

# US Mayors' and Health Commissioners' Opinions About Health Disparities in Their Cities

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**Objectives.** To characterize US mayors' and health commissioners' opinions about health disparities in their cities and identify factors associated with these opinions.

**Methods.** We conducted a multimodal survey of mayors and health commissioners in fall–winter 2016 (n = 535; response rate = 45.2%). We conducted bivariate analyses and multivariable logistic regression.

**Results.** Forty-two percent of mayors and 61.1% of health commissioners strongly agreed that health disparities existed in their cities. Thirty percent of mayors and 8.0% of health commissioners believed that city policies could have little or no impact on disparities. Liberal respondents were more likely than were conservative respondents to strongly agree that disparities existed (mayors: odds ratio [OR] = 7.37; 95% confidence interval [CI] = 3.22, 16.84; health commissioners: OR = 5.09; 95% CI = 3.07, 8.46). In regression models, beliefs that disparities existed, were avoidable, and were unfair were independently associated with the belief that city policies could have a major impact on disparities.

**Conclusions.** Many mayors, and some health commissioners, are unaware of the potential of city policies to reduce health disparities. Ideology is strongly associated with opinions about disparities among these city policymakers.

**Public Health Implications:** Information about health disparities, and policy strategies to reduce them, needs to be more effectively communicated to city policymakers. (*Am J Public Health.* 2018;108:634–641. doi:10.2105/AJPH.2017.304298)

 See also Luangrath and Wen, p. 588.

“And if life in large cities is, in itself, injurious to health, how great must be the harmful influence of an abnormal atmosphere in the working-people's quarters, where, as we have seen, everything combines to poison the air.”

—Friedrich Engels, 1845<sup>1</sup>

“The high infantile mortality of Philadelphia today is not a Negro affair, but an index of a social condition.”

—W.E.B. DuBois, 1906<sup>2</sup>

Health disparities—defined as differences in health between socially advantaged and disadvantaged groups<sup>3</sup>—are an enduring feature of cities.<sup>1,2,4–6</sup> However, city governments have the potential to reduce health disparities, and a growing body of evidence indicates the specific policy strategies city

governments can use to achieve this.<sup>7,8</sup> Furthermore, city policies are increasingly important to health equity—defined as equal opportunities for health between socially advantaged and disadvantaged groups<sup>3</sup>—in the United States as federal policy changes threaten to disproportionately burden socially marginalized groups.<sup>9,10</sup>

The potential for city policies to promote health equity is clear, but there is much uncertainty about how to persuade city policymakers to support and implement these

initiatives.<sup>11</sup> As David Williams writes,<sup>4</sup> translating research about health disparities into public policy requires that the public and policymakers are knowledgeable about disparities and their causes. To advance this goal and inform the design of communication strategies, a substantive body of research has characterized opinions about health disparities among the US public.<sup>12–23</sup> These studies show that only about 50% of US adults believe that health disparities exist<sup>14,15</sup> and that medical, as opposed to socioeconomic, factors are considered the primary determinants of health.<sup>15–18</sup> Ideologically conservative adults consistently are found to be less knowledgeable about health disparities and resistant to messages about their causes.<sup>19–22</sup>

Although opinions about health disparities have been extensively studied among the general public, surprisingly little research has focused on the policymakers who have authority to implement disparity-reduction initiatives. A recent systematic review of health equity-focused policy advocacy strategies<sup>11</sup> recommends that formative research on policymakers' opinions about health disparities enhance communication interventions designed to foster local policy change via community mobilization.<sup>5,24,25</sup> Furthermore, information about policymakers' opinions of health disparities can inform the design of strategies to communicate disparities evidence directly to this audience.<sup>25</sup> Mayors and health commissioners are 2 types of city policymakers that warrant attention.

Mayors are elected policymakers and the chief executives of city government. Mayors are only 1 actor in city policymaking processes, but, as Benjamin Barber explains in

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*If Mayors Ruled the World*,<sup>26</sup> they have the ability to drive policy agendas, shape budgets, and influence the distribution of health resources among a city's population. For example, Philadelphia mayor Jim Kenney led an effort to pass an excise tax on sugar-sweetened beverages to fund universal prekindergarten for low-income children,<sup>27</sup> and former New York City mayor Michael Bloomberg used his authority to launch a range of public health initiatives.<sup>28</sup> Some qualitative studies have described these mayor-led initiatives,<sup>27,28</sup> but virtually no research has collected data from US mayors, or their staff, about health disparities.

Health commissioners (also referred to with titles such as "senior health officer") are appointed policymakers and city health department directors. Health commissioners are primarily responsible for traditional public health activities (e.g., communicable disease control, restaurant inspections) but can also function as chief health strategists and collaborate with policymakers across sectors to reduce health disparities. Health equity is a central focus of contemporary public health practice,<sup>5</sup> and one would assume that health commissioners are highly knowledgeable about health disparities. However, those in many city health departments encounter barriers to policy development, and it is unclear whether they perceive city policies as having the potential to reduce health disparities.<sup>29</sup>

We sought to characterize US mayors' and health commissioners' opinions about health disparities, with the ultimate goal of generating knowledge that can inform the design of communication interventions that cultivate political will for city policies that promote health equity. The study aims were the following: (1) describe mayors' and health commissioners' opinions about health disparities in their cities, (2) identify individual characteristics associated with opinions about health disparities among these policymakers, and (3) determine whether opinions about the existence, avoidability, and fairness of health disparities are independently associated with these policymakers believing that city policies can have a major impact on health disparities.

