ARTICLE

Health & Economic Impact of COVID-19

Public-private partnership opportunities for health, equity & economic vitality

Economic prosperity and health are linked in communities: improved health enhances economic conditions and resiliency, and improved business and community activity supports health and quality of life. Poor health challenges the economic vitality and growth of businesses and cities and reduces quality of life. Chronic conditions such as diabetes and hypertension are directly linked to significant medical, productivity and economic costs. These high costs tax the resiliency of businesses and communities. The COVID-19 pandemic increases these health and economic costs as underlying health conditions such as diabetes and hypertension are associated with more severe illness and higher mortality risks from COVID-19. The pandemic compounds health equity issues already confronting many cities - African American and Hispanic populations face higher chronic disease prevalence and risk factors and higher mortality and poorer outcomes from COVID-19. Pandemic response efforts reveal inter-relationships between health, social factors and impacts on health and economic vitality and imperatives for more coordinated approaches across sectors to address them. The pandemic reinforces understanding of these linkages and the gains from collaborative activity - and the urgency for action. FTI's Center for Healthcare Economics & Policy (Center) systematically tracks and quantifies economic costs and their drivers at the metro level to inform businesses, insurers, government, population health and other stakeholders.

Multi-sector collaboratives are already in place in many cities to address increasingly urgent health and economic challenges. Public-private partnerships addressing local population and public health issues have pivoted to add COVID-19 to highest priorities for action. Collaboratives use trusted partnerships to reach deep into communities to support residents and employers to improve access, connectivity and health. FTI's Center works with metro area leaders to provide comprehensive data analytics to quantify poor health and local economic impact, identify drivers of productivity and medical costs, and set priorities for meaningful change. FTI's Center provides each with actionable data and analytics customized to the community and our national experience to find meaningful actions replicable across cities. While COVID-19 heightens the urgency for action to address health and economic impact, it also aligns community stakeholders from many sectors around health, safety, and the common good.

Higher COVID-19 health risks are linked to poor health & chronic conditions with significant health disparities

The COVID-19 pandemic increases awareness of greater health risks from poor health and chronic conditions especially for vulnerable populations. Recent healthcare studies link underlying chronic conditions with increased risks of serious illness from COVID-19. Certain chronic conditions (diabetes, obesity, hypertension) are associated with increased risk profiles for both younger populations (18-64) and older populations. Vulnerable populations have greater risks including increased length of hospitalizations and treatment needs. These potentially exacerbate recent trends in control of chronic conditions such as hypertension.[1] Public health experts highlight worsened health equity issues. Studies of health outcomes for African American and Hispanic populations show higher average rates of COVID-19 infection for these populations; and higher prevalence of chronic conditions such as hypertension, obesity and diabetes, which are associated with poorer outcomes from COVID-19. **Data show higher mortality rates from COVID-19 among African American and Hispanic populations with much greater likelihood of death for these groups.** [2]

The economic and personal costs of poor health are high

Chronic conditions impose substantial economic and personal costs on a community, its businesses and its residents. Costs are higher for individuals with multiple health conditions, those with limited access to healthcare services, and residents facing other community-risk factors (e.g., safety). In total, these factors result in higher rates of hospitalization, medical service use, poor outcomes and resultant higher medical costs. Medical costs are both short term and longer term if conditions remain untreated or exacerbated as individuals transition to even more acutely ill states.

Medical costs are substantial at the community level; FTI's Center uses advanced data analytics and customized proprietary data to quantify medical cost estimates by disease condition and population group for many metro areas in the US.

FTI's Center has partnered with collaboratives in cities across the US to quantify these economic and personal costs of poor health. Two examples – Buffalo/Western New York and Nashville – provide insights into the magnitude of medical costs for a community, specifically, the annual incremental medical costs for diabetes, hypertension, depression, asthma and COPD. The incremental medical cost of a condition measures the costs of residents having the condition compared to residents not having the condition. Incremental medical costs illustrate the potential magnitude of cost-savings opportunity for a community (and its businesses) by reducing disease burden and its impact on residents. The potential opportunity and magnitude of incremental medical costs for the Buffalo Metropolitan Statistical Area (MSA), NY and the Nashville MSA , TN are substantial – **at $800 million to $1.4 billion annually in these cities**.[3]

