KPMG

# Restarting America

**Overview of a flexible, risk-based, policy and technical framework for consideration by policymakers as they look to restart society**

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While work continues on the front lines of the healthcare system to address the COVID-19 Pandemic, attention is also focused on what happens on the other side of the "curve." Specifically, public policymakers, government leaders, and medical professionals are beginning to consider how we restart society.

This issue brief:

— Offers a summary of potential considerations;
— Highlights components of a flexible, risk-based public policy framework;
— Describes a technical solution KPMG is working to develop that would enable implementation of an approach approved by appropriate officials; and
— Provides summaries of potential applications of both the policy framework and technical solution.

## Summary of potential considerations

Every day the volume of what is known about COVID-19 increases. That said, the outcome and timeline for understanding the nuances of this particular virus (and hopefully eradicating it) are unknown. Leaders in government and healthcare are evaluating when it will be safe to remove the various community containment strategies that have been used to slow the spread of COVID-19 and "flatten the curve."

Some of the strategies currently under consideration by government and healthcare leaders for making what will be difficult public policy determinations are summarized below:

— COVID-19 Infection Testing: This approach would rely on mass testing of the population (using one of the approved approaches for detecting an infection) to identify those with an active infection and only allow those without an active infection to return to work, school, and their normal routine. The challenge with this approach is that it requires testing capacity that exceeds current constraints. In addition, unless coupled with a reliable test for immunity, a negative test would only provide an indication of "Risk to Transmit (RTM)" and would provide no indication of an individual's "Risk to Contract (RTC)" unless the negative test followed a previous positive test (thus indicating an individual who had been exposed and recovered). There is also a risk of both false positives and false negatives within the currently available test methods.

— COVID-19 Antibody Testing: Many current discussions of strategies to return to everyday life center on testing for the existence of COVID-19 Antibodies. The advantage of this approach is that the existence of antibodies (which would indicate that an individual had been exposed and may have developed an immunity) could provide a reliable assessment of both an individual's RTM and their RTC. The challenge with this approach is that, like infection testing, it would require mass testing on a scale not yet available. Beyond that however, there are open questions about the accuracy of the currently available antibody tests as well as their significance since healthcare experts do not yet know the degree to which immunity exists with antibodies or for how long.

— Demographic Based Approaches: Other discussions center on allowing lower risk populations (based on factors such as age, gender, and overall health) to return to normal life. The challenge with this approach is the risk that a reduction in hospitalizations, deaths, or overall infections could create a false sense of security. By allowing any large segment of the population to return to their regular routine (without also testing for immunity), a second resurgence could be triggered given that low-risk individuals with no immunity might, upon returning to work or school, become exposed and infect others at greater risk.

## A flexible, risk-based approach

As leaders consider the range of potential approaches highlighted above (that are expected to continue to rapidly evolve) and others that may be identified in the weeks and months ahead, one option is to consider adoption of a framework that is flexible, adaptable, and risk based. While increased capacity and accuracy of testing is the ultimate goal, in the near term a risk-based approach could include an assessment of the overall prevalence of the virus within a given community and the level of risk an individual may have based on their unique characteristics along with test status.

*Community Threat Level (CTL)*
A community threat level could be calculated in near real time by assessing factors indicating the level of infection that may exist within the community. For example, in 2017 the Centers for Disease Control and Prevention (CDC) established such a framework for evaluating the severity of influenza outbreaks. That framework, if adapted for COVID-19, would look to three primary metrics:

— The percentage of confirmed/presumed positive cases of COVID-19 or COVID-like Illness (CLI),
— The rates of COVID-associated hospitalizations, and
— The percentage of deaths resulting from COVID-19 including CLI.

The CDC's framework for the flu relies on benchmarks from prior years known as "intensity thresholds (ITs)." Given the lack of prior-year benchmarks for COVID-19, information available to healthcare experts and policymakers would be limited to trend data from prior weeks or months. Based on what healthcare experts consider to be the best information (understanding that there are limitations at this stage with COVID-19), the overall threat level could be characterized as "High, Medium, or Low" under the CDC framework. This assessment of community risk could inform what community containment strategies are appropriate. When combined with an Individual Risk Estimate (IRE), containment strategies could be applied at an individual level.

*Individual Risk Estimate (IRE)*
When combined with the CTL, and based on information about a given individual, a personalized estimate of risk could be calculated. This estimate would be based on two dimensions:

— Risk to transmit – The potential that an individual could transmit the virus.
— Risk to contract – The potential that an individual could contract the virus and suffer from a significant illness.

Armed with this information and the advice of healthcare experts, policymakers could adopt a flexible view toward what variables might be considered in a given situation. Examples might include:

— Demographic information (i.e., age and gender)
— Pre-existing health conditions
— Social determinant risk factors (i.e., housing density and transportation modes)
— Date/results from previous COVID-19 infection tests and time lapse since the last negative test
— Date/results of a positive anti-body test and time lapse since the last test
— Vaccination (future)

Policymakers may decide to establish a process that relies on one factor (such as antibody testing) or some combination of the factors above. An IRE could be calculated based on the individual characteristics and situation when combined with the CTL. While the exact thresholds and policies will need to be established by appropriate officials with the advice and counsel of healthcare experts, the general principal of the risk-based model is that when the CTL is "High", the IRE would be higher, but reduced for individuals that had evidence of immunity or who are in demographic groups with lower relative risk. Conversely, when the CTL is low, the IRE would be lower for all groups but remain higher for those without immunity or in higher risk groups. Officials could then tailor strategies for protecting individuals and controlling spread at the individual level.

## Enabling technical solution and potential use cases

To enable a flexible approach consistent with what is described above, a technology solution is required to collect and share pertinent data in a secure manner. The underlying technical solution KPMG is working to develop is user-driven and primarily based on mobile device access (although accessible via other channels for those without access to a mobile device). It is also flexible, so that policymakers can implement an approach that makes sense for their state or city. Individuals could create individual profiles and input information, including identity, demographic and general health information, such as test results.

The design of the KPMG's solution is based on blockchain technology to validate user supplied information, process against an algorithm, and return the IRE result, instead of less-secure approaches that use centralized storage of user information. The ability to securely validate user supplied information increases the level of confidence in the results provided. There would be safeguards and built-in data protection under existing laws addressing personal healthcare information. Functionality would exist for the individual, using principles of informed consent, to choose to share the IRE with other trusted third parties.

There are multiple potential use cases for the solution including:

— User Only – The IRE could be solely informational to the individual (who we call the user) to give them more specific information about their potential risk and steps they should take to help protect themselves.

— Organizational – Organizations, such as businesses, schools, or other institutions, could also use the IRE to help identify who might be "safe" to return to work, school, etc. This use case would rely on an informed user agreeing to share their IRE with the entity.

It is important to note that at no time would underlying demographic or health information be shared; only the estimation of risk. It is to be expected that some will not be willing to do so. Also, it would be incumbent to protect this sensitive health information.

— Public Policy – Ultimately the most powerful use case could be for it to be used by government officials to plan for the reopening of society in a careful, data-driven, risk-based approach. It could then also be used to more precisely implement appropriate containment strategies should an outbreak occur in the future.

### Final thoughts

There is much the world still does not know about the COVID-19 virus. As with other serious health events in the past, until healthcare experts have a more complete understanding of COVID-19 and have a properly tested vaccine and/or other treatments, the virus will remain a threat. Americans are resilient and have always risen to every challenge no matter how difficult. The nation will do so again. A flexible risk-based approach, supported by a modern technology solution, provides potential for an option to effectively and safely reopen society while continuing to control the threat posed by the virus.

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