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# Mayors and the health of cities

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# MAYORS AND THE Health of Cities



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## ACKNOWLEDGEMENTS

During the summer of 2018, we interviewed 110 mayors from across the country and asked them a series of questions on health priorities and perceptions to better understand how they respond to and promote community well-being. We found that mayors are tapping a wide variety of policies to impact resident health, reflecting the diverse health concerns facing our cities today.

Our local leaders play many roles when it comes to advancing urban health: from encouraging mobility by investing in sidewalks and bike paths to advocating for changes in pharmaceutical policies to treat opioid use disorders. This report provides new insight on how mayors think and talk about the health of their cities. We hope the findings will be of considerable value to practitioners, academics, and advocates and will inspire them to engage mayors and equip them with the tools they need to lead healthy cities.

We are immensely thankful for the support of Citi Community Development and The Rockefeller Foundation — and are so fortunate to have their continued partnership.

I am most grateful to the authors of the report, Katharine Lusk, Luisa Godinez Puig, and Monica Wang, for the expertise and energy they brought to this endeavor. The project is a collaborative achievement that has evolved out of the *2018 Menino Survey of Mayors*, co-authored by Katherine Levine Einstein, David Glick, Maxwell Palmer, and Stacy Fox. The research in this report was also greatly enhanced by the contributions of David Rosenbloom, Shea Cronin, Marisa Otis, and Katelyn Collins.

Thank you to the participating mayors whose candor and willingness to devote time to interviews are what make this project successful. And finally, my thanks to the entire staff at the Initiative on Cities who make our work possible.



Graham Wilson  
Director  
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### Boston University Initiative on Cities

The Initiative on Cities at Boston University seeks to research, promote, and advance the adaptive urban leadership strategies and policies necessary to support cities as dynamic centers of inclusive economic growth and sustainable development in the 21st century. Founded by a proven urban leader, the late Boston Mayor Thomas M. Menino, and a highly regarded academic, Professor Graham Wilson, the Initiative serves as a bridge between world-class academic research and the real-life practice of city governance.

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## EXECUTIVE SUMMARY

Mayors play a vital role in promoting community health and well-being at the local level. From devoting resources and funds to introducing or supporting legislation to advocating for initiatives to serving as role models, mayors can be instrumental health leaders. They can leverage resources, including human and social capital, and networks across multiple sectors to catalyze change and achieve health goals.

It is critical, then, that we understand how mayors think and talk about health. This report reveals the most pressing urban health issues identified by mayors, provides insight into the state of urban health through city-level health statistics, and features case examples of city-level initiatives shown to promote health and well-being.

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*“...mayors’ perspectives suggest they are an important ally in improving urban health. Some are intimately knowledgeable about the issues affecting their communities, and all are open to learning more about how to better serve their constituents.”*

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Results from this report are based on multiple data sources, including interviews with more than 100 United States (US) mayors from cities over 75,000 that were conducted in 2018. City-level health statistics are drawn from standardized metrics developed for the 500 largest cities in the US, coupled with additional data from federal sources. Case studies and solutions feature recent evidence-based interventions drawn from academic research.

Though findings of mayoral perceptions and city-level statistics vary widely across the diverse sample of cities included in our report, the following key themes emerged:

1. Obesity and chronic diseases, opioids and other forms of addiction, lack of access to health care, mental health, and the health of vulnerable populations are the top health challenges most frequently identified by mayors. A substantial number of mayors cited the social determinants of health (conditions in the social, physical, and economic environments in which people live<sup>1</sup>) as underlying drivers of population health.
2. Mayors identified a different set of health issues for which they believe constituents hold them most accountable: traffic-related accidents, gun violence, and environmental toxicants such as lead top the list. Obesity, while most frequently cited by mayors as the top health concern facing their city, emerged as the health issue for which they believe constituents hold them least accountable.
3. The prevalence of a health challenge at the local level does not predict mayors’ perceptions of accountability for that particular issue. Opioids were the sole exception, as a higher rate of overdose deaths was linked with increased perceived accountability. Partisanship stood out as the strongest predictor of mayoral perceptions of accountability, with Democratic mayors significantly more likely to believe they are held accountable for gun violence, hunger or malnourishment, asthma, and obesity than their Republican peers.
4. A wide variety of tools and strategies are available to mayors to improve population health, even for the majority who do not have a municipal health agency on which to rely. However, one sector alone cannot shoulder the burden of improving the health of cities. Solutions require that many leaders, agencies, and advocates work together to address critical priorities. Cross-sector collaboration to develop and implement city-based health initiatives, programs, and policies is essential to promote the overall well-being and prosperity of cities in both the short- and long-term.

Taken together, mayors’ perspectives suggest they are an important ally in improving urban health. Some are intimately knowledgeable about the issues affecting their communities, and all are open to learning more about how to better serve their constituents. Still, more work needs to be done by public health advocates to help educate and equip local leaders. Traffic fatalities and gun violence need to be understood as threats to public health, and the latter needs to be depoliticized at least at the local level. More mayors must also be empowered to embrace issues like obesity as key policy priorities, even in the absence of political or constituent pressure.



## BACKGROUND: ELECTED OFFICIALS AND HEALTH

Though the literature on public opinion and health policy is vast,<sup>2</sup> few studies to date have directly examined local elected officials' stance and perceptions on public health issues. Given that elected officials routinely implement and affect health policy,<sup>3</sup> developing a better understanding of their perceptions and priorities on public health issues is critical to improve the translation of science into health policy — and ultimately — community well-being.

A few studies have examined local elected officials' opinions on specific city-level health issues and initiatives (e.g., the policymaking process of health taxes or tobacco control legislation),<sup>4</sup> but only two studies to our knowledge have analyzed how local elected officials' perceptions and attitudes related to general public health issues. In the 1990s, researchers interviewed mayors of rural towns that experienced recent closure of small general hospitals.<sup>5</sup> Mayors perceived substantial detrimental effects for their communities as a result of such closures, including decreased access to care (cited by 34.7% of respondents) and subsequently poorer resident health, as well as adverse economic effects (70.7% cited job loss and 14.1% cited tax and retail revenue loss).

A more recent survey of US mayors and health commissioners examined their perspectives on health disparities in cities.<sup>6</sup> Respondents indicated awareness of important health disparities in their jurisdictions, with two-thirds of mayors identifying household income as a major social determinant of health and health disparities. However, almost a third of mayors perceived that city-level policies had little to no impact on health disparities, despite general agreement that enacting health policies was within the role and capabilities of local policymakers. In contrast, numerous media outlets and academic publications call for mayors and other local elected officials to leverage their authority to address health problems, including obesity, addictions/opioid crisis, environment, healthcare, nutrition, gun violence, and health disparities specific to their communities.<sup>7</sup>

Analyses of annual mayoral “State of the City” speeches conducted by the National League of Cities (NLC), an advocacy organization for cities, indicate that a growing proportion of mayors are prioritizing health concerns in this important community address (18% in 2016, 23% in 2017, and 34% in 2018).<sup>8</sup> Correspondingly, city advocacy organizations recognize the importance of gathering and sharing local elected officials' insights to address pressing public health concerns. For example, the NLC summarized key findings from a 2018 meeting of mayors on strategies to address the opioid epidemic through alliances with counties and states.<sup>9</sup> George Washington University and the NLC published a joint white paper on programs and best practices to advance healthy housing.<sup>10</sup> The annual US Conference of Mayors directly addressed health policy issues at its 2018 convening, including setting health policy-related resolutions.<sup>11</sup> The growing number of health-focused policy initiatives and reports indicate that the field may be shifting to more explicitly recognize the role, responsibility, and potential of local elected officials in advancing urban health.

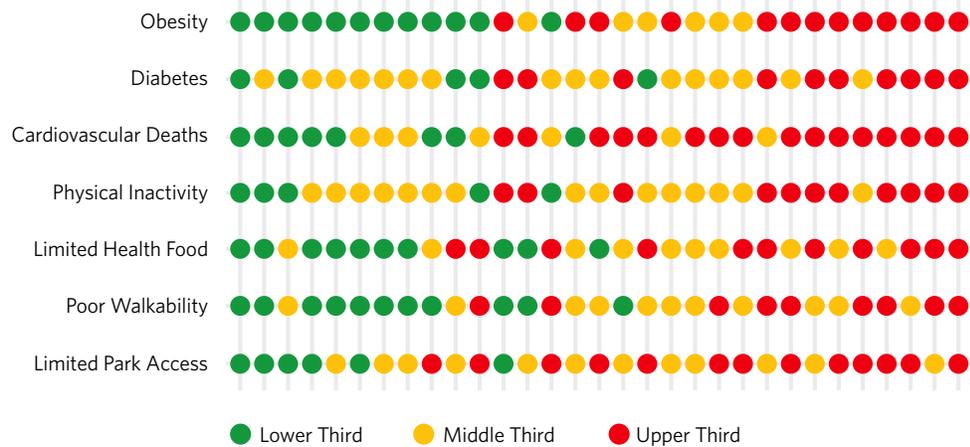
Still, relatively little is known about how mayors perceive and prioritize the health of their communities. This report synthesizes data from multiple sources to illuminate mayoral perceptions and priorities in the context of existing city health data to provide insight on the health of our cities today. This report also introduces promising initiatives targeting four priority health areas: the obesity epidemic, the opioid crisis, traffic fatalities, and gun violence. Mayors and other local officials can play central roles in implementing the strategies and evidence-based interventions presented.





Mayors are not necessarily elevating health challenges based on their prevalence. Figure 2 shows the prevalence of relevant city-level indicators, like obesity or diabetes rates, among mayors who believe obesity, diabetes, and/or heart disease is their community’s greatest challenge. The distribution reveals two things: first, there is a cohort of cities that is relatively unhealthy along a range of dimensions (e.g., mostly reds and yellows). Second, even mayors of healthy cities (mostly greens) may elevate an issue like obesity. Interestingly, just as healthy cities may be prioritizing obesity, comparatively unhealthy cities may not: of the 20 cities in our sample with the highest rates of obesity — where more than a third of residents are obese — just six mayors mentioned obesity or diabetes as a key health challenge.

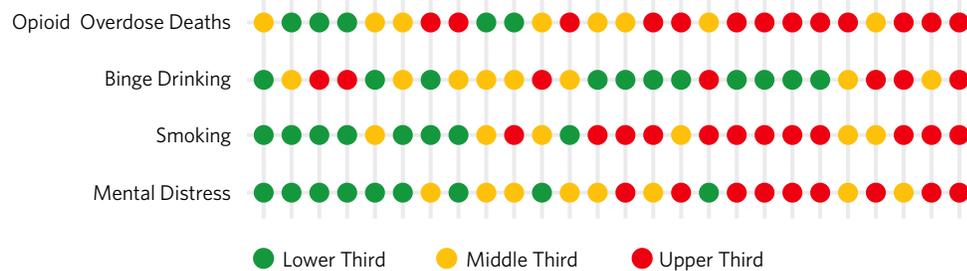
**Figure 2: Prevalence Rates of Relevant Outcomes and Risk Factors among Mayors Citing Obesity, Diabetes, and/or Heart Disease as Top Health Challenge (N=31)**



Sources: 2018 Menino Survey of Mayors, City Health Dashboard. Each column represents an individual city that mentioned obesity, diabetes, or heart disease as a key community health challenge (N=31). Terciles shown are relative to all 110 cities participating in the 2018 Menino Survey. Note that Walkability and Park Access variables have been reversed just for the purposes of this figure so that Upper Third (red) always indicates poorer health or environment.