Total Annual Incremental Medical Costs of Chronic Conditions for Buffalo MSA & Nashville MSA

	Buffalo MSA	Nashville MSA
Diabetes	$200.4 M	$336.1 M
Hypertension	$201.2 M	$349.2 M
Depression	$170.5 M	$303.0 M
Asthma	$ 207.6 M	$328.6 M
COPD	$59.1 M	$54.8 M
	$838.8 M	$1.4 B

While these annual incremental medical costs are staggering, the productivity costs from chronic conditions often exceed them. Productivity costs include time away from work ("absenteeism") due to appointments, hospitalizations, disability, and other lost hours and less productive time at work ("presenteeism"). These may be hidden costs for communities concerned about chronic condition impact. Yet, once recognized, they provide critical new ways to engage with local employers who can join and benefit from initiatives to improve community health.

Employers and civic leaders use productivity and economic growth as critical markers of community and company competitiveness and vitality. The linkages between poor health and economic growth must be made for these stakeholders for real engagement and action.

FTI's Center routinely measures productivity costs and economic impact of disease conditions (and medical costs) at the local metro level across the US precisely because these metrics provide such important benchmarks and indicators of economic impact and opportunity.

Buffalo and Nashville show the significant economic cost burden from poor health on businesses and community of lost productivity **at $1.2 to $1.7 billion annually**.[4]

Total Annual Productivity Costs of Chronic Conditions for Buffalo MSA & Nashville MSA

	Buffalo MSA	Nashville MSA
Diabetes	$157.8 M	$183.2 M
Hypertension	$120.5 M	$94.8 M
Depression	$415.7 M	$701.8 M
Obesity	$152.5 M	$133.4 M
Asthma	$222.2 M	$455.5 M
COPD	$180.9 M	$157.5 M
	$1.2 B	$1.7 B

Incremental medical costs and productivity costs (total economic cost) for these two cities cost billions of dollars annually for companies, residents, Gross Domestic Product (GDP) and economic vitality. **A Federal Reserve study examining linkage between poor health and economic growth and vitality showed larger effects on cities' resiliency to downturns such as the 2008 recession.[5] There is urgency and opportunity for collective impact action by local leaders**.

Many communities already faced poor health and health disparities prior to the COVID-19 pandemic

Nashville and Buffalo are not alone in poor health and high cost burdens. Chronic conditions (diabetes, hypertension, obesity) take a heavy toll in US communities with high medical and productivity costs taxing each community's personal and economic vitality. The costs include far more than financial burdens with lost opportunities, time away from family and friends, poor quality of life, and premature death.

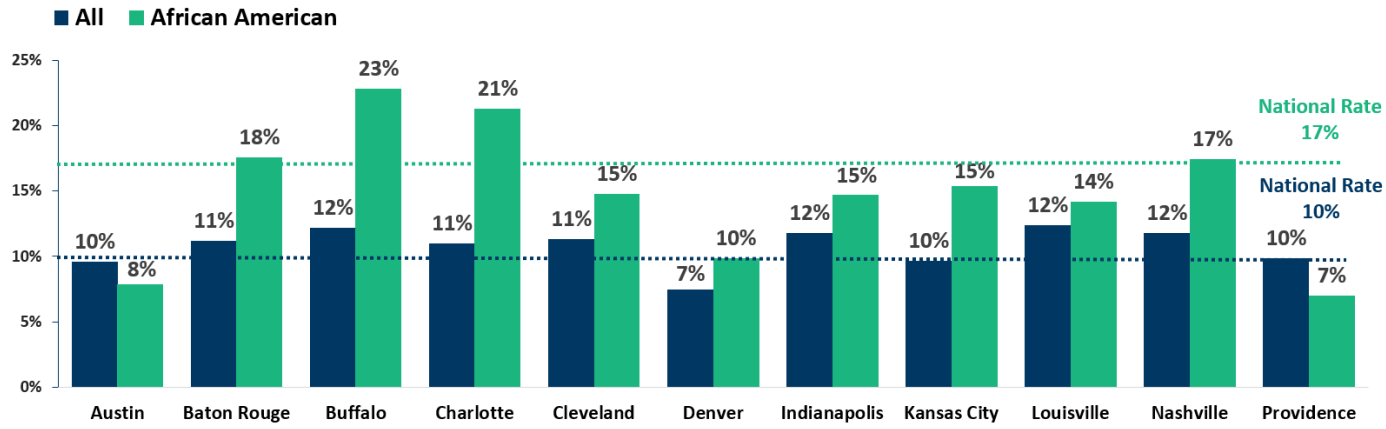
No area of the US escapes unacceptably high prevalence of one or more of these chronic conditions. Some communities, however, face greater challenges due to many complex and inter-related demographic and community-specific factors that explain poor health in a community. Data compiled by FTI's Center on health status and chronic condition prevalence for a cross-country sample of 11 large MSAs with population of 800,000 to 2.9 million illustrates these challenges. FTI's sample includes metro areas in the Northeast, Middle Atlantic, and South where chronic condition prevalence rates often exceed national averages. FTI's sample includes cities with rich variation in key demographics, including age and diversity, measured by proportion of African American or Hispanic populations.

