Children's Hospital of Philadelphia
PolicyLab

New COVID-19 Projections Show Resurgence Risk Gathering Around Large Cities, Particularly in Midwest & Northeast

Philadelphia, Pa. – July 29, 2020 – New four-week COVID-19 projections released today by PolicyLab at Children's Hospital of Philadelphia (CHOP) show concerning signals that some of the largest U.S. cities, which have seen very few cases since the spring, could begin seeing dramatic virus resurgence in the absence of further mitigation. This trend is especially evident along the East Coast—from Washington, D.C. up to Baltimore and Philadelphia—and through central and midwestern states, threatening cities such as Milwaukee, Chicago, Indianapolis and Detroit.

The PolicyLab model, which added 228 counties for a total of 747 this week, measures risk for resurgence by evaluating a county's reproduction numbers (Rs), or the estimate of how many additional individuals will become infected from every one COVID-19 case. When Rs sustain above 1 and increase over a couple of weeks throughout a region, the researchers are more confident that cases may dramatically rise if mitigation behaviors do not increase. For example, Rs have consistently increased in Philadelphia and its neighboring counties over the last two weeks to an average of 1.2-1.4. While New York City's test positivity rate has not yet substantially increased, the Bronx has seen an average R over two weeks of 1.2, and all five boroughs and the Long Island area have had multiple days with Rs above 1. It is also clear that travel to the New Jersey shore is now exacerbating risk, with substantial growing outbreaks in Ocean and Atlantic Counties. Without a commitment to increasing social distancing, which the researchers found in a recent peer-reviewed study is the most effective intervention at reducing the spread of this virus, these elevated Rs signal future risk for this densely populated region.

The researchers also updated their rollback scenarios for 158 of the largest counties included in this analysis, which model how instituting universal masking and tightening social distancing and occupancy policies—scenarios reflecting guidelines recently shared with state governments by the White House Coronavirus Task Force—might affect our ability to neutralize the surging pandemic as we approach fall. The renewed projections reveal that while new restrictions are blunting widespread transmission in some of the country's epicenters, the effects of these changes have not yet approached the magnitude of those observed in March and April when people were more vigilantly practicing social distancing.

"As I look across our projections this week, I'm concerned that, despite increasing restrictions in many areas, we don't yet see in our data strengthening social distancing effects that could prevent resurgence in major East Coast cities in the weeks ahead and reduce case counts in southern hotspots to levels that feel safer to reopen schools and get parents back to work," said David Rubin, MD, MSCE, director of PolicyLab at CHOP and a professor of Pediatrics at the University of Pennsylvania's Perelman School of Medicine. "Whether people are not fully adhering to these new orders or there is insufficient commitment to enforcing these restrictions, we are left with the possibility that in some epicenters, curves may flatten, but case counts may not degrade enough to sufficiently protect our communities as we enter the fall."

For additional comments from lead investigators Dr. Rubin, Dr. Gregory Tasian, and Dr. Jing Huang on their updated forecasts and findings, read this blog post.

Background

Researchers at PolicyLab at CHOP and the University of Pennsylvania developed the model, known as COVID-Lab: Mapping COVID-19 in Your Community, which tracks and projects COVID-19 transmission across 747 U.S. counties with active outbreaks, representing 80% of the U.S. population and 89% of all identified coronavirus cases. 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 test positivity rates and population characteristics such as age, insurance status, crowding within homes and diabetes prevalence. COVID-Lab's projections 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 pre-epidemic. The application of this model, which focuses on time-varying transmission rates during the early months of the pandemic in the U.S., was released on July 23, following peer review, in *JAMA Network Open*. You can read more about how the team validates their models for accuracy in this blog post. The data are publicly available in the form of interactive maps and graphs.

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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**.