Similarly, mayors who highlighted addiction and opioids as their key health challenge govern a heterogeneous group of cities. They include those experiencing comparatively lower rates of binge drinking, better mental health, and fewer overdose deaths, and those that are suffering disproportionately from multiple of these challenges. Of the 20 mayors in cities witnessing the highest number of overdose deaths, nine highlighted opioids as their greatest challenge, whereas the other eleven elevated other pressing health issues.

**Figure 3: Prevalence Rates of Relevant Outcomes and Risk Factors among Mayors Reporting Addiction/Opioids as Top Health Challenge (N=26)**

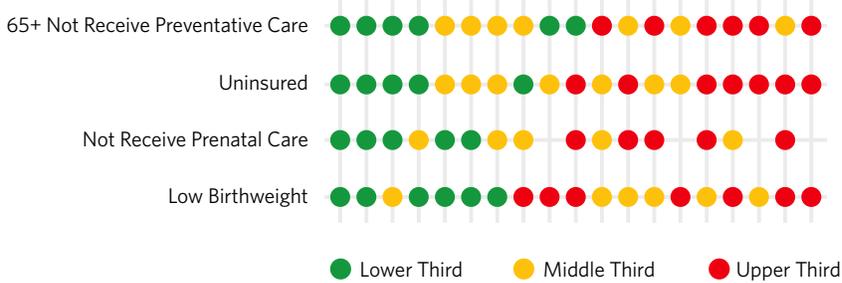


Sources: 2018 Menino Survey of Mayors, City Health Dashboard. Each column represents an individual city that mentioned addiction or opioids as a key community health challenge (N=26). Terciles shown are based on N=110.



Finally, mayors referencing inaccessible or costly health care as their community’s key health challenge govern cities experiencing varying levels of health care access and utilization. They lead cities with both high and low rates of uninsured residents, high and low percentages of elderly residents who are up to date on core preventative services, and varying likelihood that a mother and fetus received early prenatal care. Six of the 20 mayors with the highest rates of uninsured residents referenced access to care as a key challenge.

**Figure 4: Prevalence Rates of Relevant Indicators among Mayors Reporting Access to/Cost of Health Care as Top Health Challenge (N=19)**



Sources: 2018 Menino Survey of Mayors, City Health Dashboard. Each column represents an individual city that mentioned challenges with access or cost of health care as a key community health challenge (N=19). Tertiles shown are based on N=110.

Taken together, these findings suggest an opportunity for mayors to better understand how they compare to other cities on a range of health-related indicators. These findings also suggest that mayors are faced with the difficult decision of how to prioritize attention and resources for health challenges that disproportionately affect specific groups as well as those that impact overall population health. Lastly, health advocates may find mayoral allies in a diverse array of communities. Shared attitudes may matter more than statistics.

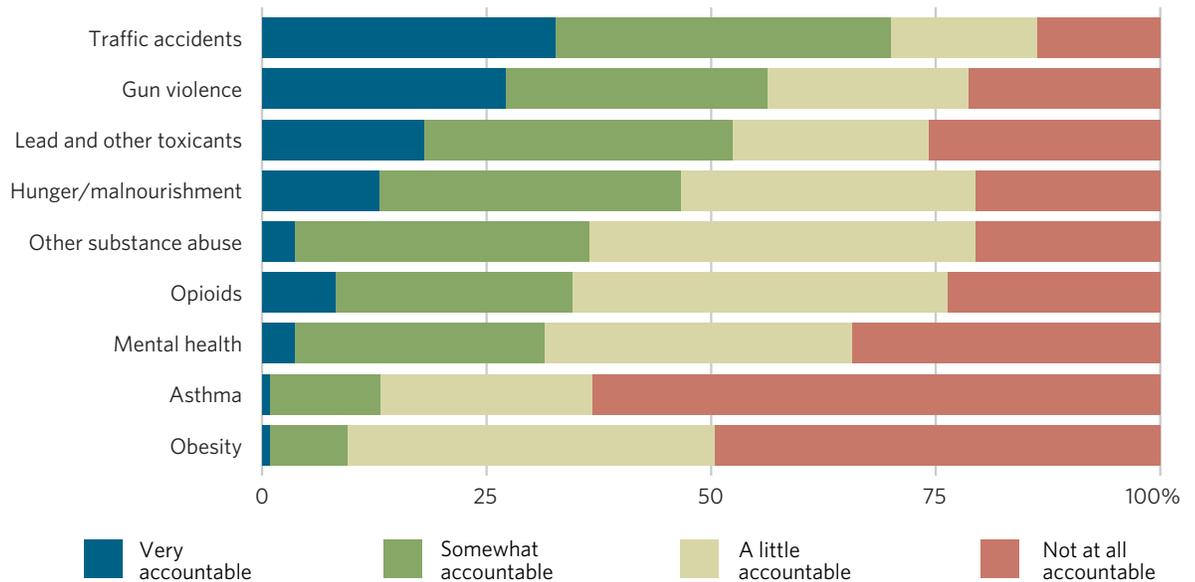


## Perceived Accountability

Do mayors believe voters hold them responsible for these same health issues? In a word, no. Surprisingly, mayors identified an entirely different list of health issues in response to a close-ended question about constituent accountability (Figure 5). They believe their constituents hold them most accountable for traffic accidents, gun violence, and lead and other toxicants. Obesity was identified as the health issue where they believe constituents hold them the least accountable. Other priority health concerns such as opioids and mental health were also ranked relatively low by mayors in terms of accountability. Such responses generally reveal an inverse relationship between mayors' perceived importance of a health concern and the expectation that they will take the lead in tackling it.

**Figure 5: Accountability and Health Challenges**

*How much do you think constituents hold you accountable for each of the following health challenges in your city?*



Source: 2018 Menino Survey of Mayors

One possible explanation for the incongruence between health challenges and perceived accountability may be perceived control. It could be that mayors believe they have the right tools to address certain health issues, but not others. For example, city traffic, gun legislation, and exposure to lead/toxicants may be perceived as structural, policy, and environmental risk factors that are within mayors' control. Health behaviors (e.g., diet, physical activity, drug use) may be perceived as individual risk factors outside of mayoral control.

Indeed, in most cities, mayors may work closely with public works or the police department, but the majority do not have direct control over a health authority or agency. When asked to name a health challenge, mayors first response was often to say that they do not run the health authority. Just 20% of health authorities exist at the municipal level. The vast majority (nearly 70%) are county level (single-county or multi-county) agencies, and the remainder are regional authorities (Table 1). For example, the Boston Public Health Commission is a municipal agency overseen by a mayoral appointed board. The Health Commissioner is member of the City of Boston's Health and Human Services Cabinet. She and the Commission's 1,200 staff members are focused on the health of Boston's residents. In contrast, Los Angeles has a County Department of Public Health. The Director reports to an elected County Board of Supervisors. Its 4,200+ staff are focused on the well-being of the entire county. The variety in local health governance in terms of structure, authority, and level means that mayors may have the human and financial resources to intervene in some key areas of urban health and not others.



**Table 1: Health Authorities in the US vs. 2018 Menino Survey Sample**

Authority Type	Percentage in 2018 Menino Survey Sample (N=110)	Percentage in the US (N=2533 Health Departments)
Municipal	18%	20%
County	75%	69%
Regional	7%	8%

Source for National Percentage: National Association of County and City Health Officials. "2016 National Profile of Local Health Departments." 2016, <http://nacchoprofilestudy.org/reports-publications/>

Is mayoral accountability related to the tools and resources at a mayor's disposal? In other words, does a mayor with a municipal health authority elevate different issues than one reliant on a county or regional agency? In fact, having control over a health department does not statistically change mayors' perceptions of accountability for various health issues.<sup>i</sup> That is, mayors' responses to the question on constituent accountability were not related to the type of health department in their region.

**Table 2: Examples of Different types of Health Departments in the US**

	East Central Health District Georgia (ECHD)	Los Angeles County Department of Public Health (LACDPH)	Boston Public Health Commission (BPHC)
<b>Level:</b>	Regional	County	Municipal
<b>Leadership &amp; Staff:</b>	14 Public Health Managers, including a Health Director	Over 4,000 Public Health professionals, including a Health Director	7 member board of specialists appointed by the Mayor of Boston; Board appoints Health Commissioner; 1,200 staff
<b>Population served:</b>	Residents of 13 counties	LA County residents	City of Boston residents
<b>Fun fact:</b>	The ECHD is part of the Georgia Department of Public Health and serves residents from the Central Savannah River Area	LACDPH is in charge of providing health services and policy for the largest county in the US	BPHC is the oldest Health Department in the US

Mayors' responses to the accountability question were also largely independent of whether a health issue had reached a crisis stage. The prevalence of major public health outcomes in cities, such as rates of obesity, chronic disease, asthma, or gun-related homicide, were not significantly correlated with perceived accountability for these health outcomes. The one exception to this was with regard to opioid-related deaths. The higher the rate of deaths experienced by a given city, the more likely a mayor was to say his or her constituents held the Mayor's Office accountable for opioids.<sup>ii</sup>

Partisanship emerged as the strongest determinant of mayoral perceptions of accountability, especially around issues of gun violence, hunger or malnourishment, asthma, and obesity. Specifically, mayors identified as Democrats were more likely to believe that their constituents expected action by the mayor on these issues, compared to mayors

<sup>i</sup> We performed an OLS regression looking at whether health authority structure is correlated with accountability for traffic accidents, gun violence, lead and other toxicants, hunger/malnourishment, other substance abuse, opioids, mental health, asthma, and obesity. We find no significant correlation between mayors' perception of accountability and the type of health authority the city has.

<sup>ii</sup> We performed an OLS regression to identify whether cities' features (size, median housing value, corresponding health metric) are correlated with accountability for specific health issues. We find that the rates of opioid overdose deaths is significantly correlated with the perception of accountability for opioid addictions, other health outcomes are not. We also find that the median housing value is significantly correlated with asthma and traffic accountability and that the size of the population is significantly correlated with accountability for obesity.



identified as Republican.<sup>iii</sup> However, it is important to note asthma (17%) and obesity (13%) were still ranked low in terms of perceived accountability among Democratic mayors, relative to issues such as gun violence to gun violence (72%) and hunger/malnutrition (55%) where majorities felt strongly accountable (Table 3).

**Table 3: Mayoral Perception: Constituents Hold Mayor Very or Somewhat Accountable, by Party**

	Democrats	Republicans
Gun violence	72%	23%
Hunger/Malnutrition	55%	32%
Asthma	17%	8%
Obesity	13%	4%

Source: 2018 Menino Survey of Mayors

Taken together, mayors’ responses reveal the diversity of health challenges afflicting US communities, from acute issues like opioids to chronic conditions such as obesity. Their responses also shed light on a potential disconnect between those challenges and the perceived concerns of their constituents. While mayors may perceive a specific health challenge, constituent pressure may not be present — or even sufficient — to compel them to elevate it as the top priority.

The following sections provide an additional layer to understanding mayoral priorities by putting them in the context of the present health of their communities. How do the health concerns mayors perceive match up with reality?

## Populations of Concern

During their discussions of city and community health, mayors identified specific populations for whom they were most concerned. Twenty-seven percent of respondents cited specific groups, and those who did were most likely to emphasize one of two vulnerable populations: children or the homeless. In an average city,<sup>iv</sup> nearly one in four children lives in poverty (Table 4). Across the 500 largest cities in the US, childhood poverty rates range widely from 1 in 50 to nearly two in three in the most disadvantaged communities.