MSA	Age 18-64 (%)	Age 65+ (%)	Non-Hispanic White (%)	Black (%)	Hispanic (%)
National	62%	15%	61%	12%	18%
Austin MSA (2.1 M)	66%	10%	53%	7%	32%
Baton Rouge MSA (0.8 M)	63%	13%	57%	35%	4%
Buffalo MSA (1.1 M)	62%	17%	78%	12%	5%
Charlotte MSA (2.5 M)	63%	13%	62%	22%	10%
Cleveland MSA (2.1 M)	61%	17%	70%	20%	5%
Denver MSA (2.9 M)	65%	12%	65%	5%	23%
Indianapolis MSA (2.0 M)	62%	13%	73%	15%	7%
Kansas City MSA (2.1 M)	62%	14%	73%	12%	9%
Louisville MSA (1.3 M)	62%	15%	77%	14%	4%
Nashville MSA (1.9 M)	64%	12%	73%	15%	7%
Providence MSA (1.6 M)	64%	16%	77%	5%	12%

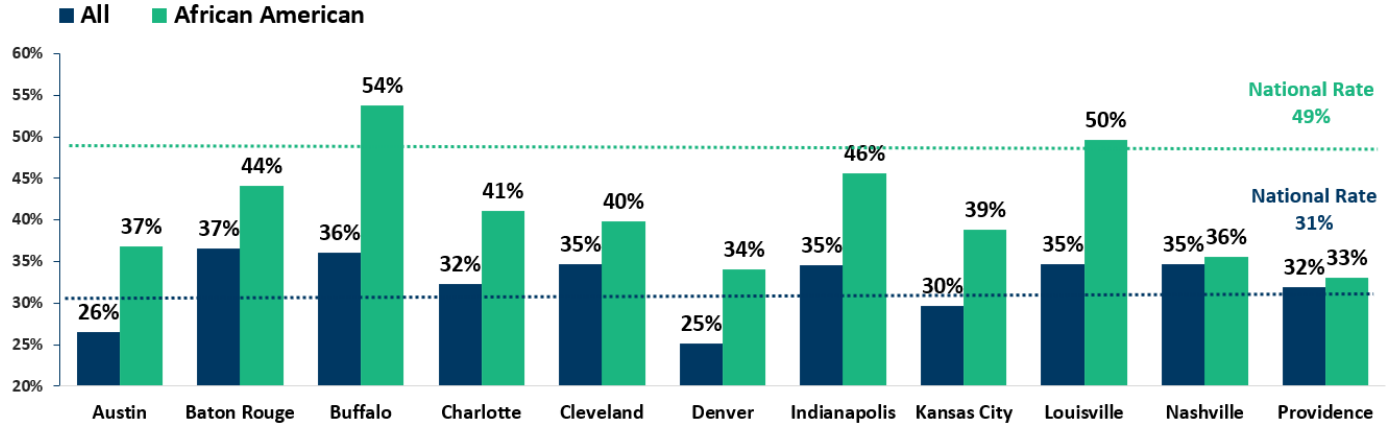
Three chronic conditions, diabetes, hypertension, and obesity, are key drivers of poor health and high costs pre-COVID-19 and will continue so afterwards in most cities.