## METHODS

Between September and December 2016, we conducted a multimodal (post mail, e-mail,

telephone) 29-item survey (Appendix A, available as a supplement to the online version of this article at <http://www.ajph.org>) of the mayors and health commissioners of the 758 cities with a 2015 population of 50 000 or more. We identified these cities through the US Census Bureau. We obtained mayor contact information from the National Conference of Mayors. We obtained health commissioner contact information from the National Association of County and City Health Officials. This resulted in a sample frame of 758 mayors and 424 health commissioners (public health authority exists at the county level in many jurisdictions, and these health commissioners are responsible for multiple cities).

We mailed each mayor and health commissioner 2 paper versions of the survey, e-mailed them 7 times with a link to a Web-based version of the survey, and then called them up to 20 times to complete the survey over the telephone. Recruitment materials stated that it was preferred for the actual mayor or health commissioner to complete the survey but that senior staff (e.g., deputy mayor, deputy commissioner) were permitted to complete it instead. SSRS, a survey research firm, collected the data.

The survey was completed by 230 mayor respondents (101 mayors, 129 senior staff; mayor sample response rate = 30.3%) and 305 health commissioner respondents (101 health commissioners, 204 senior staff; health commissioner response rate = 71.9%). In total, 535 respondents completed the survey, and the aggregate response rate was 45.2%, which is very good for public policymakers<sup>30</sup> and higher than are response rates to many surveys about health disparities conducted with the general public.<sup>12,14-16</sup> In the mayor sample, respondents were slightly more likely than were nonrespondents to be from the Midwest and slightly less likely to be from the West ( $P = .009$ ). In the health commissioner sample, respondents were slightly more likely to be from the Midwest and slightly less likely to be from the South ( $P = .033$ ).

## Opinions About Health Disparities

To assess opinions about the existence of health disparities, we had respondents rate the extent to which they "agree with the statement that socially advantaged groups are in better health than disadvantaged groups in

[their] city" (1 = strongly agree, 4 = strongly disagree).<sup>3</sup> To assess opinions about the avoidability of health disparities, we had respondents rate the extent to which they thought "that differences in health between socially advantaged and disadvantaged groups in [their] city are avoidable" (1 = not at all avoidable, 3 = very avoidable). To assess opinions about the fairness of health disparities, we had respondents rate the extent to which they thought "that differences in health between socially advantaged and disadvantaged groups in [their] city are fair" (1 = very unfair, 4 = very fair).<sup>23</sup>

To assess opinions about the potential impact of city policies on health disparities, we had respondents rate the extent to which they thought "that city-level public policies can impact differences in health between socially advantaged and disadvantaged groups in [their] city" (1 = major impact, 4 = no impact). To assess opinions about factors that influence health disparities, we had respondents rate the extent to which they thought that 8 different factors (stress, personal knowledge about health, genetics, health insurance, income, education, housing quality, where a person lives) "affect differences in health between socially advantaged and disadvantaged groups" (0 = no effect, 10 = very strong effect). Consistent with how this question has been used in previous research,<sup>15,16</sup> we coded each factor as a "very strong effect" if respondents assigned a rating of 8, 9, or 10.

To assess ideology, we had respondents separately indicate how they "usually think of [themselves] when it comes to . . . 'social' and 'fiscal' issues" (1 = extremely liberal, 7 = extremely conservative). We coded ratings of 1, 2, and 3 as "liberal," ratings of 4 as "moderate," and ratings of 5, 6, and 7 as "conservative." Respondents indicated "the highest level of education that [they] completed." We categorized this variable as college or less, master's degree, or doctoral degree. Respondents indicated "how many years [they] have served in [their] current position." We dichotomized this variable using an empirically derived cutpoint of less than 3 years or 3 years or more.

## Analysis

We analyzed data from mayor and health commissioner samples separately because of

the different scopes of their positions. Within each of these samples, we analyzed data from mayors and their senior staff and health commissioners and their senior staff together because the 2 types of respondents were not meaningfully different in terms of their individual characteristics or opinions about health disparities (Appendix B, available as a supplement to the online version of this article at <http://www.ajph.org>).

We used bivariate analyses to assess differences in opinions about health disparities between mayor and health commissioner sample respondents, associations between individual characteristics and opinions about health disparities, and associations between different opinions. We then used multivariable logistic regression to determine the extent to which 3 opinions about health disparities (i.e., “strong agreement” that health disparities exist and the beliefs that disparities are “very avoidable” and “very unfair,” independent variables) were associated with the belief that city policies can have a “major impact” on health disparities (dependent variable). We included all 3 opinions in the same model to estimate their independent associations with the belief that city policies can have a “major impact” on disparities. We focused on the belief that city policies can have a “major impact” on health disparities as the dependent variable because it is most proximal to policy action. We also tested for interaction between respondent type (i.e., mayor or health commissioner sample) and the 3 opinions that served as independent variables.