**Table 4: Child Health in US Cities (N=500)**

	Average	Minimum	Maximum
Low birthweight	8%	5%	15%
Children in poverty	23%	2%	60%

Source: City Health Dashboard 500 City Data

One mayor differentiated between population health and subgroups like the homeless where she felt the city could make an impact: *“We have all the big ones (like diabetes, etc.), but the greatest one within my scope is homelessness — the population living in unsheltered and public places. It’s the physical, mental, and psych[ological] issues that come with [this experience].”* A smaller proportion of mayors focused on their aging or elderly residents. Some highlighted issues that cut across multiple demographic groups. As one mayor shared: *“We’re pretty blessed, but childhood and senior hunger in low-income areas is a top concern.”*

<sup>iii</sup> We performed an OLS regression to identify whether mayoral characteristics (partisanship, race, sex) are correlated with accountability for specific health issues. We find that partisanship is significantly correlated for gun violence, asthma, hunger and obesity, and that gender is significantly correlated for substance abuse, mental health and hunger, while other mayoral characteristics are not.

<sup>iv</sup> Averages based on 500 largest cities in the US. Unless otherwise noted, averages, minimums, and maximums have been sourced from the City Health Dashboard 500 City Data available at [cityhealthdashboard.com](http://cityhealthdashboard.com).



## Obesity, Diabetes, and Heart Disease

Twenty-five percent of mayors interviewed for the 2018 Menino Survey cited obesity as the leading public health challenge in their community. Lack of physical activity, poor diet, and diabetes were frequently referenced in relation to obesity. As one mayor thoughtfully articulated: *“Sedentary lifestyles directly and indirectly contribute to chronic health problems, including the leading cause of mortality in the US. Other impacts include social isolation, decreased air quality, reduced productivity and health care costs.”* Another mayor focused specifically on young people, saying their city’s greatest challenge was *“childhood obesity, here and nationwide. Not eating proper foods or getting exercise. We’ve been working on this for 10 plus years.”* Other mayors identified and discussed social determinants of health as key contributors of obesity, such as poverty and lack of healthy food access, explicitly noting that availability and affordability of healthy foods present major challenges to meeting dietary recommendations among lower-income residents. One mayor noted that changing both *“points of view and horrible eating habits”* are a difficult feat compounded by financial constraints among lower-income and impoverished families, since healthy food is often more expensive. Just under half of mayors interviewed believe they should get involved in shaping individuals’ decisions around unhealthy food choices, a substantial percentage even while not a majority.

Do mayors’ perceptions match the reality of city health surveillance of their cities? While critical issues like gun violence and opioids often earn the headlines, chronic conditions such as cardiovascular disease, diabetes, and obesity affects a far higher proportion of the population. On average, a little more than 200 urban residents out of every 100,000 die due to cardiovascular disease each year; this is more than 16 times the average number of deaths per 100,000 experienced by a city due to opioid overdose. In an average US city, 29% of residents are obese and 10% have diabetes (Table 5). On average, nearly two-thirds of urban residents have limited access to healthy food, meaning they live more than a half mile from a major supermarket or grocery store. A quarter report being physically inactive in the last month, although more than 60% live within a ten-minute walk of green space (Table 5).

**Table 5: Rates of Obesity, Diabetes, Heart Disease, and Related Risk Factors in US Cities (N=500)**

	Average	Minimum	Maximum
Cardiovascular disease deaths per 100,000	209	44	491
Diabetes prevalence	10%	4%	22%
Adult obesity prevalence	29%	15%	49%
% of residents w/limited access to healthy foods	62%	N/A	94%
% reporting being physically inactive in last 30 days	24%	10%	47%
Park access (% yes)	61%	7%	100%
Walkability score (range: 0-100)	45	7	94

Source: City Health Dashboard 500 City Data

In spite of recognizing obesity as a pressing issue, the overwhelming majority of mayors believe that obesity is not a health issue for which they are held accountable. One mayor, an outlier, shared, *“I’m most focused on obesity, because I’m trying to get people out of their cars. Constituents don’t hold me accountable for asthma and obesity, but they should.”*



## Addiction/Opioids

Opioids as well as other forms of addiction and substance abuse were the second most-cited health challenge among mayors in our sample. Nearly a quarter (24%) of mayors mentioned opioids specifically, frequently identifying it as a “crisis” or an “epidemic.” One mayor noted that the opioid crisis was sparking new collaborations: *“We work with the county and mayors are on a task force, along with police and fire chiefs. We’re making progress and understand more now than we did a year and a half ago.”*

An average city is estimated to lose 12 people per 100,000 residents to opioid overdoses annually, although it is important to remember that the continued growth of the opioid epidemic in recent years may mean this statistic is an underestimate (Table 6). Deaths also do not reveal the full scope of the problem of opioid addiction.

*“We work with the county and mayors are on a task force, along with police and fire chiefs. We’re making progress and understand more now than we did a year and a half ago.”*

Those mayors confronting higher rates of overdose deaths in their cities are more likely than their peers to believe their constituents hold them accountable for this issue. This is the only health outcome for which we found a relationship between prevalence and perceived accountability.

**Table 6: Rates of Addiction and Opioids in US Cities (N=500)**

	Average	Minimum	Maximum
Binge drinking	18%	9%	27%
Smoking	17%	9%	30%
Opioid Overdose Deaths per 100,000 pop.	12	1	77

Source: City Health Dashboard 500 City Data

A minority of mayors who identified addiction as the top health concern facing their city discussed other types of substance abuse, including alcohol or marijuana. In an average city, 18% of city residents report binge drinking and 17% report smoking (Table 6). Two mayors from states that have legalized marijuana shared their concerns about some adverse consequences, with one noting the *“use of pot and other drugs”* as a top concern: *“it’s been legalized in the state and has become a big issue. The crime rate has gone up.”*



## Mental Health

The word cloud (Figure 1) demonstrated the frequency with which mayors discussed mental health, either independent of or coupled with addiction. While mental health was cited as the top health challenge by just 8% of respondents, 15% of mayors expressed concern for the mental health of at least some of their constituents. Mental health was sometimes discussed by mayors in the context of addiction to opioids and other substances. One big city mayor noted his concern for “increasing mental health and addiction challenges and a lack of resources to effectively address either.”

**Table 7: Mental Health in US Cities (N=500)**

	Average	Minimum	Maximum
Frequent mental distress	13%	8%	18%

Source: City Health Dashboard 500 City Data

In an average city in the US, 13% of residents report being in frequent mental distress. One mayor, speaking in language commonly used by public health professionals, shared that her community’s greatest health challenge was “the trauma associated with violence and Adverse Childhood Experiences (ACEs) impacting social determinants of health.” ACEs are stressful or traumatic childhood events (e.g., physical and/or sexual abuse, neglect, homelessness, having an incarcerated family member) shown to increase risk for harmful short-term consequences such as developmental delays, depression, anxiety, drug abuse, and suicidality. They also contribute to detrimental long-term consequences as adults, including increased risk of cardiovascular disease, cancer, depression, drug abuse, suicidality, and an estimated 20-year reduction in life expectancy.

## Access to Care

Access to health care, which includes availability, affordability, geographic accessibility, and acceptability of services, was also among the top three health challenges mayors identified. Several mayors noted that gaining entry into the health care system (e.g., through insurance coverage) and financial barriers to health care utilization were the biggest health issues for their communities. One mayor remarked, “You can look at the [health] issues people are dealing with (e.g., diabetes, cancer, STDs, etc.), but at the core is access to health care. [We have a] large number of uninsured and under-insured people.”

*“You can look at the [health] issues people are dealing with (e.g. diabetes, cancer, STDs, etc.), but at the core is access to healthcare. [We have a] large number of uninsured and under-insured people.”*

Some mayors highlighted the benefits of being among the majority of states that have embraced the Affordable Care Act (ACA). As of the writing of this report, 37 states have elected to expand Medicaid. One of the mayors in these states commented, “How do you provide primary health care that everyone has access to, particularly in low- and moderate-income areas? Always a challenge there. Obamacare helped with that, as many [individuals opt] to go to the ER for primary health care.” Another mayor emphasized the challenge

of not being an ACA state. Her community’s key issue was “inadequate health insurance coverage, because we are not a Medicaid state. It leads to inadequate access to care.” Seventy-five of the 110 cities that participated in the 2018 Menino Survey are located in states that have expanded Medicaid. Thus, less than one third of mayors with whom we spoke are leading cities where their lowest income residents are less likely to have access to insurance and adequate health care.



In an average US city, 13% of residents are uninsured, while only one-third receive access to preventative care services. The estimates are higher but still not ideal with regard to prenatal care, with nearly eight in 10 expectant mothers reporting they had access to adequate care before their child was born (Table 8).

**Table 8: Access to Care in US Cities (N=500)**

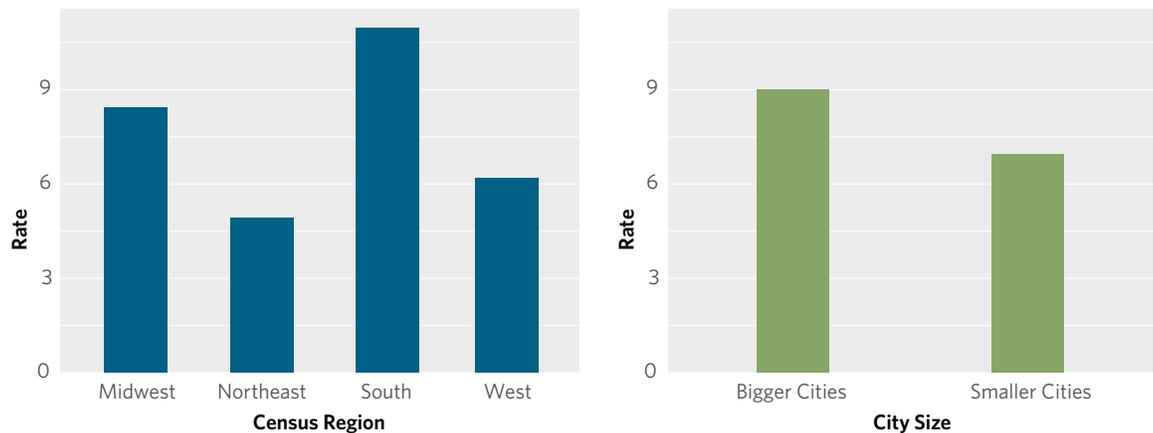
	Average	Minimum	Maximum
Preventative services received by 65+	33%	18%	48%
Uninsured	13%	2%	35%
Prenatal care begun in first trimester	78%	51%	95%

Source: City Health Dashboard 500 City Data

## Traffic Crashes

Though not among the top health challenges they identified, mayors cited traffic accidents as the leading health issue for which they are held accountable by their constituents. Based on our analyses, cities participating in the 2018 Menino Survey experienced just under eight traffic related fatalities per 100,000 residents in 2017, although some experienced rates of more than 20 deaths per 100,000 residents. Every city represented in our sample experienced at least one traffic-related fatality that year, and three cities had over 100 traffic-related deaths. There is also considerable variation in traffic fatality rates among cities in our sample by region and size, with Southern cities and larger cities experiencing higher traffic fatality rates (Figure 6).

**Figure 6: Traffic Fatality Deaths per 100,000 Residents by US Census Region and City Size**



Bigger cities indicate communities with more than 100,000 residents. Smaller cities refer to cities with fewer than 100,000 residents. Source: US Department of Transportation's National Highway Traffic Safety Administration Fatality Analysis Reporting System (FARS), 2017. Averages based on 2018 Menino Survey of Mayors cities (N=110).

