

ACTION INSIGHTS

Improving Health in Underserved Neighborhoods

Targeting Risk by Leveraging Multi-Sector Data

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RESEARCH FINDINGS FOR CITY LEADERS

Densely populated, underserved neighborhoods are vulnerable to public health risks. A [study](#) by researchers at the Bloomberg Harvard City Leadership Initiative shows how linking housing and health care data can deepen understanding of public health threats and help cities take action before, during, and after public health crises.

What makes cities attractive—proximity to people, amenities, and opportunities—makes them vulnerable, too. As Edward Glaeser and David Cutler argue in [Survival of the City](#), disaster travels faster when people live close to one another. Managing healthy, safe, and affordable housing in densely populated areas is a major challenge for city leaders. A [study](#) supported by the Bloomberg Harvard City Leadership Initiative found that leveraging data from multiple sectors (e.g., education, health, housing, and social services) can help make this task easier. By combining datasets city leaders can identify where investments, services, or enforcement are needed most. This helps them allocate scarce resources strategically to make the greatest impact before, during, and after public health crises. Insights from a study in Chelsea, Massachusetts during the COVID-19 lockdown show how.

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Substandard Housing and COVID-19 Risk in Chelsea, MA

The [City of Chelsea](#) is located across the Mystic River from Boston and is one of the poorest cities in Massachusetts. With approximately 40,000 residents ([informal estimates](#) are as high as 75,000 when accounting for the undocumented population) crowded into just 1.8 square miles of land, it is difficult for lower income residents to secure safe and affordable housing. [Most residents](#) are Hispanic/Latino (66%), nearly half are foreign-born (47%), and almost a quarter live in poverty (23%). Chelsea is [emblematic of the affordable housing crisis](#) plaguing U.S. cities, which forces many low-income families into substandard housing. [People often crowd](#) into illegal “conversion apartments” (e.g., basements, closets, or porches) to avoid homelessness and remain close to jobs. [Overcrowding](#) can disrupt family relationships and impact depression, stress, and anxiety. Living in substandard housing—such as homes with inadequate ventilation, insect or rodent infestations, and mold—can also increase the risk of [chronic illness and infectious disease](#).

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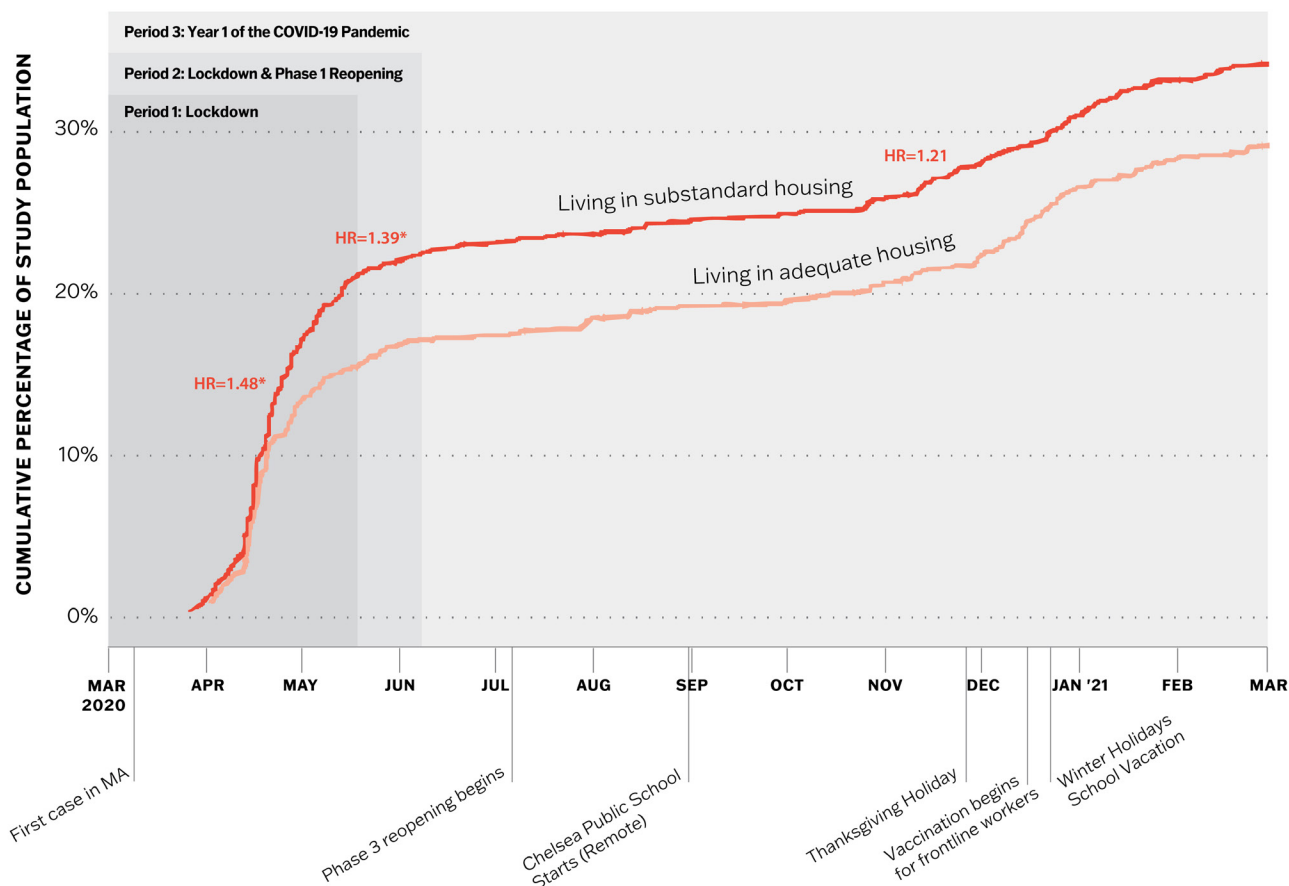
When COVID-19 spread globally in 2020, public health leaders and city officials worried that substandard housing influenced COVID-19 risk, but there were no studies of the relationship between housing conditions and infection rates at the individual household level. To learn more about this relationship, we combined individual-level housing data from Chelsea City Hall (the city schedules housing inspections of rental properties