Pre-COVID-19 chronic condition prevalence rates exceeded national averages in the 11 city sample for at least one of the three chronic conditions and often for all three. In addition, chronic condition prevalence was higher for African Americans in most metro areas.

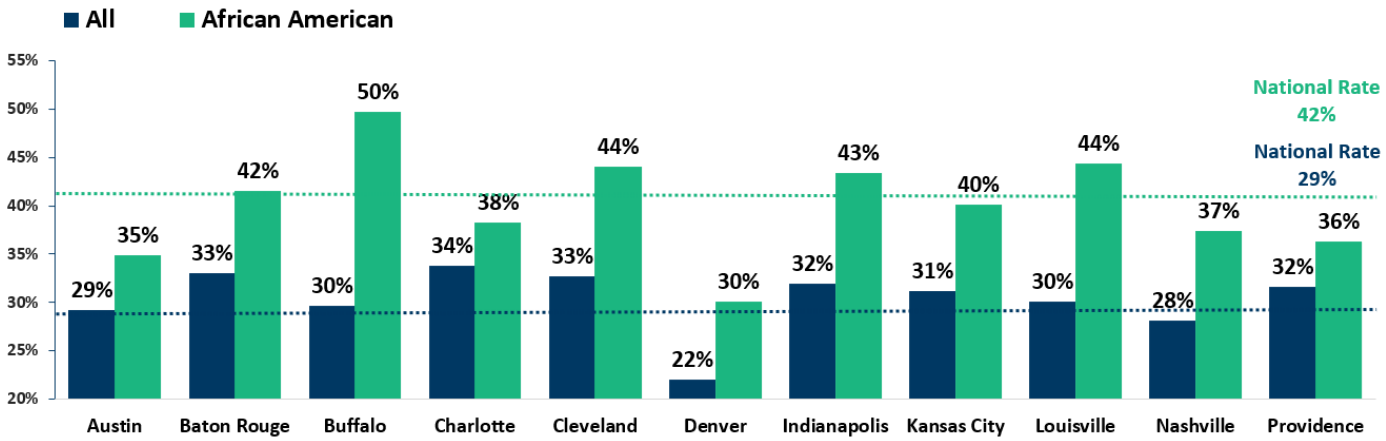
Diabetes Prevalence in Selected 11 Cities (MSAs)



Hypertension Prevalence in Selected 11 Cities (MSAs)



Obesity Prevalence in Selected 11 Cities (MSAs)