In total, more than 2,300 people died in traffic crashes in 2017 across the 110 cities participating in the 2018 Menino Survey of Mayors. For a point of comparison, 2,000 people died in gun-related homicides in those same cities in 2016 (the most recent year for which gun violence data is available), and 3,400 people were estimated to have died from opioid-related deaths in a similar timeframe. However, only two mayors in our sample identified traffic accidents as the top health concern facing their city. Of all the health-related challenges identified by mayors, traffic management and pedestrian and cyclist safety comprise one area over which mayors can exert a tremendous amount of influence through city policies and urban planning. It is also important to note that urban environments that promote walking, biking, and other forms of physical activity yield long-term public health benefits, highlighting an area for intervention that could yield multiple advantages.



## Violence

An average US city experiences more than 500 violent crimes (including murder, aggravated assault, robbery, and rape) per 100,000 residents each year. Rates of reported violence vary widely across cities. They range from a low of 56 violent crimes per 100,000 residents per year to a high of more than 2,000 per 100,000 residents per year. Thus the most violent cities experience violent crimes rates nearly four times those of the average city in the US.

Gun violence was cited by mayors in the Menino Survey as the second leading health issue for which they are held accountable. However, only four out of the 110 mayors in our sample identified gun violence as their city's leading health challenge. As noted earlier, the strongest predictor of accountability for gun violence was political affiliation. Democratic mayors were significantly more likely than their Republican peers to believe constituents hold them accountable for gun violence.

An average city participating in the 2018 Menino Survey experienced six gun-related homicides per 100,000 residents in 2016. As with other health indicators, there is tremendous variation across cities, with the worst experiencing gun-related homicide rates that were nearly eight times our sample average.

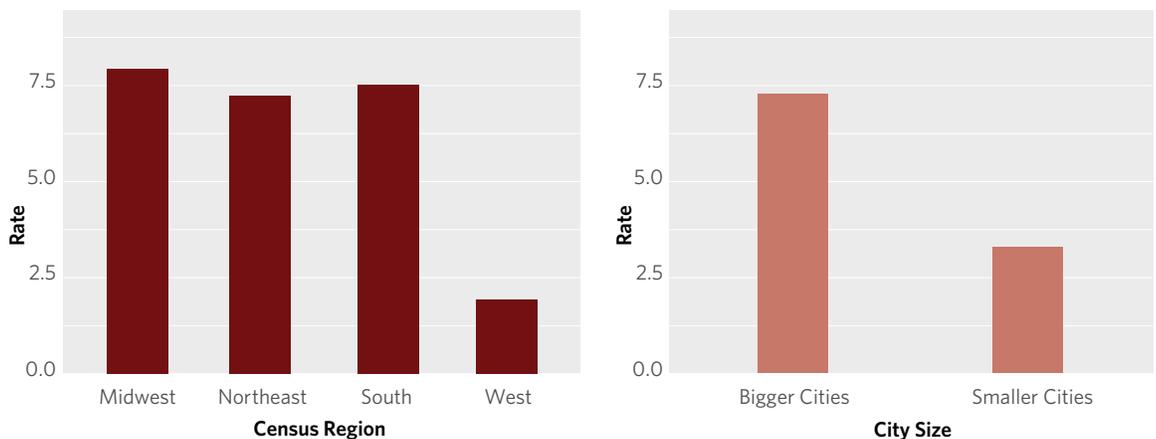
**Table 9: Violence in 2018 Menino Survey Sample Cities**

	2018 Menino Survey Cities (N=110)			US Cities (N=500)
	Average	Minimum	Maximum	Average
Violent crime per 100,000	528	56	2,000	514
Gun-related homicides per 100,000	6	0	46	N/A

Sources: Violent crime rates are from the City Health Dashboard 500 City Data. Gun related homicide data is chiefly derived from the 2016 Supplementary Homicide Reports (SHR) data provided by Dr. James Alan Fox, Northeastern University. See the Methodology for further detail.

Ten of the cities represented in the Menino Survey sample reported zero gun-related homicides in 2016. These ten cities are smaller communities with populations ranging from 75,000 to 120,000 residents, and they are chiefly — although not universally — wealthier communities. Regional variation in gun violence also emerged, with Western cities in our sample experiencing the lowest rates.

**Figure 7: Gun-Related Homicides per 100,000 Residents by US Census Region and City Size**



Bigger cities indicate communities with more than 100,000 residents. Smaller cities refer to cities with fewer than 100,000 residents. Source: 2016 Supplementary Homicide Reports (SHR) data provided by Dr. James Alan Fox, Northeastern University. Averages based on 2018 Menino Survey of Mayors cities (N=110).



## Environmental Threats

One in 10 mayors surveyed cited an environmental challenge (e.g., poor air quality, unsafe drinking water) as their city's leading health issue. Average daily concentrations of fine particulate matter (PM<sub>2.5</sub>)<sup>12</sup> in cities is 9.63 micrograms per cubic meter, with the 500 largest cities experiencing concentrations that range from 4.3 to 16.4 (Table 10). In the U.S., the National Ambient Air Quality Standard for PM<sub>2.5</sub> is 12  $\mu\text{g}/\text{m}^3$  annually, and 35  $\mu\text{g}/\text{m}^3$  for a 24 hour period.<sup>13</sup> Averages may mask considerable temporal and spatial variation in cities' air pollution levels. Different neighborhoods experience dramatically different exposure levels, and levels vary throughout the day and season. Communities of color are disproportionately exposed to air pollutants in the U.S.<sup>14</sup> Fine particulate matter is an air pollutant that travels deep into the respiratory tract, contributing to short- and long-term lung damage, asthma, heart attacks and strokes.<sup>15</sup> Infants, children, and the elderly are particularly vulnerable to health problems associated with air pollution.

Lead and other toxicants were one of the top three health challenges for which mayors believe they are held accountable by constituents. For the average city, the lead exposure risk index — a measure based on housing with a potential lead risk and the percentage of people living in poverty — is 5.5 on a scale that ranges from one to ten. Lead exposure is particularly harmful to children, in whom it can cause slowed growth and development, learning and behavioral problems, hearing problems, decreased IQ and hyperactivity.<sup>16</sup> Young people may be exposed to lead through paint dust or chips in older buildings, contaminated soil, drinking lead contaminated water, or through old or imported toys that may contain lead or lead-based paint. There is no safe level of lead exposure in children.<sup>17</sup>

**Table 10: Environmental Health Risks in US Cities (N=500)**

	Average	Minimum	Maximum
Air pollution — average daily particulate matter (PM 2.5) over 1 year	10	4	16
Lead exposure risk index	6	1	10

Source: City Health Dashboard 500 City Data

**Overall, the context in which mayors discussed pressing health challenges indicate growing momentum and recognition of the various levels of influence across multiple sectors that impact health. The scope of the problems identified suggest a need for greater cross-sector collaborations to improve population health and prioritize the needs of vulnerable populations.**



# HEALTH SOLUTIONS FOR CITIES: CASE EXAMPLES OF PROMISING CITY-LEVEL INTERVENTIONS

The following sections provide case examples of city-level initiatives, interventions, programs, and policies that show early evidence in addressing four of the top preventable health issues identified by mayors participating in our sample: obesity, opioids, gun violence, and traffic fatalities.

## Health Challenge 1: Targeting Obesity

By Marisa Otis, MPH, Senior Research Assistant, Boston University School of Public Health and Monica L. Wang, ScD, MS, Assistant Professor, Department of Community Health Sciences, Boston University School of Public Health

Obesity and related chronic diseases emerged as the top health concern facing cities today based on results of our 2018 Menino Survey of Mayors. One-fourth of respondents cited obesity, diabetes, and/or heart disease as their city’s greatest health challenge, beating out the opioid epidemic and other addiction-related issues (24%), as well as concerns over health care access or cost (14%).

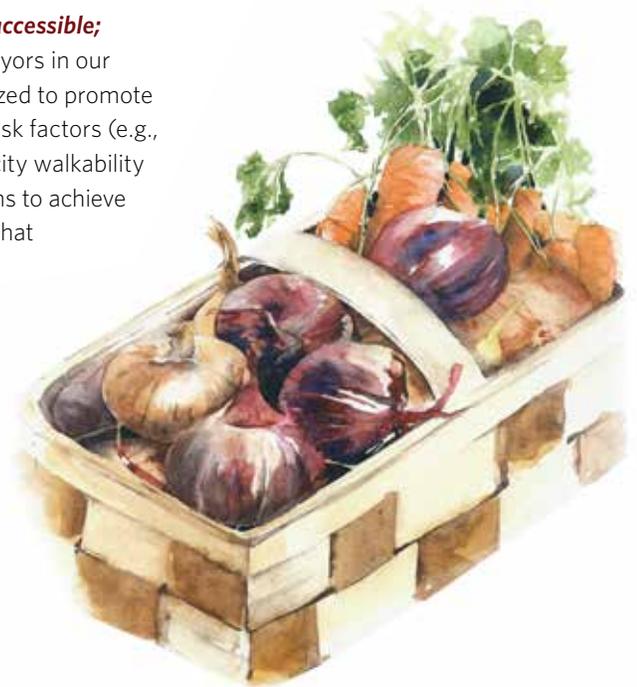
Over the past few decades, obesity rates have steadily risen among adults and more than tripled among children and adolescents.<sup>18</sup> Nearly two out of five US adults (39.8%) are currently obese,<sup>19</sup> representing 93.3 million adults who are at risk for diabetes, heart disease, certain cancers, and shorter life expectancies.<sup>20</sup> Nearly one-fifth (18.5%) of youth ages 2–19 years are obese, with 57.3% of today’s children projected to be obese by 2050.<sup>21</sup> Direct medical costs of obesity (estimated to be between \$147–\$210 billion per year in the US) are staggering, constituting over 20% of total US health care spending — much higher than other OECD countries.<sup>22</sup> If current trends continue, researchers estimate that by 2030, obesity-related medical costs alone (not including indirect costs such as job absenteeism and lower work productivity) will increase by \$48–\$66 billion per year in the US.<sup>23</sup>

In response to the growing obesity epidemic, local municipalities across the US have pioneered a wide range of obesity and chronic disease prevention policies and programs generally aimed at one of three goals:

**making it easier to buy, cook, or grow healthy food;**  
**making unhealthy foods and beverages less desirable and accessible;**  
**or making physical activity more attainable.**<sup>24</sup> Similarly, mayors in our sample cited a wide variety of strategies that could be utilized to promote healthy eating and physical activity, such as regulation of risk factors (e.g., sugary drinks), establishing safe green spaces, increasing city walkability and multimodality, and pursuing cross-sector collaborations to achieve these objectives. Here we present four city-level strategies that have shown early evidence in addressing these goals.

### 1. Financial incentives for healthy food in government food assistance programs

City leaders can leverage existing government food assistance programs, such as the Supplemental Nutrition Assistance Program (SNAP), to promote healthy eating through investing in financial incentives that increase purchasing power for healthy foods. This incentive-based approach to chronic disease prevention has been implemented in numerous cities across the country.





