Primary Care and COVID-19: It’s Complicated
Leveraging Primary Care, Public Health, and Social Assets

PREPARED BY

pcc primary care collaborative

ROBERT GRAHAM CENTER

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Executive Summary
October 2021

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Executive Summary

As the United States puts strategies in place to try to emerge from the COVID-19 pandemic, it is important to understand what health-system factors have contributed to communities’ resilience and ability to mitigate COVID-19 incidence and mortality. The factors that were protective against COVID-19 must be strengthened as the U.S. rebuilds its health and public-health systems, prepares for the next pandemic, and addresses the widening health inequities that the pandemic laid bare.

Primary Care and COVID-19: It’s Complicated, the Primary Care Collaborative’s (PCC) 2021 Evidence Report, focuses predominantly on primary care as a key health-system factor to explain how differences in the robustness of primary care at the county level may relate to the mitigation of COVID-19. The report also considers other key factors in addition to primary care, such as the strength of local public-health infrastructure and the degree of social vulnerability at the county level. We examine the relationship between these factors and communities’ ability to vaccinate their residents and keep them safe from getting infected and ultimately dying from the virus.

While federal and state health policy is important in responding to and recovering from a pandemic, the COVID-19 pandemic has taught us how important local factors—including community health systems, local policies related to masking, social gatherings and distancing, overall health of the community, extent of social vulnerabilities, and other factors—are in shaping a community’s ability to respond to the biggest public health emergency of the last 100 years. Understanding the relationship between these key factors can inform decision-makers as they make choices about resource deployment (human and otherwise) and infrastructure investment intended to achieve better, more equitable population health outcomes.

KEY FINDINGS

The PCC report examines these county-level factors:

- primary care access
- strength of public health
- degree of social vulnerability

to construct a new index: Community Health Index (CHI). This is the first analysis using this novel index, which was constructed by the Robert Graham Center for Policy Studies in Primary Care.

We used the CHI to examine relationships between county-level CHI—organized by quintiles (or five groups) based on their scores—and:

1. vaccination rates
2. incidence of COVID-19 infection before and after vaccines became available
3. COVID-19 deaths before and after vaccines became available

At the county level, we controlled for the proportion of the county population that was rural, percentage Black, and percentage Hispanic. All analyses were weighted by population size.

These factors were selected because research has demonstrated that access to primary care is essential to lowering rates of morbidity and mortality and that primary care bolstered by strong public-health infrastructure results in the more effective delivery of clinical services, increased access to care, and better clinical outcomes. Finally, recent racial reckonings in the U.S. plus the COVID-19 pandemic have shone a bright light on health disparities for Black and Hispanic residents, the importance of equity to the health of a population, and how a pandemic can make inequities even worse. The combination of access to primary care, strong public health, and greater social assets should lead to improved health outcomes for an entire community.

Overall, our analysis found that counties with greater primary care access, more robust public health, and fewer social vulnerabilities—counties with the highest scores on the Community Health Index—had better COVID-19-related outcomes (incident and death).
These counties with the highest CHI (the top quintile) and the best COVID-19 outcomes represent 20% of the U.S. population. Counties that scored lowest on the Community Health Index (lowest quintile) had worse COVID-19-related outcomes (incident and death), representing 17% of the U.S. population. This association held across all five quintiles. In addition, as CHI scores increased, vaccination rates did as well. Those people in the highest CHI quintile are 26% more likely to be vaccinated than those living in the lowest CHI quintile.

After vaccines became available, COVID-19 incident and deaths fell across all U.S. counties as expected, but the rates did not fall equally. Residents of counties with higher CHI scores were advantaged over their counterparts in counties with lower CHI scores, with rates of COVID-19 falling more quickly in the highest CHI quintile versus the lowest after vaccination commenced. More specifically, if you live in the highest CHI county quintile, you were 12% less likely to get infected with COVID-19 after vaccines were made available and 42% less likely to die from the virus after vaccines were available as compared to your counterparts in the lowest CHI quintile.

Limitations of this analysis include county-level characteristics for which we did not have data and could not control. These factors include local policies such as masking mandates, social-distancing regulations, stay-at-home orders, and closures of businesses. Yet it makes logical sense that counties with stronger public health—a component of the CHI—also were more likely to have policies such as mask mandates and stay-at-home orders. The testing rate in each county was also not available, and it is possible that counties with higher COVID-19 case rates had higher testing rates. Yet the counties with higher COVID-19 incident rates had lower CHI scores and therefore less access to primary care and public health, making it less likely that their testing rates were higher.

