VIEWPOINT

Using Controlled Trials to Resolve Key Unknowns About Policy During the COVID-19 Pandemic

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In an all-too-familiar pattern, US politics have become polarized around whether to maintain lockdowns and physical distancing. Many conservatives denounce public health restrictions as limits on individual freedom and push for reopening, whereas liberals tend to oppose those demands as premature and favor continued restrictions to protect health.

The trouble with this debate is that too little is still known about coronavirus disease 2019 (COVID-19) to take any position with certainty. In particular, too little is known about the alternatives to lockdowns that could enable the US to reopen institutions while minimizing the risk of new waves of the pandemic.

Controlled Trials of Public Health Policies

One way to resolve some of the uncertainties would be through controlled trials of different policies. The public accepts the idea that new drugs and vaccines need to be tested. Ideally, those tests take place through double-blind, randomized clinical experiments during which neither those conducting the tests nor the study participants know whether they are receiving the drug or vaccine being tested or a placebo. Those conditions, however, are impossible to meet in most tests of social policies, and during a pandemic people are highly unlikely to accept being assigned involuntarily to an experimental or control group.

> Public authorities around the world and in the US have been adopting ad hoc reopening policies on the basis of limited information.

But there are second-best, voluntary alternatives for testing policies that could provide vitally important guidance about how to minimize additional infections and deaths. Consider 2 key upcoming policy issues that will require critical choices: alternative housing for people who test positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and COVID-19 and the reopening of schools.

Evaluating Policies for Alternative Housing for Isolation

Policies for reopening already recognize the need for vastly expanded testing, including the testing of people who have no symptoms. According to a recent study including 94 patients,[1] people who become ill with COVID-19 were most infectious before they experienced symptoms; and when using a separate group of 77 infector-infectee transmission pairs, the same study found that 44% of those who became infected contracted the virus from an individual who was presymptomatic.

Individuals in the US who test positive for the SARS-CoV-2 virus are typically told to stay home, even if they live with someone who might be highly vulnerable, such as a family member who is older than 60 years or otherwise at high risk because of an underlying health condition. The US Centers for Disease Control and Prevention recommends, "As much as possible, stay in a specific room and away from other people and pets in your home. If possible, you should use a separate bathroom."[2]

But many people cannot follow that advice, and many would agree to be isolated in alternative housing until they were no longer contagious to avoid any risk of infecting other members of their family. These individuals could be relocated to hotels or college dormitories that now stand empty. These types of alternative housing would require health care personnel to monitor the condition of the patients and transfer them to hospitals if they become seriously ill.

Policy makers in the US have given little attention or priority to centralized isolation outside the home even though this approach has been critical to the success of East Asian countries in controlling the pandemic. Isolation, as Yglesias[3] has pointed out, could promote greater freedom overall: "stricter restrictions on the activities of those exposed allows for a less restrictive overall environment."

In New Jersey, Governor Phil Murphy has announced a roadmap for reopening the economy, including an effort to provide isolation facilities: "To the greatest extent possible, provide individuals who do test positive in the future with a safe and free place to isolate and protect others from COVID."[4] But as that statement implies, there is unlikely to be enough alternative housing for all those who test positive and would agree to be isolated outside their homes.

Situations of this kind could provide an opportunity for gathering useful data. Researchers would be able to estimate the effect of centralized isolation on infections by testing the members of households of people categorized into 3 groups: (1) those who test positive and accept alternative housing; (2) those who test positive and are offered such housing but refuse it; and (3) those who test positive and would have accepted housing but were not offered it.

These kinds of data could help identify how much of a priority alternative housing should receive, and

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which groups would benefit most from this approach. Depending on what the evidence shows, it may also convince more people who test positive to accept isolation to protect their families.

Evaluating Policies for Reopening of Schools

Data of a similar kind could also inform policies about the reopening of schools, a major unresolved issue for fall 2020. Although school-aged children rarely become seriously ill from COVID-19, it has been unclear whether they act as carriers and transmit the virus.