New York City's Health Bucks program, which was first introduced by the City Health Department in 2005, provides SNAP participants with a \$2 coupon for every \$5 spent at farmers markets using an Electronic Benefits Transfer card.<sup>25</sup> Health Bucks coupons can be used to purchase fruits and vegetables at the market. This 40% increase in purchasing power encourages SNAP participants to spend more of their monthly food assistance allotment on fresh produce. Sales data analyses and program evaluations of Health Bucks provide data in support of these outcomes. In 2016 alone, more than \$1 million in SNAP benefits were redeemed at NYC farmers markets, with 62% of these SNAP dollars spent on fruits and vegetables.<sup>26</sup> Implementation of the Health Bucks program was also associated with increased resident awareness of farmers markets, increased frequency and amount of farmers market purchases, and greater likelihood of a self-reported year-over-year increase in fruit and vegetable consumption.<sup>27</sup> Similar results have been reported in other cities that have implemented financial incentives for healthy food purchasing, including Boston, Washington, DC, Philadelphia, Seattle, and San Diego.<sup>28</sup>

Such programs are feasible to implement at the city level,<sup>29</sup> address affordability of fruits and vegetables (major barriers to healthy eating among lower-income populations), and demonstrate potential for sustainability and scalability. With 1 in 8 Americans participating in SNAP, this incentive-based approach has the potential to make a substantial public health impact, particularly in urban areas.<sup>30</sup> Other benefits, such as attracting more farmers to the city and supporting the economic vitality of the local food system, may also be achieved.<sup>31</sup> Taken together, evidence to date renders SNAP incentives a valuable investment in health that will pay dividends for cities.

## 2. Taxation of sugar-sweetened beverages

Financial disincentives can also be used to prevent chronic disease by discouraging unhealthy dietary consumption. Sugar-sweetened beverages (SSBs) are a particularly effective dietary target given their well-documented contribution to the obesity epidemic.<sup>32</sup> For this reason, several cities in the US have passed SSB tax legislation in recent years — a challenging but notable feat.

Berkeley was the first city to do so, with a penny-per-ounce tax on SSBs that was implemented in 2015.<sup>33</sup> Revenue generated from this excise tax is put into a city-administered general fund that supports community- and school-based strategies to reduce SSB consumption and address its negative health effects. A city-appointed commission makes funding allocation recommendations to the city council, which has allocated \$5 million towards health programs since 2015.<sup>34</sup> While the revenue effects alone make it an attractive policy option, the SSB tax additionally generated positive public health benefits in Berkeley. Several studies have documented both short- and long-term changes in dietary habits. For instance, just four months after implementation, SSB consumption decreased by 21% in Berkeley (compared to a 4% increase in comparison cities) and water consumption increased by 63% (compared to 19% in comparison cities).<sup>35</sup> Another study found that SSB sales fell by 9.6% while water sales jumped by 15.6% in the first year of the tax.<sup>36</sup> More recently, researchers demonstrated that larger reductions (52%) in SSB consumption were sustained over three years.<sup>37</sup>

Further data will emerge as a handful of cities adopted SSB taxes in 2017, including Philadelphia, Boulder, Seattle, Oakland, San Francisco, and Albany (CA).<sup>38</sup> Results to date suggest that these SSB taxes are generating more revenue than anticipated, positively influencing consumer behavior, and able to withstand legal challenges in the state Supreme Court.<sup>39</sup> Mayors should be encouraged by the growing political will and voter support for SSB taxation and growing evidence of its efficacy as one of many strategies needed to combat obesity at the city-level.



### 3. Financial incentives for healthy food retailers in underserved neighborhoods

Policymakers can improve their city's food environment through financial mechanisms that attract healthy food retailers to areas lacking a full-service grocery store. A growing recognition of the role that food access plays in promoting healthy communities has sparked support for public-private food retail financing to bring long-lasting investments to underserved neighborhoods, including those that are low-income, have food deserts, or have been historically disinvested.

In 2011, New Orleans launched the Fresh Food Retailer Initiative that provides low-cost, flexible financing (e.g., forgivable and low-interest loans) for capital, real estate, and related expenses to enable operators to open, renovate, or expand food retail outlets that sell fresh fruits and vegetables.<sup>40</sup> To fund this initiative, the city provided \$7 million in Community Block Grant Disaster Recovery funds, which were matched 1:1 by the city's partner, the Hope Enterprise Corporation, for a total of \$14 million towards grocery store development in low-income, underserved communities. As of 2017, the New Orleans Fresh Food Retailer Initiative had financed 4 projects with a combined 70,000 square feet of food retail space, generated more than 200 jobs, and served nearly 50,000 people.<sup>41</sup> Other cities have pursued similar financing programs such as Washington, DC and New York City, who offer both financial and zoning incentives to grocers located in underserved communities.<sup>42</sup>

In addition to improving food access and preventing chronic disease, healthy food financing initiatives stimulate economic revitalization through new job opportunities and tax revenues, further commercial development, and increase neighborhood livability and property values.<sup>43</sup> With short-term and long-term benefits, this policy approach to the 'grocery gap' serves as a sustainable strategy to improve diet-related health outcomes.

### 4. Joint-use agreements for community-based physical activity

Municipal leaders can increase opportunities for physical activity in their communities by entering into joint-use agreements with local schools that make their recreational facilities available for community use during non-school hours. Public agencies, school districts, and community members alike recognize the potential health benefits and resource efficiency that such partnerships can produce.

In 2010, Los Angeles adopted 18 joint-use agreements in seven school districts serving under-resourced communities with high obesity rates.<sup>44</sup> This process was facilitated by two city agencies: a Department of Public Health task force and the Office of Education. Evaluations of this initiative demonstrated high use of the facilities by community members and found organized physical activity programming to be associated with greater usage of the facilities.<sup>45</sup> Similarly, a case study of a joint-use agreement at an urban school in Honolulu reported high awareness, uptake, and satisfaction among school-based users, the majority of whom indicated that the afterschool recreational classes helped increase their exercise levels.<sup>46</sup>

These case studies demonstrate that mayors and other local leaders can leverage existing infrastructure assets to promote local opportunities for physical activity and recreation. In an era of budget shortfalls, maximizing access to facilities — rather than developing new ones — can be an efficient and economical use of public resources.<sup>47</sup> Moreover, a shared-use strategy can yield community-wide benefits, including increased levels of physical activity — a key step to combating chronic disease and maintaining positive health.

## Conclusion

We recognize that no one city-level solution will be sufficient to combat obesity, and that each strategy presented here will vary in applicability, feasibility, and desirability across cities. Obesity is a multifaceted condition that requires numerous strategies across multiple levels of influence to drive shifts in population level changes. Our aim is to catalyze additional discussion and efforts to target obesity and chronic diseases at the city level to build a momentum and a culture of change that engages policymakers, scientists, industry, and the community for health promotion.



# Health Challenge 2: Tackling Opioid Addiction

By David Rosenbloom, Professor of Health Law, Policy & Management, Boston University School of Public Health

Deaths from drugs and alcohol have become so severe that they have actually driven down life expectancy for the entire US population over the past three years.<sup>48</sup> Opioid-related deaths in the US have gone up six-fold since 2000, rising from 8,000 in 1999 to more than 47,000 in 2017.<sup>49</sup> While there is some hope that deaths from opioids may have peaked nationally, deaths were continuing to rise in more than half the states in 2018.<sup>50</sup> To put this in perspective, the average American is now more likely to die from an opioid overdose than in a car crash.<sup>51</sup> Leadership by mayors in cities large and small is one of the reasons the epidemic may be decelerating. Below we present some examples of current strategies targeting the opioid epidemic:

## 1. Mayors are changing the way their communities deal with addiction and overdose by working with their Police Chiefs and officers to start a police-assisted addiction recovery initiative.

More than 500 police departments around the country have adopted “non-arrest” programs as their first response to an opioid overdose or incident. All these police directed programs have the same goals: prevent and reduce overdose deaths through widespread availability and use of naloxone, an easily administered medicine that reduces an overdose in minutes; increase entry to effective medication addiction treatment and recovery; and promote policy changes that will make treatment and recovery more accessible to those who need it.

There is no credible evidence that arrest and incarceration reduce or prevent drug use. There is, however, increasing evidence that non-arrest police interventions do save lives. Police officers are often the first to arrive at an overdose. When police officers and others are trained and equipped to administer the overdose reversal medicine, naloxone, the overdose death rate in the community goes down.<sup>52</sup> Several model police programs are currently being implemented that also go beyond naloxone interventions:

**Treatment Referral:** The Gloucester, MA and Scarborough, ME departments have police station-based walk in programs that provide immediate placement into addiction treatment for any person with an opioid disorder who asks for it.<sup>53</sup>

**Wrap Around Supports:** The LEAD programs in Seattle, WA and other cities have trained police officers and recovery coaches who visit overdose survivors and their families to make treatment, housing, job, and other resources available to help individuals get what they need to enter recovery.



**Integrated Care:** The Indianapolis, IN Mobile Crisis Assistance Team composed of an emergency medical provider, a police officer, and a mental health professional respond as a unit to overdose and other medically related calls. These on the spot interventions save lives, reduce arrests, and avoid some emergency room visits.

**Neighborhood-Based Interventions:** In cooperation with the Mayor’s Office of Addiction Services, the Boston, MA police department trained a cadre of officers to be recovery coaches and assigned them to neighborhoods with high drug and overdose rates to help opioid users get the treatment and other services they need.

**Regional Cooperation:** Police departments in smaller cities and towns are partnering with nearby departments and community agencies to implement countywide or regional programs to reach more people and make efficient use of resources. In Plymouth County, MA, for example, every police department is linked to a single database that tracks overdoses and follow-ups. All the towns share recovery coaches and partnerships with evidence-based treatment programs.<sup>54</sup>



## 2. Mayors are taking the lead to increase access to effective treatment for opioid use disorders.

Methadone, buprenorphine, and naltrexone are three medications that can prevent opioid deaths, reduce cravings that lead to early relapse, and help individuals enter long-term recovery.<sup>55</sup> Though these medications are not yet widely used for treating opioid use disorder, mayoral leadership is saving lives through promoting treatment in three main ways: supporting Medicaid expansion; getting jails and prisons to initiate effective treatment before and after a person with a substance use disorder is released to the streets; and working with hospitals and health centers to initiate immediate medication treatment for opioid use disorders in emergency rooms and clinics. Examples of strategies for implementation are presented below:

**Coalition-Building:** Mayors are convening and leading coalitions and task forces to develop comprehensive plans to end the opioid epidemic in their communities. The key to the success of these efforts will be the actions taken by the participants after the reports are written. Mayors are in a unique position to provide advocacy and accountability by getting public commitments from public and private agencies and then keeping track of whether they are met. The Mayor of Philadelphia convened a broad task force that made specific recommendations for expanding medication treatment, improving access for low-income individuals, and initiating treatment in hospital emergency rooms. The city has regularly published updates that report on how specific institutions are following through on their commitments.<sup>56</sup>

**Advocating for Treating During Incarceration:** Municipalities can advocate on behalf of those who are incarcerated to ensure they receive adequate treatment. The majority of individuals released into communities from jails and prisons have a drug or alcohol addiction and are 150 times more likely to die in the months following release than an average person<sup>57</sup> in the absence of connection to treatment. Mayors and other local leaders in Massachusetts,<sup>58</sup> Rhode Island,<sup>59</sup> New Jersey, and other States have led efforts to enact policies that require initiation of medication drug treatment before release with a warm handoff to a community-based health care provider for continuing treatment.

## 3. State and local leaders are waging additional battles in the courts.

Mayors and Attorneys General throughout the country are suing the pharmaceutical manufacturers and distributors of opioid medications to hold them accountable for the lives lost and public costs incurred due to the irresponsible promotion and distribution of addictive prescription opioids. Suits by more than 30 states and cities have been consolidated into one case in Ohio. New York City, for example, filed suit in March 2019.