**IMPLICATIONS**

These results suggest that the three factors we examined are likely inter-related and mutually reinforcing; that is, counties that are less likely to have high rates of social vulnerabilities, which are major contributors to health inequities, are also counties with high access to primary care and more robust public-health infrastructure. Further, those living in communities with poor access to primary care and public health and with high social vulnerabilities are more vulnerable in terms of getting vaccinated, getting COVID-19, and dying from the virus.

Another important implication is vaccination matters. After vaccinations commenced, all counties, regardless of their CHI, had a drop not only in COVID-19 cases, but also, most importantly, deaths. This is borne out in data that show that states that depended on vaccination as opposed to natural immunity had lower death rates and more recent data that suggest the COVID-19 vaccine may have saved more than 100,000 lives in the U.S. alone.

Clearly, while vaccines are a very important mitigating factor when it comes to COVID-19, they are not a silver bullet, particularly if communities lack access to the vaccine or patients chose not to get vaccinated. Low vaccine uptake creates the conditions for more COVID-19 variants, including the highly contagious delta variant, which at this writing (September 2021) is fueling a fourth wave of largely preventable hospitalizations and deaths. More specifically, between June and August 2021, close to 300,000 preventable hospitalizations occurred, costing the U.S. health system approximately $5.7 billion.

The differences in COVID-19 outcomes by CHI quintile after vaccines were made available show that other factors—primary care, public health, and fewer social vulnerabilities—are associated with keeping people from getting infected and dying from COVID-19. Consequently, counties that provided more primary care access, had stronger public-health infrastructure, and tended to have fewer health inequities (higher CHI) were better able to protect residents of the community from getting sick and ultimately dying from the virus.

The findings suggest that primary care and public-health leaders need to join forces to strengthen community resistance in advance of the next pandemic and to better address health inequities, with research beginning to emerge that in states and counties where primary care and public health had a more coordinated COVID-19 response outcomes were better.

Primary care alone could not educate the community on pandemic mitigation strategies, nor does it have the ability to put public health measures in place such as universal masking requirements and business closures. Public health could not tailor responses to individuals who have questions about the vaccine based on their clinical condition, nor could it manage patients who contracted the virus to ideally keep them out of the hospital and from dying. Communities that invest in primary care and public health likely have less social need, another important factor in COVID-19 mitigation. As leaders consider how to rebuild the nation’s health and healthcare systems, they would be well advised to work across existing silos and to invest in and better integrate primary care and public health as key factors that contribute to pandemic preparedness and address the health inequities that the pandemic has exposed and further catalyzed.
OTHER REPORT SECTIONS

The 2021 PCC Evidence Report also includes two other sections. The first provides the reader with additional context, and the third section explores emerging issues that may be the focus of a future PCC Evidence Report.

The first section of the report includes data on primary care trends, critical given how rapidly this sector has been evolving. More specifically, this section provides data about:

- the changing composition of the primary care workforce
- shifts in where primary care clinicians are practicing
- what types of primary care services are being provided by primary care clinicians and to whom

The third section of the report considers three emerging topics related to COVID-19 that could be the focus of PCC’s 2022 Evidence Report. They include:

- the longer-term clinical impacts of the pandemic, including long-haul COVID-19
- the implications of healthcare consolidation spurred, in part, by COVID-19, particularly between primary care practices and other entities
- how primary care and public health may better integrate in the future to both mitigate the effects of a subsequent pandemic and address healthcare inequities

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About the Primary Care Collaborative
Founded in 2006, the Primary Care Collaborative (PCC) is a not-for-profit multi-stakeholder membership organization dedicated to advancing an effective and efficient health system built on a strong foundation of primary care and the patient-centered medical home. Representing a broad group of public and private organizations, the PCC’s mission is to unify and engage diverse stakeholders in promoting policies and sharing best practices that support growth of high-performing primary care and achieve the “Quadruple Aim”: better care, better health, lower costs, and greater joy for clinicians and staff in delivery of care.

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The Robert Graham Center aims to improve individual and population healthcare delivery through the generation or synthesis of evidence that brings a family medicine and primary care perspective to health policy deliberations from the local to international levels.
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