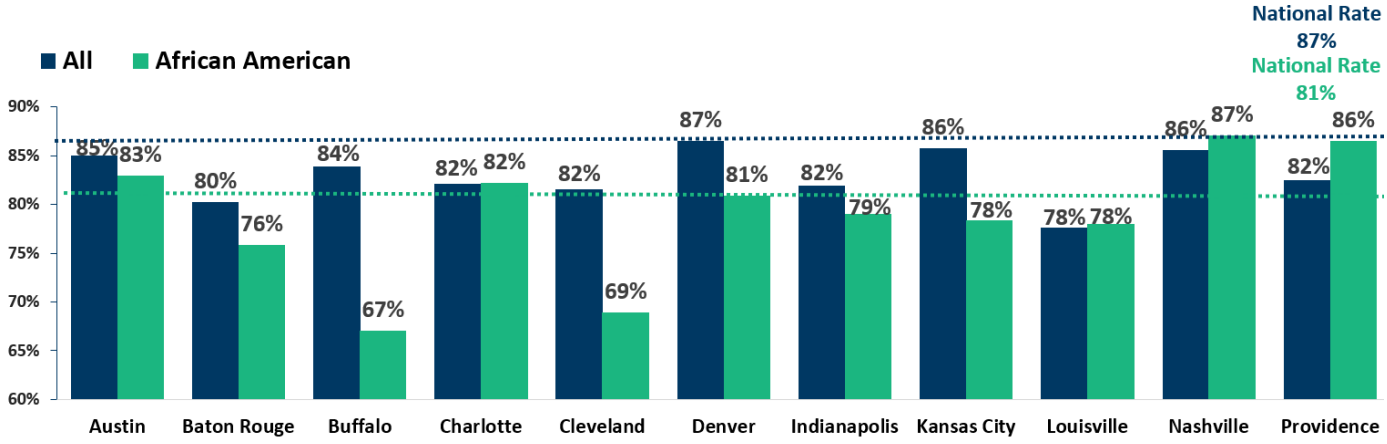


Chronic condition prevalence data provide a clear and objective means for evaluating health risks and costs for a city, its businesses and workforce.

An individual's perspective on whether they are in good or poor health offers an additional important indicator and measure of health status of a community's residents. CDC survey data track measures of an individual self-reported perspective on health as poor/fair or good/very good/excellent; FTI's Center tracks these data to measure "good health" at the metro level for a very large number of cities.[6]

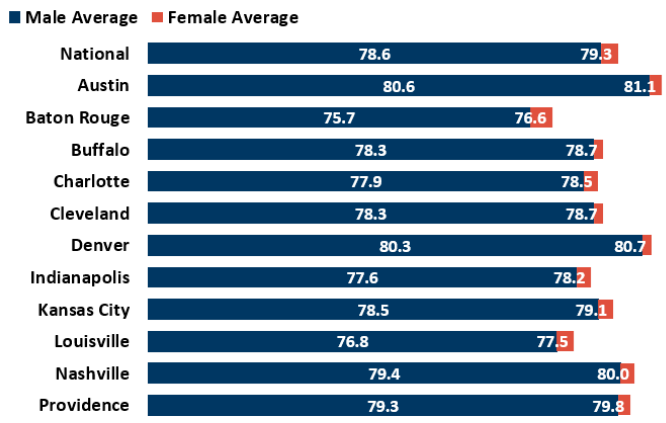
The 11 metro areas in FTI's Center sample often have below national average measures of **self-assessed good health** from surveyed residents. In the majority of the 11 metro areas, the rate of self-assessed good health was also lower for African American populations compared to national averages or to total population; where data were available it was also lower for Hispanic populations.

Self-Assessed Good Health in Selected 11 Cities (MSAs)



Average life expectancy is another and broader measure of health and well-being in a community tracked by leading researchers. Many factors such as chronic conditions and their control, social determinants of health, and demographics including income affect life expectancy in a community. A National Academy Leading Health Indicators report makes life expectancy a leading metric to track quality and health across communities and measure of health improvement. Metro area life expectancy rates vary considerably across the 11 cities in FTI's Center sample, with several below the national average.[7]

Average Life Expectancy



The COVID-19 pandemic heightens urgency and opportunity for collective impact actions by public-private partnerships in local communities for health and economic benefit

Many communities already have active collaboratives of community leaders across many sectors – healthcare (providers, plans), public health, civic, business, government, faith-based and community groups. Now and prior to the pandemic, FTI's Center works with public-private partnerships to collect locally relevant data and provide critical research to understand key drivers and economic impact of poor health to engage local stakeholders for impactful change. Many cities seek interventions for health and economic well-being.

Some multi-sector collaboratives have pivoted to address COVID-19 directly in their communities with efforts to engage with trusted partners to expand outreach into the community. These recent coordinated efforts provide important lessons for enhanced engagement with businesses, local government, and stakeholders for action on poor health, health equity, and improved economics. Collaboratives have fostered and use their trusted relationships developed over years to "go the last mile" to reach residents and the most vulnerable of populations with testing, treatment, and access, along with information, understanding and care.[8]

Recent examples from webinars hosted by the Action Collaborative on Business Engagement for Building Healthy Communities[9] show how collaboratives are using their experience on population health and health equity issues to work with trusted partners to engage stakeholders to address their communities' critical COVID-19 issues.