## Conclusion

The nationwide opioid epidemic is acutely felt in the streets and homes of our communities. It is at the community level where mayors and other local leaders can take action to stem the tide of this epidemic. Visible leadership by mayors to reduce overdose deaths and promote treatment of addiction as a disease, as described in this brief, will have an important added benefit of reducing the stigma and discrimination against individuals with addiction that has often prevented action and support in the past. Mayors are also key partners in initiating or advocating for programs or policies needed to target upstream drivers of opioid use disorder and deaths, such as changes in pharmaceutical and medical policies and practices in pain management, investment in mental health well-being, and adoption of policies that create equitable opportunities for socially and economically disadvantaged populations.

## Additional resources

Police Assisted Addiction Recovery Initiative: PAARI provides support and resources to police departments across the US that are creating non-arrest pathways to treatment and recovery. [www.paariusa.org](http://www.paariusa.org)

The National League of Cities 2018 report, *Opioid Use Disorder: City Actions and Opportunities to Address the Epidemic*, details additional interventions underway in cities across the US.

<https://www.nlc.org/resource/opioid-use-disorder-city-actions-and-opportunities-to-address-the-epidemic>



# Health Challenge 3: Mitigating Gun Violence

by Shea Cronin, Assistant Professor of Criminal Justice, Boston University Metropolitan College and Katelyn Collins, Graduate Research Assistant, Boston University Department of Applied Social Sciences

Across the US, over 14,500 people were killed in a gun-related homicide in 2017 and the age-adjusted rate stood at 4.6 per 100,000 population (roughly 15% higher than the previous 20 years).<sup>60</sup> Annual rates of gun-related homicide in the US are typically over 20 times higher than average rates of other high-income countries.<sup>61</sup> Seeing firsthand the harms of gun violence to individuals, families, and communities in their cities, mayors recognize the need to prioritize this issue. We outline several key recommendations to address gun violence in cities based on evidence from the field.

## 1. Drive public discourse and policymaking with a clear understanding of the concentrated nature of gun violence in cities.

First, data from 1991 through 2016 show that the largest cities (those with populations of 100,000 or more) do, in fact, have rates of gun-related homicide that are at least 3 times higher than smaller localities.<sup>62</sup> Next, this higher rate of violence is decidedly concentrated geographically across places within cities. Across a representative sample

*“City leaders face barriers to directly shaping gun regulations, as they lack direct control over state legislation, and in 40 states are even prohibited from passing city ordinances.”*

of large cities, half of census tracts never had a homicide over a three-year period (1999-2001), but less than 5% made up more than 30% percent of the homicides.<sup>63</sup> Third, although gun violence varies across larger areas, such as neighborhoods, there is considerable variation even within those areas.<sup>64</sup> In Boston, one study found that the spatial concentration of gun violence was remarkably stable from 1980 to 2010: only 1% of *street segments* experienced one or more gun assaults in any given year and nearly 90% of segments never had even a single incident over those four decades.<sup>65</sup> Fourth,

gun violence also takes many forms (e.g. intimate partner violence) within large cities, even though the dominant pattern is that of violence concentrated among gang- and justice-involved young men used in retaliation for prior violence and to settle disputes. For example, a study from Chicago showed 85% of gun injuries occurred within one social network<sup>66</sup> and a follow-up study showed that “contagion” — spread of gun violence from person to person like a disease — explained the majority of gun violence.<sup>67</sup> Whether concentrated geographically or through social networks, gun violence inflicts enormous and irreparable harm on individuals, families, and communities. Mayors should use these facts about violence to dispel myths about “out-of-control” cities and “high-crime” neighborhoods and to act as the catalyst for adopting evidence-based responses.

## 2. Support community-based violence interventions that target individuals, families, and communities most at-risk for experiencing violence.

There is a wide variety of community-based approaches to preventing and reducing violence. Here we focus on approaches thought to have the most immediate impact on gun violence among the young people most at risk or actively involved in the violence-related behaviors. Inspired by Chicago’s *CeaseFire* model, one popular type of intervention uses street outreach workers to “interrupt” potentially violent disputes and stop retaliation. These approaches are grounded in the contagion hypothesis, where violence is thought to be spread within social networks due to exposure. Similar types of programs have been associated with reductions in gun violence outcomes in Chicago<sup>68</sup>, Baltimore<sup>69</sup>, and New York.<sup>70</sup> Most recently, an evaluation of the *Gang Reduction Youth Development* program in Los Angeles found that the program reduced retaliatory violence by nearly half.<sup>71</sup> Although not all examples have demonstrated effectiveness and other limitations exist, part of the appeal to city leaders is that such programs minimize costs associated with enforcement and incarceration and directly engage community organizations.<sup>72</sup> Even effective police-centered interventions such as those outlined below necessitate the involvement of organized community groups and programs.



### 3. Implement tailored community- or problem-oriented policing approaches in partnership with organized community stakeholders.

*Community-oriented policing (COP)* approaches, defined as broad and significant reforms to organizational structures and processes of police agencies, are not yet well understood. Unlike well-known approaches such as bike patrols, police athletic leagues, and police-sponsored ice crime trucks, COP approaches are a long-term endeavor with benefits that are delayed and less easy to measure. When focusing on a specific crime problem, such as gun violence, departments should integrate COP approaches along with strategies that follow principles of problem-oriented policing (POP). A *problem orientation* calls for law enforcement to focus on the underlying conditions that give rise to crime events, rather than merely on individual incidents, which are part of the standard model of policing's traditional enforcement approach. POP follows a four-stage *problem-solving process* that includes scanning, analysis, response, and assessment (SARA), rather than some preset, "out-of-the-box," program or initiative. Crucial among these steps are analyses based on multiple sources of information that guide strategic responses tailored to the problem in a particular place and time. Given that the drivers of problems such as gun violence are multifaceted and complex, responses should include *non-enforcement* components. For example, other than stop, search, and arrest practices, efforts such as street outreach by service providers and gang mediation may address the conditions giving rise to gun violence. Finally, and perhaps most importantly, engaging with the community and other sectors to understand the underlying causes of gun violence and collectively work towards community-driven strategies are needed to maximize intervention effectiveness and sustainability.

POP approaches implemented with fidelity are challenging for police agencies to employ given finite resources, but have demonstrated effectiveness. A well-known evidence-based example of POP is the *Boston Gun Project/Operation Ceasefire* model implemented during the 1990s, which was credited with a 63% decline in youth homicide, 32% decline in shots-fired, and 25% decline in gun assaults overall.<sup>73</sup> Replications of this project in Lowell<sup>74</sup>, Richmond<sup>75</sup>, and other locations<sup>76</sup> demonstrate the extent to which POP approaches can reduce serious crime.

City leaders can directly promote the implementation of COP and POP by: 1) creating roles to champion and coordinate these efforts within police departments; 2) providing funding support to build analysis capacity; 3) facilitating multiagency partnerships and breaking down barriers (e.g., to trust, information sharing, budgeting); and 4) encouraging community organization participation through grants and other mechanisms.

### 4. Employ deterrence-based enforcement strategies that are highly focused, fair, and legal.

The dominant approach of most large city police agencies is to employ stop-and-search practices to uncover guns possessed illegally, which is thought not only to get guns off the street, but to send a deterrence message. Where targeted within the right micro-places (e.g., specific streets and blocks) with the highest rates of gun violence (e.g., true "hot spots"), "focused deterrence" efforts are effective, according to a review of extent literature.<sup>77</sup> Part of the success of *Boston Gun Project/Operation Ceasefire* is attributed to its focused deterrence approach, which targeted only those gangs actively involved in violent disputes in specific locations. Even more promising may be efforts that focus deterrence beyond spatial concentrations of crime to individuals and groups (e.g., gangs) most involved in violence. Building off one aspect of the *Operation Ceasefire* model, police departments have employed Violence Reduction Strategies (VRS) that use "call-ins" to communicate a clear deterrence message about gun possession and violence to high-risk individuals known to





law enforcement and community organizations. An Urban Institute evaluation of VRS in Chicago found that the individual participants *and* the groups to which they belonged were involved in over 20% fewer shootings than controls.<sup>78</sup> A clear advantage of these successful approaches is the utilization of *communication strategies* to send the message about the consequences — rather than street-level enforcement alone, which comes with negative consequences.

City leaders need to be aware of the costs associated with enforcement efforts, especially those not following the principles of targeted, tailored, and rare. High rates of suspicion stops and searches, even to achieve “#onelessgun” in the neighborhood, can 1) unduly burden residents, 2) place both officers and residents at risk for a violent encounter, 3) increase prosecution and incarceration costs, and 4) foster community distrust of police.<sup>79</sup> As such, city police should not engage in a broad or sweeping approach to street-level guns enforcement, such as those used as part of a general “broken windows” or order-maintenance policing (OMP) strategy. Research on the effectiveness of a generally-applied OMP is mixed and where effects are observed, it is modest.<sup>80</sup> Certainly, officers should not be allowed to engage in enforcement efforts that lack specific, credible indicators of illegal gun possession that can come with OMP (i.e. “fishing expeditions”).<sup>81</sup> Here the questionable legality of stops and searches, the potential for implicit and explicit biases to drive decisions, and the low probability of finding illegal guns means that the costs of enforcement far outweigh the uncertain benefits.<sup>82</sup> City leaders must accompany any focused enforcement efforts with sound accountability and oversight. The costs (e.g., harm to individuals, lost trust, etc.) are all the more reason for city leaders to advocate for effective policies that reduce access to guns in the first place.<sup>83</sup>

## **5. Advocate for strengthening gun regulations in your state and in surrounding states.**

City leaders face barriers to directly shaping gun regulations, as they lack direct control over state legislation, and in 40 states are even prohibited from passing city ordinances.<sup>84</sup> Additionally, successful efforts to alter regulations in their own states are undermined by the flow of guns originally purchased in other states and used in crime in their own cities.<sup>85</sup> These challenges aside, cities bear the brunt of guns-related violence and one of the most impactful ways of reducing the frequency of gun violence is to strengthen laws that reduce access to guns — especially access to individuals that should not have access to guns. For example, a recent study from Boston University’s School of Public Health found that universal background checks reduced gun-related homicide by 15%<sup>86</sup> and another study suggests background check laws have even stronger effects for large cities in particular.<sup>87</sup> By strengthening regulations, states can make easier the efforts of police and community organizations striving to reduce gun violence in their communities.

## **Conclusion**

Injuries and deaths from gun violence are among the top most preventable morbidities and mortalities we face in our communities, cities, states, and as a nation. Though much needs to be done, findings from the Menino Survey indicate that mayors recognize the toll of gun violence and their role as local leaders to combat this deadly epidemic. Mayors are uniquely positioned to prioritize effective solutions to gun violence and to support their implementation through city government and community organizations.



# Health Challenge 4: Averting Traffic Crashes

by Katharine Lusk, Co-Director, Boston University Initiative on Cities

In the 2018 Menino Survey, mayors cited traffic accidents as the leading public health issue for which their constituents hold them accountable. As a point of comparison, more than 70% of mayors believe their constituents hold them accountable for traffic crashes in their community, whereas fewer than 10% believe they are held accountable for obesity.

**All Motor Vehicle Fatalities:** According to the Centers for Disease Control (CDC), motor vehicle crashes were the leading cause of injury death for five to 24 year olds in 2017, and the second leading cause for people between the ages of 25 and 64.<sup>88</sup> In total, the National Highway Traffic Safety Administration reports that more than 37,000 people died in vehicular crashes in the US that year.<sup>89</sup> While raw numbers indicate far too many deaths, the number of miles traveled in relation to the fatalities suggests a promising trend. Between 2016 and 2017, there was an increase of 1.2% in vehicle miles traveled (VMT), but a decrease in the fatality rate per 100 million VMT.<sup>90</sup>

**Pedestrian Fatalities:** After declining steadily between 1990 and 2008, pedestrian deaths have increased by 35% over the last 10 years, even while other types of vehicular deaths have gone down.<sup>91</sup> The Governors Highway Safety Association projects that more than 6,200 pedestrians were killed in vehicular crashes in 2018, the highest number in nearly three decades. Nearly a third of pedestrians fatally struck had elevated blood alcohol levels and 75% of fatalities occurred after dark. 42% of pedestrians killed were struck by a passenger car.

