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A new COVID study that examined Wisconsin, Seattle, and San Francisco could help predict where caseloads are likely to be the highest

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Wisconsin hit another pandemic milestone last month: 1.5 million COVID-19 infections since the pandemic began. Disturbingly, there are strong disparities by income and race in these infections, following the pattern of crime and other inequalities.

In Milwaukee County, for example, 33 of the first 45 COVID deaths were among Black residents; yet, only one in four county residents are Black. This type of stark inequity prompted the Milwaukee County government to become the first county government in the United States to declare racism a public health crisis. Approaching two years since the pandemic's onset, important disparities still exist in Wisconsin.

In a new scientific study published this month, we and our colleagues find that neighborhood inequalities made the pandemic much worse for some places than for others. A neighborhood's level of poverty or affluence predicts its infection rate. This is not surprising as income correlates with access to health care, ability to take time off to get vaccinated, likelihood of being a front-line worker, and other factors related to pandemic risk.

But even more important than a neighborhood's own affluence are the neighborhoods its residents visit and receive visits from. We find that visits to and from primarily affluent neighborhoods are very protective for Wisconsin neighborhoods.

Together, these two factors play an important role in structuring a neighborhood's risk for COVID-19. In Wisconsin, a high-poverty neighborhood that visits and is visited by other high-

poverty neighborhoods has an infection rate that is 25% higher than an affluent neighborhood that visits and is visited by other affluent neighborhoods.

And because there is racial inequality in both neighborhood affluence and visit patterns, these neighborhood inequalities help to explain why neighborhoods with more Black or Latino residents had higher COVID-19 caseloads.

As Wisconsinites move about their communities for work and leisure in their everyday lives, they make and remake countless connections between neighborhoods. This interconnectedness means that a COVID-19 surge in one neighborhood or community is unlikely to remain isolated there for long.

So what can we do with the new information from our study?

First, municipal and state leaders should increase investments in and partnership with lower-income and majority non-white neighborhoods to promote equitable access to medical care. Not only is this the just thing to do, but it will promote the health of all residents.

The state Department of Health Services practiced a similar strategy when it attempted to locate accessible community testing sites in communities of color at the beginning of the pandemic, but approaches to equity are most effective when multiple levels of government commit to them, particularly when done in partnership with trusted local and community leaders.

The several-million dollar Vaccination Community Outreach Grant Program reflects this type of commitment at the state level, and a broader integrated, community-partnered approach to testing and general health care is essential.

Second, public health officials can use our data on cross-neighborhood connections to predict specific neighborhoods where caseloads are likely to be the highest — now and in the event of future pandemics or health crises. Scientific research consistently finds that your neighborhood affects your health. Our new study reveals that not only is this true during the COVID-19 pandemic, but the broader neighborhood connections across a community matter as well. We truly are all in this pandemic together.

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