Proposals to reopen schools have recently gained traction in a number of countries in response to new data suggesting child transmission of the virus may be low. However, the issue remains uncertain. For example, a study of 15 schools in New South Wales, Australia, through mid-April found only 2 cases of potential school-based transmission (both to students) even though 735 students and 128 staff were close contacts of 18 confirmed COVID-19 cases (9 students and 9 staff).[5] However, a German study of 3812 patients with COVID-19 found that "viral loads in the very young do not differ significantly from those of adults" and consequently "children may be as infectious as adults."[6]

In an unpublished proposal, Norwegian physicians Mette Kalager and Michael Bratthauer have suggested an experiment involving 2 matched school districts that, in theory, could help resolve this question.[7] The experiment would use "rapid-cycle randomization" to evaluate incremental increases in the "dosage" of reopening. Each of 3 cycles would involve an increase in the proportion of students returning to school and a reduction in physical distancing requirements; each cycle would last about 2 weeks, which would be long enough, they believe, to allow an assessment of transmission before a decision about whether to go on to the next cycle.[7] But thus far, the proposal is only a thought experiment because no schools in Norway have agreed to test reopening this way. This is an example of the difficulties inherent in any controlled experiment, especially involving children.

However, researchers could still obtain data from summer programs for school-aged children that are voluntarily organized in varying ways. For example, both school districts and other organizations in a state could conduct summer programs of certain types (such as science or athletic programs) that last 2 or 3 weeks. Rather than require all the programs of a particular type to follow the same rules, the state could give school districts and other program sponsors freedom to select from several sets of rules. However, the state ought to require all programs to include systematic testing of children, instructors, and members of their families at the beginning and after the end of the programs. Data on infections could then inform policies on the reopening of schools for the fall. This kind of approach is not ideal but may provide important information.

School districts and other program sponsors may self-select into options according to characteristics (eg, the socioeconomic background of students) that may affect the outcome. Analysts can adjust the results accordingly, but without freedom of choice for the program sponsors (and enrolling parents), it would probably be impossible to get any comparative data at all.

Conclusions

Public authorities around the world and in the US have been adopting ad hoc reopening policies on the basis of limited information. These decisions would be better informed with additional data. Effectively minimizing the spread of COVID-19 will require evidence on the effects of different policies—whether or not that evidence fits preconceived ideas or expectations.

ARTICLE INFORMATION

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REFERENCES

1. He X, Lau EHY, Wu P, et al. Temporal dynamics in viral shedding and transmissibility of COVID-19. *Nat Med*. 2020;26(5):672-675. doi:10.1038/s41591-020-0869-5

2. US Centers for Disease Control and Prevention. Coronavirus disease 2019 (COVID-19): what to do if you are sick. Accessed May 22, 2020. https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/steps-when-sick.html

3. Yglesias M. The successful Asian coronavirus-fighting strategy America refuses to embrace. Accessed May 5, 2020. https://www.vox.com/2020/4/28/21238456/centralized-isolation-coronavirus-hong-kong-korea

4. State of New Jersey. Governor Murphy announces "the road back: restoring economic health through public health." Accessed May 5, 2020. https://nj.gov/governor/news/news/562020/approved/20200427b.shtml

5. National Centre for Immunisation Research and Surveillance. COVID-19 in schools: the experience in NSW. Accessed May 5, 2020. https://www.documentcloud.org/documents/6877277-NCIRS-NSW-Schools.html#document/p1

6. Jones T. An analysis of SARS-CoV-2 viral load by patient age. Accessed May 5, 2020. https://zoonosen.charite.de/fileadmin/user_upload/microsites/m_cc05/virologie-ccm/dateien_upload/Weitere_Dateien/analysis-of-SARS-CoV-2-viral-load-by-patient-age.pdf

7. Kolata G. Did closing schools actually help? Accessed May 5, 2020. https://www.nytimes.com/2020/05/02/sunday-review/coronavirus-school-closings.html