Early data trends revealed COVID-19 fatality rates of greater than 33% among African Americans in the **Buffalo metro area and Erie County, NY**[10] A unique partnership led by Pastor George Nicholas, Erie County government and many local partners mobilized resources to respond to the disproportionate impact of the COVID-19 pandemic on the African American community. Partners including population and public health, health equity leaders, faith-based organizations, physician leaders, and many others cross-collaborated to reach deep into affected communities. They collected and shared extensive data on health conditions, risks, outcomes, and social determinants. Leaders shared in the webinar that the results of collaboration and rapid response included a reported dramatic impact of reduced mortality rates and enhanced engagement across partners around broader health and equity issues.

A second webinar on **Winston-Salem, NC,** shared the results of a health system-led initiative with community, business and civic partnerships.[11] This collaborative embarked on a rapid 29-day journey to "Mask the City." Initiated by academic medical system leaders, it evolved into a unique coalition of cross-sector leaders that coordinated activities to locate a manufacturer, funded development and design of high quality masks, and distributed over 390,000 masks with 75,000 masks for low income and senior residents. These leaders included faith-based groups, local population health and community groups, civic leaders, numerous small, medium, and large businesses and employers involved in health, social needs, access, inequities, and vitality. They came together to focus especially on vulnerable populations. As shared in the webinar, the broader collaborative formed by these activities is now well-positioned to work further on community transformation.

These examples show that multi-sector partnerships in local communities represent important stakeholder groups for addressing both COVID-19 and pre-existing health and health equity issues. Leading organizations – CDC, Johns Hopkins, and World Economic Forum – emphasize that cities can be effective leaders in responding to COVID-19, poor health and economic impact. Their guidance highlights many features of effective collaboratives: local governance and health infrastructure; clear policies, processes, communication and messaging to all; community input; data collection and sharing of data; business engagement and effective partnerships with trusted relationships; care of vulnerable and at-risk populations, and coordinated decision-making for different stages for COVID-19 pandemic response.[12] This guidance is also well suited to enhance understanding, engagement of new

stakeholder groups and actions to address health, health equity and economic impact.

Conclusion

The COVID-19 pandemic poses many challenges to our nation's communities yet it has created shared value and enhanced awareness of each individual's connection to all others within a community. It shows the willingness, ability and effectiveness of community leaders to work together for the greater good and wellbeing of others. Multi-sector collaboratives with trusted community relationships and keen understanding of the drivers of poor health have been able to develop and implement solutions for their communities. These can address not only COVID-19's impact, but make inroads into poor health, access, resources, and coordinated efforts to address health disparities and economic impacts. Efforts to respond to the pandemic reveal the complex inter-relationships between health (e.g., hypertension), social factors (race, ethnicity, income, education) and their impacts on health and economic vitality of a region – and thus, the imperative for a broader and more coordinated approach across sectors to address them.

FTI's Center has been privileged to support leaders and communities with actionable and critical data and information on health conditions, costs, scenario modeling and impacts for communities. Actionable data and data analytics fill critical gaps and show magnitudes of cost and personal impact and savings opportunities for communities, employers, and residents, especially for communities of color.

Economic prosperity and health are linked in communities: improved health enhances economic conditions and resiliency, and improved business and community activity influences health and quality of life. The pandemic reinforces understanding of this critical linkage and the gains from collaborative activity. Collaboratives' successful and coordinated responses show the feasibility and impact of action.

The efforts of collaboratives and leadership groups are replicable if common themes, best practices and actionable data can be developed and shared across communities and leadership groups. These collaboratives will be the most powerful if they engage local employers and their employees with the ability to reach directly to thousands of residents and families in communities. Moreover, with sustained and new models of funding and support from local government, health insurers, community leaders, businesses, and national and local foundations, collaboratives have the potential to drive significant health outcome improvements and economic vitality for their communities. They can also serve as a collective model nationwide to link communities together for change.

Endnotes

Mary L. Adams, David L. Katz, and Joseph Grandpre, "Population-Based Estimates of Chronic Conditions Affecting Risk for Complications from Coronavirus Disease, United States." *CDC Emerging Infectious Diseases*, 2020; 26(8): 1831-1833, doi: 10.3201/eid2608.200679. Recent research on cardiac disease and hypertension in particular highlights the importance of hypertension control for population health and life expectancy as well as medical costs, productivity, health, and wellbeing. Pharmaceutical treatments for hypertension and other cardiac conditions, for example, contributed substantially to improved life expectancy measures from 1990-2015. Raj Chetty, Michael Stepner, Sarah Abraham, Shelby Lin, Benjamin Scuderi, Nicholas Turner, Augustin Bergeron, and David Cutler, "The Association Between Income and Life Expectancy in the United States, 2001-2014," *JAMA* 315, no. 16 (2016): 1750, doi:10.1001/jama.2016.4226.