**Cyclist Fatalities:** The Insurance Institute for Highway Safety reported 848 fatal cyclist crashes involving motor vehicles in 2016, the most since 1990.<sup>92</sup> Seven hundred and seventy-seven cyclists died in 2017, which still represents a 25% increase since fatalities fell to their lowest point in 2010. Seventy-five percent died in crashes in urban areas, the highest proportion of urban deaths ever recorded in the US. A third of deaths occurred at intersections.

## How can cities best protect pedestrians and cyclists?

While the improved design of motor vehicles has contributed to reduced vehicle fatalities,<sup>93</sup> pedestrian and cyclist crashes continue to increase. Mayoral and constituent concern is justified as most traffic-related fatalities are preventable. Local officials currently use a variety of intervention strategies to reduce traffic-related injuries and save constituent lives. Many of these interventions produce the added benefits of promoting walkable, bikeable cities, which can promote population health, reduce car dependency and lower emissions. The recommendations below focus on opportunities to protect pedestrians and cyclists specifically, as many relevant actions are within the purview of local officials. However, it is important to note that these interventions are most likely to be effective when implemented in the context of multi-faceted, integrated approaches.





## 1. Gather and leverage data for improved decision-making:

**Gather vehicle, pedestrian, and cyclist crash data:** Local leaders need to understand where and when crashes occurred, who was affected and what factors contributed to the crash. Time of day, type of vehicle, location of crashes, lighting conditions, speed at which a vehicle was traveling, and many other contributing factors all offer valuable and actionable insight to prevent future collisions. The City of San Jose used existing crash data to identify 14 “Priority Safety Corridors,” where a disproportionate number of fatalities and significant injuries had occurred. They further determined that pedestrians comprised the majority of fatalities, with half struck outside of crosswalks. These corridors became the focus of both improved engineering and enforcement efforts.<sup>91</sup> Crash data currently gathered by police may be inadequate,<sup>92</sup> so leaders could require more standardization and rigor in the collection of crash data as well as work with emergency services to get access to additional injury data. In addition to improving city-generated data, communities may need complementary data sources as even improved police and emergency reports will underestimate injuries and do not account for “near misses.” Residents could be encouraged to report incidents via tools like bikemaps.org. MapMyRide and Strava may also allow cities to understand popular cycling routes for the subset of riders who have access to these digital applications. Some bike sharing and e-scooter services also have GPS data, which can reveal popular routes frequented by their riders.

**Analyze vehicle-type data:** While municipalities cannot regulate what people drive, it is important to understand the local prevalence of vehicle types as some pose higher risks than others. Pedestrians struck by a light truck or van, including SUVs, are two to three times more likely to die as those struck by a car, as these larger vehicles tend to strike the victim higher on the body and with more force, resulting in more serious injury to the head and chest.<sup>93</sup> Areas where these vehicle types are more prevalent may warrant additional precautions.

## 2. Reduce vehicular speeds:

Speeding is one of the most common causes of motor vehicle crashes. Just over 30% of all traffic fatalities are speeding-related, on par with alcohol-related fatalities.<sup>94</sup>

**Lower speed limits:** Higher speeds both increase the likelihood of being involved in a crash and the likelihood that a crash results in fatalities.<sup>95</sup> A pedestrian struck by a car traveling at 24 miles per hour has a roughly 10% chance of dying. One struck at 33 mph has a 25% chance of dying, but a 50% chance of severe injury. At 41 mph, the odds of an adult pedestrian getting killed are 50%, while the odds of severe injury are 75%.<sup>96</sup> Risks increase with age: A 70 year-old has a 50% chance of dying when struck by a car traveling at 34 mph.<sup>97</sup> In order to slow down vehicles, London has been creating 20 mph speed zones in neighborhoods throughout the city for over 30 years, with resident input. The zones were associated with a 42% reduction in road fatalities and a 17% reduction in cyclist fatalities in those districts. The number of killed or seriously injured children was halved within these zones.<sup>98</sup> Studies of other countries and cities have shown increased safety with the implementation of 20 mph zones and limits, and highlighted how local stakeholder engagement during the planning process can improve constituent perception and approval.<sup>99</sup>

**Improve enforcement, particularly in high-risk zones and around vulnerable groups:** Proper enforcement of laws and regulations is critical. Automated speed enforcement, including fixed or portable speed cameras and mobile speed vans, has been shown to reduce speeding and injury crashes. Montgomery County, MD has been using speed cameras since 2007 in residential districts and near schools. Multiple studies in the district have shown that the cameras have contributed to lower speeds, and reduced the likelihood that a crash results in a fatality or incapacitating injury.<sup>100</sup> In 2012, the County also introduced “speed camera corridors,” which are long stretches of roadway that feature cameras. Cameras are moved periodically to reduce the likelihood cars will slow down only where they know a camera to be present. The routes have signage clearly indicating they are speed camera corridors.<sup>101</sup> Some communities are also installing cameras on school buses to deter, or catch, speeding and passing violations.<sup>102</sup>



**Put roads on a diet:** The National Association of City Transportation Officials recommends vehicle travel lane widths of 10 feet in urban areas — where they are commonly 11 to 13 feet — as these contribute to slower vehicular speeds and reduce crossing distances for pedestrians.<sup>103</sup> Road diets often commonly reallocate more space for pedestrians and cyclists, including bike lanes and widened sidewalks. In the 2015 Menino Survey, 70% of mayors supported giving up parking and driving lanes in favor of improved bike accessibility.<sup>104</sup>

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*“In 2017, 72% of pedestrian fatalities and 51% of cyclist fatalities involving motor vehicles occurred between 6 PM and 6 AM.”*

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### 3. Improve street visibility of cyclists and pedestrians at night:

In 2017, 72% of pedestrian fatalities and 51% of cyclist fatalities involving motor vehicles occurred between 6 PM and 6 AM. Six PM to midnight is the deadliest time period, with half of pedestrian fatalities and 38% of cyclist deaths occurring in that timeframe.<sup>105</sup>

**Enhance lighting:** Lighting improvements help to ensure drivers can more easily see pedestrians and cyclists, and that cyclists can more easily see hazards. Lighting roads has been shown both to reduce the number and the severity of cyclist injuries.<sup>106</sup> While more lighting is generally better, present road lighting standards may not be grounded in empirical evidence — suggesting there may not yet be a known “optimal” level.<sup>107</sup> Florida allocated \$100 million for lighting improvements in 2,500 priority locations to increase the visibility of pedestrians at night.<sup>108</sup>

### 4. Prioritize pedestrian safety via improved infrastructure and policy:

Communities need to prioritize protecting pedestrians, particularly the elderly, disabled, and children who may be traveling more slowly or are less visible to drivers. Certain neighborhoods may also be more vulnerable to traffic-related accidents. Within metro areas, low-income neighborhoods have been shown to experience twice the rate of pedestrian fatalities per capita relative to affluent neighborhoods.<sup>109</sup>

**Invest in sidewalks:** Widely varying funding models — from municipal responsibility to abutter responsibility to some shared formula — have resulted in inadequate, unequally distributed or virtually nonexistent sidewalk facilities in some communities.<sup>110</sup> In the 2015 Menino Survey, mayors prioritized bike and pedestrian infrastructure as the top spending priority for a small unrestricted capital grant, suggesting an important unmet funding need.<sup>111</sup> Communities with more resources may choose to bear the full cost, while others may choose to strategically allocate funds. In 2015, the City Council of Princeton, NJ voted to take on the full cost of sidewalk construction and repair, eliminating abutter cost-sharing requirements.<sup>112</sup> Indianapolis used the \$500 million proceeds from the sale of its water and sewer utility (to a public trust) to invest in community priorities, with sidewalks and bike infrastructure topping the list.<sup>113</sup> Boston, which has more than 1,600 miles of sidewalks to maintain and no cost-sharing requirements, conducted a walk audit of every block of sidewalk in the city. The data is being used to remedy past inequities and prioritize sidewalks of poorest quality.<sup>114</sup> Programs like Safe Routes to School may also provide communities with additional resources to improve the safety of children as they bike or walk to school.

**Improve pedestrian crossings:** New York City successfully employed a range of street treatments to dramatically lower injury crashes at intersections, including more and more visible crosswalks, demarcated turning lanes, extended sidewalks and median crossing islands to shorten pedestrian distances and slow down cars, and other improvements.<sup>115</sup> Pedestrian activated beacons have been shown to reduce crashes at locations that lack stoplights: Tucson, AZ pioneered the use of hybrid beacons, formerly known as HAWKS (High Intensity Activated Crosswalk), which allow pedestrians to activate flashing lights — or flashing lights which become a red stop light — before crossing.<sup>116</sup> Raised crosswalks, speed bumps, and removing parking spaces near crosswalks to improve pedestrian visibility (aka “daylighting”)<sup>117</sup> are additional ways cities can improve sight lines and bring attention to pedestrians.

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*“Raised crosswalks, speed bumps, and removing parking spaces near crosswalks to improve pedestrian visibility (aka “daylighting”) are additional ways cities can improve sight lines and bring attention to pedestrians.”*

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## 5. Prioritize cyclist safety via improved infrastructure and policy:

**Build protected, separated bike lines:** Protected bike lanes, also referred to as cycle tracks, are bike-specific facilities that separate cyclists from vehicular traffic via a curb or other physical barrier. By separating cyclists rather than simply painting bike lanes, particularly on busy streets, cities have been able to reduce collisions and lower injury risk.<sup>118</sup> Protected lanes, which are sometimes referred to as “high comfort” lanes, contribute to increased cycling rates by providing a greater sense of security to a wider range of cyclists, and have been shown to be popular among residents regardless of whether they cycle.<sup>119</sup> The City of Cambridge, MA recently became the first US city to require that permanent separated bike lanes be built on streets slated for reconstruction. The ordinance applies to the priority routes identified as part of its bike infrastructure plan.<sup>120</sup>

**Mandate installation of sideguards on large trucks:** Sideguards cover the exposed space between the wheels of high clearance vehicles, and have been mandated in many other countries for decades. By covering the open space, they prevent cyclists and pedestrians from being dragged under the body of a vehicle. After the UK enacted a sideguard requirement in the 1980s, cyclist fatalities went down by 61% and pedestrian fatalities by 20% for side impacts with large trucks.<sup>121</sup> The City of Boston passed a side guard ordinance in 2015 that requires city-owned vehicles and municipal contractor vehicles over a certain size to have sideguards, convex mirrors, cross-over mirrors and blind-spot awareness decals.<sup>122</sup> Boston’s Mayor has made broader side guard requirements one of his state-level legislative priorities.<sup>123</sup>

This summary surfaces some of the more recent evidence and opportunities to address traffic-related fatalities. With respect to future initiatives, cities need to consider their current roadways, resident demographics, historic inequities, financial resources, and travel patterns to identify the solutions that will have the greatest local impact. They must also consider distracted driving,<sup>124</sup> which is a significant adverse consequence of mobile phone ubiquity, and emerging modes of transportation (e.g., e-scooters<sup>125</sup> and e-bikes) and related risks these may pose for constituents. Collaborations across urban planning and engineering, enforcement, education, and public health can help cities systematically address pedestrian and cyclist safety, while also increasing cities’ livability and overall well-being. When it comes to protecting individuals traveling by wheel or foot, there are many paths forward.

