policies and distinct hygiene and distancing practices given high rates of mild infection in children.
 - **Temporary public workforce surges to assist in social distancing measures:** To manage workforce challenges, a young adult service corps could shift on-site, public-facing workers toward lower-risk individuals. Within schools, for example, such a model could manage classrooms, while teachers continue to teach remotely. Higher-risk individuals would be encouraged to continue alternative work arrangements, where appropriate. A similar service corps could increase capacity for public health surveillance and testing.
- **A clearly defined strategy for workplace safety and surveillance and testing:** (Please reference [a full public health review from PolicyLab](#), which was featured in [a New York Times story](#).) Widespread PCR testing and serology may be difficult to deploy quickly and might not accurately identify exposed vs. unexposed individuals well. Migrating exposed or mildly symptomatic individuals to health care settings or testing sites would confer new transmission risks. Challenges for ambitious testing strategies include: 1) less than ideal test sensitivity for PCR; 2) strained test availability (serologic and PCR); and 3) limited health care system and public health workforce. A more targeted public health strategy would include universal community-level surveillance (every community is touched, every individual is not) and precision community-based testing strategies that are hot-spot responsive (i.e. follow the surveillance leads) and prioritized for population-dense areas and high-risk transmission communities or workforces (i.e., a priori decisions for universal testing).

This is what it might look like:

- **Comprehensive surveillance:** Universal syndromic surveillance strategies would be implemented using a combination approach of passive surveillance (e.g., diagnoses from office and emergency department visits in electronic medical records) and a participatory approach. Participatory approaches capture emergent illness prior to health care encounters. They include reliable web-based symptom tracking platforms and bluetooth thermometers that measure fever incidence at community levels. Whether or not a large city or state could build a participatory platform in time, communities or employers who deploy these could be asked to report findings up to public health surveillance systems. For vulnerable populations who often live in densely populated communities (e.g., limited English proficiency communities), active community surveillance via home visits have been shown to be successful.
 - **Precision testing strategies:** Surveillance approaches, when done correctly, preserve resources and do not need to capture 100% of the population. The goal of surveillance is to detect new outbreaks quickly. This hot-spotted signal then triggers a testing protocol. Testing protocols such as block-group testing expeditiously test priority groups within communities that may be experiencing new outbreaks. Importantly, some high-risk groups would be prioritized for mass testing, independent of surveillance. This would include: population-dense communities, particularly in large urban centers, where risk of transmission is very high; medically high-risk communities (e.g., nursing homes, health care settings); and specific high-exposure industries (e.g., mass transit, airlines). Protocols for community testing, reviewed in PolicyLab's public health review, should aim to clear medically at-risk individuals, as well as individuals who are required to be at work in-person. Other aims of testing protocols are to: 1) quarantine, isolate, and treat ill community members and their social networks (via contact tracing); 2) estimate the presence of infection in aggregate within communities to inform workforce and community re-entry protocols (via serologic sampling studies); and 3) inform changes to community mitigation approaches based on trends in infections. There is strong evidence suggesting that a community-based public health workforce is highly effective in this work.
 - **A focus on workplace safety:** OSHA and CDC pandemic preparedness guidelines offer a roadmap to employers for creating and maintaining safe workplaces. These likely require resource investment, but given the importance of protecting the workforce, should be prioritized for government assistance. Specific recommendations for child care are included.
- **Alignment of stimulus and infrastructure planning to support this strategy:** In addition to addressing impacts from continued economic shocks, we advise targeting funds that tenure basic income for those unemployed during shelter-in-place; subsidizing paid leave to aid strict policies for sick leave and quarantine and to protect higher-risk workers during the herd immunity stage; addressing manufacturing needs for supply chain (e.g., masks, ventilators, PPE) and public health surveillance surge across both stages; subsidizing child care systems and schools for additional workforce and to mitigate financial losses; increasing research to guide new testing strategies, treatments, and vaccines; and supplementing public health infrastructure with administrative and data capacity for a robust surveillance-response model of the herd-immunity approach. The latter may also require additional funding for public systems to add and shift workforce to younger temporary employees.

Given Paul's experience as an internationally recognized virologist and vaccinologist, current position on the FDA Vaccine Advisory Committee, and former voting member on the CDC's Advisory Committee for Immunizations, and David's experience in population health and public policy and former participation on the Pentagon's Military Family Readiness Council and the White House Commission to Eliminate Child Abuse & Neglect Fatalities, we are willing and able to detail ourselves, and David's PolicyLab staff, to counsel decision-makers. We are also happy to participate in ongoing strategic/operational groups that are developing and implementing roadmaps through this crisis.

We are available to convene this discussion at your earliest convenience.

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