Additional recent hypertension studies show that after some improvement in hypertension control, more recent trends are in decreased control, perhaps suggesting poorer results for future life expectancy measures. Paul Muntner, Shakia T. Hardy, Lawrence J. Fine, Byron C. Jaeger, Gregory Wozniak, Emily B. Levitan, and Lisandro D. Colantonio, "Trends in Blood Pressure Control Among US Adults With Hypertension, 1999-2000 to 2017-2018," *JAMA* 324 no. 12 (2020): 1190–1200. doi:10.1001/jama.2020.14545.

See also, Curfman, Gregory, Howard Bauchner, and Philip Greenland. "Treatment and Control of Hypertension in 2020." *Jama* 324, no. 12 (2020): 1166. https://doi.org/10.1001/jama.2020.13322.) These studies indicate additional concerns about impacts from the COVID-19 pandemic where there is reduced use of primary care or management of chronic conditions such as hypertension.

[2] There are many factors at work. See, e.g., study on residents' ability to quarantine or work at home: T Thomas M. Selden and Terceira A. Berdahl, "COVID-19 and Racial/Ethnic Disparities in Health Risk, Employment, and Household Composition," *Health Affairs* 39 no. 7 (July 14, 2020): 1-6,

https://doi.org/10.1377/hlthaff.2020.00897. See, Leana Wen and Nakisa Sadeghi, "Addressing Racial Health Disparities in the COVID-19 Pandemic: Immediate and Long-Term Policy Solutions," *Health Affairs Blog* (July 20, 2020), doi: 10.1377/hblog20200716.620294; Tiffany Ford, Sarah Reber, and Richard V. Reeves, "Race gaps in COVID-19 deaths are even bigger than they appear," *Brookings Institution* (June 16, 2020),

https://www.brookings.edu/blog/up-front/2020/06/16/race-gaps-in-covid-19-deaths-are-bigger-than-they-appear/. NIHCM, "Racism, Health & COVID-19," *NIHCM Population Health Spotlight* (July 2020), https://www.nihcm.org/categories/race-health-and-covid-19; Leana Wen and Nakisa Sadeghi, "Addressing Racial Health Disparities in the COVID-19 Pandemic: Immediate and Long-Term Policy Solutions," *Health Affairs Blog* (July 20, 2020), doi: 10.1377/hblog20200716.620294; and Eboni G. Price-Haywood, Jeffrey Burton, Daniel Fort, and Leonardo Seoane, "Hospitalization and Mortality Among Black Patients and White Patients with Covid-19," *N Engl J Med*; 382 (May 2020): 2534-43, doi: 10.1056/NEJMsa2011686.

[3-4] FTI's Center has partnered with collaboratives seeking to develop new models to understand and address health and economic impact with actionable data, data analytics on chronic conditions, demographics, community priorities and review of successful and effective interventions. For summary of new approaches by multi-sector collaboratives, see, Ralph Schulz, "A New Model for Private Sector Partnerships to Improve Economic Well-Being and Community Outcomes," *Commentary, Institute of Medicine of the National Academies* (June 2015). FTI's Center work includes reports such as: "Nashville Region Health Competitiveness Initiative: 2017 Report," *Center for Healthcare Economics and Policy and The Research Center, Nashville Area Chamber of Commerce* (2017), https://www.fticonsulting.com/~/media/Files/us-files/insights/reports/fti-nashville-area-chamber-healthcare-competitiveness-initiative-2017-report.pdf; "The Economic Impact of Poor Health on Our WNY Community," *Center for Healthcare Economics and Policy* (2019),

https://www.pophealthwny.org/assets/documents/TheEconomicImpactofPoorHealthonOurWNYCommunityFinal.pdf.

