Children's Hospital of Philadelphia
PolicyLab

New Projections Reveal Risk of COVID-19 Resurgence in Areas That Reopen Too Quickly

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Philadelphia, Pa. – May 20, 2020 – An updated model released today by PolicyLab at Children's Hospital of Philadelphia (CHOP) shows projected COVID-19 cases across nearly 400 U.S. counties for the next four weeks based on current social distancing practices. Overall, the findings indicate the risk for large second waves of outbreaks remains low if communities continue to implement cautious, incremental plans to reopening that limit crowding and travel to non-essential businesses. However, in some areas, principally those in the south, where relaxation of social distancing has moved quickly—such as certain counties in southeast Florida and Texas—the risk for resurgence in the next few weeks is high.

The researchers also updated the model to include more than twice the number of communities from their original analysis. With additional counties included and two more weeks of data, the model reveals that rising temperatures continue to reduce the risk for significant peaks of coronavirus cases during the summer in many locations, provided communities are not too aggressive in reopening.

"I'm encouraged to see that our models have been accurate—that as we predicted, many communities, including large cities, may be ready to reopen if they take a cautious and slow approach," said Dr. David Rubin, director of PolicyLab at CHOP and a professor of Pediatrics at the University of Pennsylvania's Perelman School of Medicine. "However, we continue to caution that reducing the likelihood of additional outbreaks will require individuals and business owners to be vigilant with personal protection, wearing masks and practicing proper hygiene, and instituting strong workplace safety measures. Unfortunately, we are already seeing some areas move too quickly and without enough vigilance."

Researchers at PolicyLab at CHOP and the University of Pennsylvania developed the model, known as COVID-Lab: Mapping COVID-19 in Your Community, which now tracks and projects COVID-19 transmission across 389 U.S. counties with active outbreaks, representing 68% of the U.S. population and 87% of all identified coronavirus cases to date. The newly released updates forecast the number of coronavirus cases communities could experience over the next four weeks based on a three-day average of their current social distancing practices, defined by the change in travel to non-essential businesses as compared to behavior prior to the epidemic. The model continues to show that social distancing policies, population density and temperature are all important factors in the spread of COVID-19, with social distancing being the strongest predictor.

"While our models show that rising temperatures and humidity levels are having an impact on reducing the spread of COVID-19, those hot, humid days of summer are not going to eliminate the threat of virus resurgence," said Dr. Gregory Tasian, faculty member at PolicyLab, assistant professor of Urology and Epidemiology and senior scholar in the Center for Clinical Epidemiology and Biostatistics at the University of Pennsylvania's Perelman School of Medicine. "The areas of the south that our models project have a high risk of resurgence in the next few weeks may already be approaching their average summertime temperatures and humidity levels. Therefore, their risk for seeing increasing case counts rests solely on how cautiously they reopen communities and manage crowding."

Utilizing data from a variety of publicly available sources, the researchers built their model to observe how social distancing, population density, daily temperatures, and humidity affect the number and spread of COVID-19 infections over time across a county, accounting for population characteristics, such as age, insurance status, crowding within homes and diabetes prevalence. A scientific review of the team's model and findings is

available as a pre-print article ahead of peer review on medRxiv. The data are publicly available in the form of interactive maps and graphs.

“The pivot we took with our models to provide short-term forecasts was a necessary one, as communities are reopening and want to understand what that could mean for risk of future outbreaks,” said Dr. Jing Huang, faculty member at PolicyLab at CHOP, assistant professor of biostatistics in the Department of Biostatistics, Epidemiology and Informatics, and a senior scholar in the Center for Clinical Epidemiology and Biostatistics at the University of Pennsylvania’s Perelman School of Medicine. “We hope this data helps communities make informed decisions about how to protect workers and families as they relax social distancing and begin to define a new normal.”

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About PolicyLab at Children’s Hospital of Philadelphia: PolicyLab at Children’s Hospital of Philadelphia (CHOP) is dedicated to achieving optimal child health and well-being by informing program and policy changes through interdisciplinary research. Founded in 2008, PolicyLab is a Center of Emphasis within the CHOP Research Institute, one of the largest pediatric research institutes in the country. With more than 30 highly regarded faculty and 60 passionate staff who bring expertise from myriad of fields covering health, research and health policy, our work focuses on improving public systems, improving health care delivery and improving child health outcomes. For more information, visit **http://www.policylab.chop.edu**.

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