regardless of whether residents submit a housing complaint) with health data from Mass General Brigham’s Research Patient Data Registry. We used resident addresses to match housing conditions with health records of Chelsea residents who had been tested for COVID-19 during the first year of the pandemic—March 1, 2020, through February 28, 2021. We considered people living in homes with a history of housing code violations to be living in substandard conditions.

Living in substandard housing during the lockdown period increased the risk of COVID-19 infection by 48%.

We discovered that living in substandard housing during the lockdown period increased the risk of COVID-19 infection by 48%. However, once stay-at-home orders were lifted, the risk of COVID-19 infection was similar between people living in substandard versus adequate housing (see figure 1).

Figure 1. Cumulative proportion of the study population testing positive for COVID-19: Comparing those living in substandard versus adequate housing



Note: The figure shows the cumulative percentage of the study population testing positive for COVID-19 among those in substandard housing (red) and adequate housing (orange). The groups’ risk of infection diverges significantly during the lockdown period. After stay-at home advisories are lifted in June 2020, there is no difference in the rate of new infections between the two groups.

Takeaways

The study demonstrated a clear link between substandard housing in densely populated neighborhoods and risk of infection during the COVID-19 pandemic. Takeaways for city leaders include:

Substandard Housing and Public Health

Identifying high-risk housing conditions—through data sources like city housing data—can allow local governments to distribute essential resources, such as masks, COVID-19 tests, and temporary housing, as part of short-term efforts to reduce the severity of a health crisis. Meanwhile, investing in long-term solutions that increase access to safe and affordable housing can improve community health and build resilient neighborhoods.

Integrate Data to Anticipate Need

These research findings have implications beyond substandard housing and public health crises. Multi-sector data—ranging from health and housing to education and transportation—can inform proactive solutions for a city's most vulnerable residents. Identifying residents' needs and risks through data analysis can guide strategies for targeted and equitable investment in residents' quality of life.

Multi-sector data can inform proactive solutions for a city's most vulnerable residents.

Cities, as places with large concentrations of people, are sites of tremendous possibility as well as deep vulnerability. The COVID-19 pandemic laid bare the risk of densely populated and underserved neighborhoods in the face of infectious disease. Identifying the most vulnerable residents and neighborhoods can drive proactive and equitable solutions before, during, and after a crisis and build resiliency to survive impending shocks. City leaders can use multi-sector data and collaborations to build healthy communities capable of withstanding such crises.

Further Reading

[Substandard Housing and the Risk of Covid-19 Infection and Disease Severity: A Retrospective Cohort Study](#)
Population Health

[How Cities Can Use Housing Data to Predict Covid-19 Hotspots: Lessons from Chelsea, MA](#)
Data-Smart City Solutions

[More Than the Sum of the Parts: Integrating Housing Inspections and Social Services to Improve Community Health](#)
Bloomberg Harvard City Leadership Initiative

[Saving Lives, Time, and Money: Using Data to Find Unsafe and Unhealthy Buildings Faster](#)
Bloomberg Harvard City Leadership Initiative

[How Innovation in Housing Inspection Can Improve Public Health](#)
Health Affairs

Action Insights summarize findings from academic research. They offer management and leadership guidance you can put to use in your work, and they link to the underlying studies.

The Bloomberg Harvard City Leadership Initiative, located at the Bloomberg Center for Cities at Harvard University, is a collaboration between Harvard Kennedy School, Harvard Business School, and Bloomberg Philanthropies to equip mayors and senior city officials to tackle complex challenges in their cities and improve the quality of life of their residents.

Launched in 2017, the Initiative has worked with 465 mayors and 2271 senior city officials in 524 cities worldwide. The Initiative advances research and develops new curriculum and teaching tools to help city leaders solve real-world problems. By engaging Harvard graduate students in research and field work, the Initiative supports current city leaders while investing in future generations. The Initiative also advances the field of city leadership through teaching, research, and new curricular materials that help city leaders drive government performance and address pressing social problems.



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