### Additional resources

NACTO: National Association of City Transportation Officials: An association and idea exchange for 68 North American cities and 11 transit agencies. <https://nacto.org/>

Vision Zero Network: A coalition of more than forty US cities that have pledged to eliminate traffic fatalities in their community within a specific timeframe. <https://visionzeronetwork.org/>



## METHODOLOGY

*Mayors & the Health of Cities* is based on both primary and secondary data.

Our team gathered metrics pertaining to 19 health issues and outcomes in US cities. The majority of health metrics were derived from the City Health Dashboard 500 Cities data set, available at [www.cityhealthdashboard.com](http://www.cityhealthdashboard.com). The complete Dashboard includes 37 measures for the 500 largest cities in the US. All methodology information pertaining to those metrics is available at their website.

City Health Dashboard measures were complemented with additional data, including gun violence, traffic fatalities, health governance structures in cities, and Medicaid state status, from other sources noted below:

**Traffic Fatalities:** Total traffic fatalities per municipality were based on counts of fatal traffic crashes reported by the US Department of Transportation's National Highway Traffic Safety Administration (NHTSA) in 2017. NHTSA data was matched to a city using the Graphic Locator Codes (GLC). Some cities do not appear in the GLC list, however, and had to be matched manually based on the reported location of fatalities. Traffic fatalities were then calculated as a rate per 100,000 residents based on the 2016 Census Bureau's population estimates.

**Gun-related Homicides:** To construct guns-related homicide counts for 2016, we chiefly used the Supplementary Homicide Reports (SHR) file provided by Dr. James Fox of Northeastern University (*Fox, James Allen (2018). Multiple-imputed Supplementary Homicide Reports File, 1976-2016. School of Criminology and Criminal Justice, Northeastern University, Boston, MA.*) These data use a multiple-imputation procedure to account for missing data in the original SHR data available through the Federal Bureau of Investigation's Uniform Crime Reports (UCR). SHR data capture information about homicide incidents at both the victim and offender levels and included a variable about the weapon used in the homicide. All victims killed by a gun of any type were summed within each police agency in 2016. This dataset was then matched to the 110 cities participating in the 2018 Menino Survey of Mayors. Of note, the SHR file lacked data for 13 cities in our sample. The authors then used local news reports compiled by the Gun Violence Archive ([www.gunviolencearchive.org/](http://www.gunviolencearchive.org/)) to ascertain whether any gun related homicides had occurred within those cities in 2016. Eight of the 13 experienced gun-related homicides; these deaths were also added to the dataset. Finally, gun related homicides were calculated as rates per 100,000 residents using 2016 Census Bureau population estimates.

**Health Agencies:** Health governance structures for Menino Survey of Mayors participating cities were collected via cities' official websites. We coded these health structures under three categories: 1) municipal, 2) county, and 3) regional, depending on which level of government is in charge of overseeing health policy and programs for each city.

**Medicaid States:** Medicaid states were identified using 2019 data from the Henry J Kaiser Family Foundation.

The final health metric dataset was appended to the 2018 Menino Survey of Mayors database, which includes a representative sample of 110 cities with populations over 75,000. The annual Menino Survey uses a combination of open- and closed-ended interview-administered questions to explore a myriad of salient local issues and policy priorities. All mayors of cities with 75,000 or more residents (N=472) were invited to participate. Each mayor received an email invitation from the Boston University Menino Survey of Mayors team at their official email account, and follow-up phone calls. The vast majority of interviews were conducted in-person or over the phone with assured confidentiality of mayor and city identity to encourage participation and enhance recruitment of a representative sample. In 2018, 110 mayors participated in the interviews, yielding a 23.3% response rate that is comparable to other studies of local policymakers.<sup>126</sup> Participants discussed issues ranging from health policy to economic development to relationships with their city councils. Our sample of 110 cities is sociodemographically and regionally representative of the pool of cities from which they were drawn (see Table 11), as well as comparable to the 500 largest US cities with respect to a variety of health indicators (see Table 12).



**Table 11: Demographic Comparison of 2018 Menino Survey Sample to All US Cities with Populations >75,000<sup>v</sup>**

	<b>Menino Survey</b>	<b>All Cities</b>
<b>Number of Cities</b>	110	472
Average Population	231,923	225,087
Average Percent White	56%	49%
Average Percent Black	14%	14%
Average Percent Hispanic	19%	25%
Average Median Housing Price	\$237,795	\$257,345
<b>Region</b>	<b>% of Sample</b>	<b>% of Cities</b>
Northeast	9%	10%
Midwest	22%	16%
South	33%	33%
West	36%	40%

<sup>v</sup> Source: 2016 American Community Survey (ACS), published by the US Census Bureau.

### **Robustness check: comparing the largest 500 cities in the US and the 2018 Menino Survey sample (N=110 cities)**

We perform an additional robustness check to examine the extent to which our sample is representative of the largest 500 cities in the US by looking at health metrics on obesity/heart disease/diabetes, opioids/addiction, health care access, environment, access to healthy foods, mental health, poverty, aging and infant mortality. Table 12 displays the average rate for each of these metrics in cities of the 2018 Menino Survey sample and those averages for the largest 500 cities in the US. With the exception of rates of uninsured, the Menino Survey sample was not statistically different from that of the 500 largest cities in the US, indicating that our sample is representative of US cities with populations over 75,000 with respect to the health indicators compared.



**Table 12: Robustness Check: Comparing 500 Cities vs. 2018 Menino Survey Sample**

Metric	City Health Dashboard Sample (N=500)	2018 Menino Survey Sample (N=110)
Air Pollution — Particular Matter (PM2.5) per cubic meter	9.627	9.616
Binge drinking among adults aged <sup>3</sup> 18 years (%)	17.656	17.854
Children in poverty (%)	22.625	21.939
Diabetes among adults aged <sup>3</sup> 18 years (%)	9.998	9.775
Frequent mental distress over past 30 days among adults aged <sup>3</sup> 18 years (%)	12.833	12.745
Lead exposure risk index	5.500	5.536
Limited access to healthy foods (live > ½ mile from the nearest supermarket, supercenter, or large grocery store) (%)	61.911	63.717
Obesity among adults aged <sup>3</sup> 18 years (%)	29.248	29.322
Physical inactivity in last month among adults aged <sup>3</sup> 18 years (%)	23.992	23.385
Preventive services (adults aged ≥ 65 years who are up to date on a core set of clinical preventive services) (%)	32.586	33.669
Current smoking among adults aged <sup>3</sup> 18 years (%)	17.394	17.685
Currently uninsured among those aged 0-64 years (%)*	12.860	11.888
Violent crime offenses (murder, aggravated assault, robbery, forcible rape) per 100,000	513.546	527.674
Walkability (index score: 0-100)	44.509	43.477
Cardiovascular disease deaths per 100,00	209.421	205.875
Opioid overdose deaths per 100,000	11.721	13.327
Prenatal care (births for which prenatal care began in the first trimester) (%)	78.351	77.803
Low birthweight (< 2500 grams among live births) (%)	8.156	8.212
Park access (live within 10 minute walk of green space) (%)	60.596	61.988

Note: Air pollution is measured using the average daily concentration of fine particulate matter (PM2.5) per cubic meter annually; Lead exposure risk is measured using the poverty-adjusted risk of housing-based lead exposure (index); Walkability is measured through the neighborhood amenities accessible by walking as calculated by the Walk Score (index).

\*After performing a one sample t-test comparing the mean for “Uninsured” in the Menino sample and the 500 cities sample, we found that this variable in the Menino Sample is statistically different to the sample from the 500 cities at the p-value<0.01 level.

Source: City Health Dashboard



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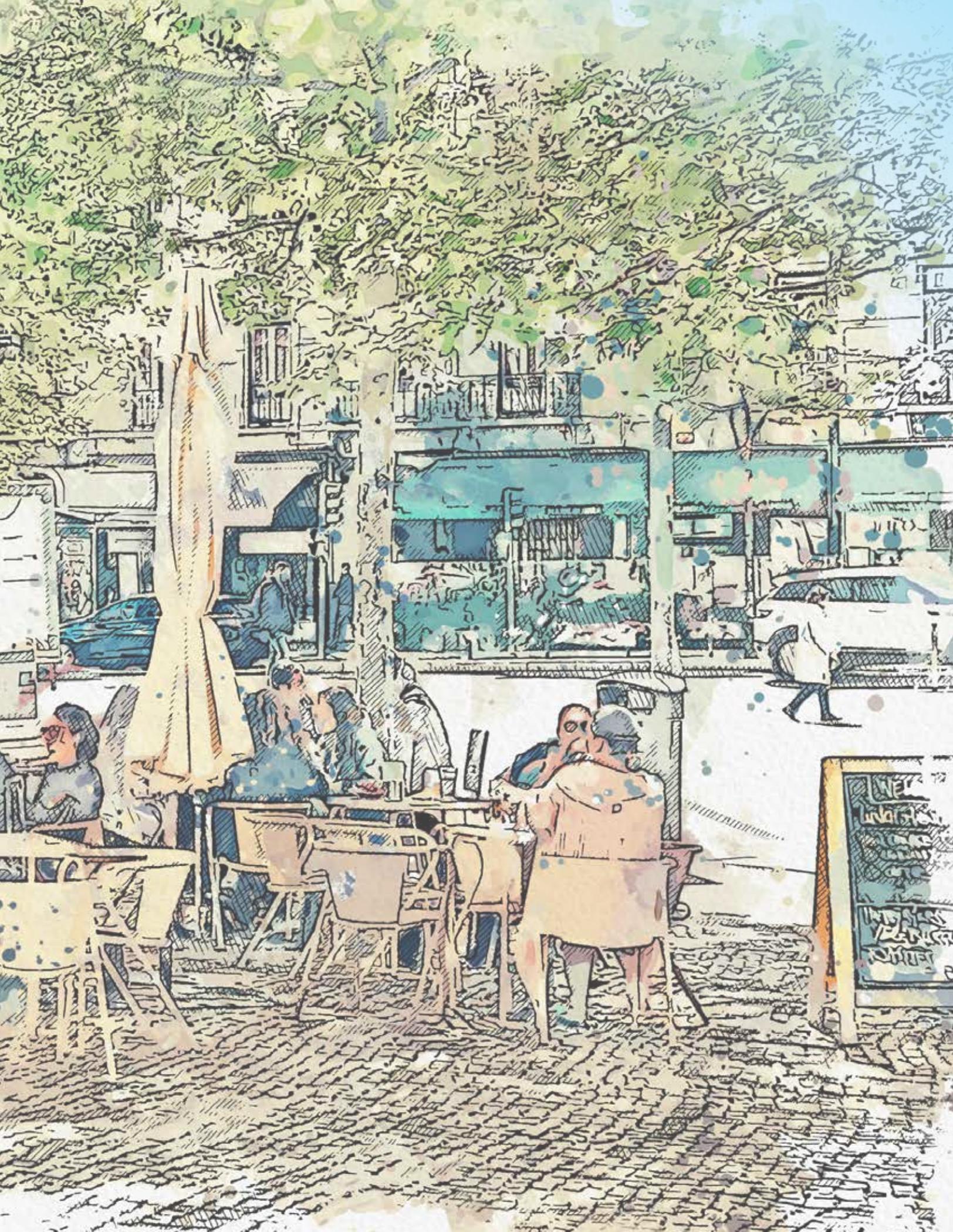


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