[5] See, Paul Mattessich, Ela Rausch, Emma Connell, Mark Anton, Michael Williams, and Jose Diaz, "Linking Health and Economic Prosperity: A Study of U.S. Metro Areas,"

Federal Reserve Bank of Minneapolis and Wilder Research (Dec. 2019).

[6-7] CDC BRFSS SMART 2017 (All Ages).

[8] NASEM, "Leading Health Indicators 2030: Advancing Health, Equity, and Well-Being," *The National Academies Press* (2020), https://doi.org/10.17226/25682. See, also Raj Chetty, Michael Stepner, Sarah Abraham, Shelby Lin, Benjamin Scuderi, Nicholas Turner, Augustin Bergeron, and David Cutler, "The Association Between Income and Life Expectancy in the United States, 2001-2014," *JAMA* 315, no. 16 (2016): 1750, doi:10.1001/jama.2016.4226.

[9] The Action Collaborative on Business Engagement in Building Healthy Communities is an ad-hoc activity associated with the National Academies of Sciences, Engineering, and Medicine's Roundtable on Population Health Improvement. Recent webinars include Nick Macchione, Wilma Wooten and Carey Riccitelli, "Antidote to Pandemics – Population Health Leadership in Action," (July 21, 2020),

https://www.nationalacademies.org/event/07-21-2020/collaborative-webinar-antidote-to-pandemics-population-health-leadership-in-action; Maria Whyte, George Nicholas, and Raul Vasquez, "Faith, Community & Government – Health Collaboration to Address Health Disparities during the COVID-19 Pandemic," (July 15, 2020), https://www.nationalacademies.org/event/07-15-2020/collaborative-webinar-faith-community-and-government-health-collaboration-to-address-health-disparities-during-the-covid19-pandemic; the slides provide a full listing of the many partners involved in the collaborative and details on Live Well Erie; Cathy Baase, Rebecca Bentley, J.J. Boehm, Christopher Vieau, and George E. Kikano, "Coming Together to Address COVID-19: A Community's Experience," (June 18, 2020), https://www.nationalacademies.org/event/06-18-2020/collaborative-webinar-coming-together-to-address-covid-19-a-communitys-experience; and Terry Williams and William Satterwhite, "A Conversation About Employer Covid19 Issues and Emerging Opportunities," (May 22, 2020),

https://www.nationalacademies.org/event/05-22-2020/collaborative-webinar-a-conversation-about-employer-covid19-issues-and-emerging-opportunities.

[10-11] See links in prior footnote for details.

[12] Robert Muggah and Rebecca Katz, "How cities around the world are handling COVID19 - and why we need to measure their preparedness," *WEF* (Mar. 17, 2020), https://www.weforum.org/agenda/2020/03/how-should-cities-prepare-for-coronavirus-pandemics/. Criteria for success include "Not surprisingly, cities that have robust governance and health infrastructure in place are in a better position to manage pandemics and lower case fatality rates (CFR) and excess mortality than those that do not. Adopting a combination of proactive surveillance, routine communication, rapid isolation and personal *and community protection (e.g. social distancing) measures is critical. … Likewise, the number, quality and accessibility (and surge capacity) of hospitals, internal care units, hospital beds and IV solution and respirators can determine whether a city effectively manages a pandemic, or not." Id. (emphasis added).* Melissa A. Marx et. al., "Recommendations for a Metropolitan COVID-19 Response," *Johns Hopkins Bloomberg School of Public Health* (Apr. 2, 2020), https://www.jhsph.edu/covid-19/articles/covid-19-recommendations-for-a-metropolitan-response.html.

FTI Consulting's Center for Healthcare Economics and Policy applies cutting-edge economics and quantitative methods to assist clients in developing and implementing market-based solutions across a wide spectrum of healthcare activity. We provide economic and financial modeling to develop evidence-based strategies to address fundamental changes in healthcare demand and delivery within a healthcare system or a region. Our advanced capabilities and extensive data sets can address effects of major policy, regulatory, or significant and disruptive demand changes on healthcare systems or communities. The Center's focus on analytic domains relies on a multi-disciplinary team composed of Ph.D. Economists, analytic consultants, advanced industry experts, and predictive modelers.

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