Children's Hospital of Philadelphia
PolicyLab

New COVID-Lab Projections Paint Mixed Picture for Resurgence Risk Across U.S. Counties

Philadelphia, Pa. – May 27, 2020 – An updated county-level model released today by PolicyLab at Children's Hospital of Philadelphia (CHOP) shows some communities, particularly in the southern and Midwestern regions of the country, are still at high risk for COVID-19 resurgence in the coming weeks, while many other counties appear to be flattening the curve, even if case counts are higher than two weeks ago. The latest data suggest that policymakers looking to further relax social distancing guidelines consider whether hospital capacity will be sufficient in the face of greater, but stable, daily new cases.

As it did last week, the model continues to identify counties in Texas, Alabama, and Florida as being at higher risk for new community spread in the next four weeks. Increasing transmission risk is also evolving in Iowa, Nebraska, South Dakota, North Carolina and Mississippi, and areas in the upper Midwest, such as Chicago and Minneapolis, are still very much in the midst of ongoing epidemics that the researchers project will take weeks to decline.

Meanwhile, the majority of communities, represented by places such as Phoenix, Ariz., Las Vegas, Nev., and Salt Lake City, Utah, have seen cases rise in the last two weeks, but are forecasted to plateau with a consistent, but elevated, intensity of daily new cases. The model is careful to account for increased testing capacity in many locations, which can lead to greater numbers of identified cases, but not yet at levels indicating widespread community transmission. Higher, but stable case projections can also be a reflection of local outbreaks in a nursing home, prison, or other congregate living facility that are being contained with testing and quarantine, which are details the model cannot detect. The researchers encourage local authorities to consider increasing transmission forecasts with new daily hospitalization rates to confirm risk for community spread, which can occur more easily in areas that rapidly relax social distancing.

"Our data this week bring some optimism that many areas of the country may be reaching a new equilibrium, delicate though it may be, between persistent coronavirus case numbers and containing deadly outbreaks. However, in these communities, local authorities will need to be mindful of their hospitals' capacity to care for the sick and of actions individuals take to protect themselves and those around them," said Dr. David Rubin, director of PolicyLab at CHOP and a professor of Pediatrics at the University of Pennsylvania's Perelman School of Medicine. "For those areas operating close to their health care system capacity, we would caution that an elevated and sustained pattern of continuing transmission due to further relaxation of social distancing also increases potential for rapid local outbreaks in high-risk locations, like meatpacking plants or nursing homes, making it even more critical that people remain vigilant in wearing masks in crowded indoor locations, practicing other hygiene and adhering to distancing recommendations."

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 389 U.S. counties with active outbreaks, representing 68% of the U.S. population and 87% of all identified coronavirus cases. The 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. In addition to social distancing,

the model continues to show that population density, temperature and humidity are all important factors in the spread of COVID-19.

“The next 2-4 weeks will be a critical time period as social distancing further relaxes and temperatures and humidity levels approach summer extremes in many parts of the country,” 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. “Alongside new transmission risks introduced by Memorial Day activities, we will be able to interpret fairly soon how those forces are increasing or decreasing projections for spread of this virus, providing better guidance to communities as they plan for summer activities.”

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.

“Models are one of the tools in the toolbox that policymakers and individuals have to make informed decisions about how to protect themselves and those around them as we relax social distancing and reopen businesses,” 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 assess the capabilities of our models weekly to make the best predictions possible, and we have plans to add in other important elements, such as commuting, to ensure we’re considering as many local elements as possible that could be impacting local area transmission.”

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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**.