## RESULTS

Table 1 compares the mayor and health commissioner samples on their individual characteristics and opinions about health disparities. Mayor respondents were less educated and more conservative than were the health commissioner respondents but similar in the number of years in their professional positions. Compared with mayor respondents, a smaller proportion of health commissioner respondents were socially conservative (23.3% vs 14.6%;  $P = .003$ ) and fiscally conservative (58.9% vs 40.5%;  $P < .001$ ). The modal highest level of education was “college or less” among mayor

respondents (44.7%) and “master’s degree” among health commissioner respondents (55.1%).

Ninety-five percent of mayor respondents and 97.3% of health commissioner respondents “agreed” or “strongly agreed” that socially advantaged groups were in better health than were socially disadvantaged groups in their city. However, only 41.6% of mayor respondents “strongly agreed” compared with 61.1% of health commissioner respondents ( $P < .001$ ). A significantly smaller proportion of mayor than health commissioner respondents felt that these differences were “very unfair” (32.9% vs 52.5%;  $P < .001$ ) and “very avoidable” (22.4% vs 34.6%;  $P = .006$ ). Relatedly, a significantly smaller proportion of mayor than health commissioner respondents “strongly agreed” that city policies could have a “major impact” on differences in health between these groups (21.9% vs 44.5%;  $P < .001$ ). Of note, nearly one third (30.2%) of mayor respondents believed that city policies could have “little” or “no impact” on health disparities, compared with only 8.0% of health commissioner respondents.

Income was most frequently identified as having a very strong effect on health disparities among mayor (67.7%) and health commissioner (82.7%) respondents, and genetics was identified least frequently (28.3% and 19.3%, respectively). Education was identified as having a very strong effect third most frequently among mayor respondents (61.6%) and second most frequently among health commissioner respondents (76.7%).

## Associations Between Individual Characteristics and Opinions

Table 2 shows associations between individual characteristics and opinions about health disparities for the mayor sample, and Table 3 shows these associations for the health commissioner sample. Among both mayor and health commissioner respondents, liberal and moderate ideology were strongly associated with beliefs that health disparities exist, are avoidable, are unfair, and can be affected by city policies. These associations were significant for both social and fiscal ideology, but they were stronger for social ideology. For example, in the mayor sample, 61.2% of

socially liberal respondents “strongly agreed” that health disparities existed in their city compared with 31.4% of socially moderate respondents and 17.6% of socially conservative respondents ( $P < .001$ ). In the health commissioner sample, 72.5% of socially liberal respondents “strongly agreed” that health disparities existed compared with 50.6% of socially moderate respondents and 34.1% of socially conservative respondents ( $P < .001$ ).

Education level was consistently associated with opinions about health disparities among health commissioner respondents but not mayor respondents. For example, among health commissioner respondents, 77.3% of those with a doctoral degree “strongly agreed” that disparities existed in their cities compared with 46.8% of those with a college degree or less ( $P < .001$ ). Among mayor respondents, the difference was 43.8% versus 34.7% and not significant ( $P = .16$ ). Similarly, 64.8% of health commissioner respondents with a doctoral degree believed that city policies can have a “major impact” on health disparities compared with 38.6% of those with a master’s degree as their highest level of education and 27.7% of those with a college degree or less ( $P < .001$ ). Among mayor respondents, the difference was 31.1% versus 20.2% versus 20.4% ( $P = .39$ ).

Among both mayor and health commissioner respondents, opinions about health disparities were strongly associated with each other. For example, among mayor respondents who “strongly agreed” that health disparities exist in their cities, 48.4% also believed that these disparities were “very unfair,” compared with 21.9% of mayor respondents who did not “strongly agree” that health disparities exist ( $P < .001$ ; odds ratio [OR] = 3.39; 95% confidence interval [CI] = 1.88, 6.12). Among health commissioner respondents who believed that health disparities in their city were “very avoidable,” 76.0% also believed that these disparities were “very unfair,” compared with 40.5% of health commissioner respondents who did not believe that health disparities were “very avoidable” ( $P < .001$ ; OR = 5.00; 95% CI = 2.90, 8.63).

## Opinions and Perceived Impact of City Policies

In unadjusted analyses, “strong agreement” that health disparities exist and the

**TABLE 1—Characteristics of Mayor and Health Commissioner Respondents and Opinions About Health Disparities: United States, 2016**

Characteristic and Opinion	Mayor sample (n = 230), %	Health commissioner sample (n = 305), %
<b>Individual characteristics</b>		
Time in professional position, y		
<3	31.1	31.6
≥3	68.9	68.4
Highest education level*		
College or less	44.7	15.6
Master's degree	40.6	55.1
Doctoral degree	14.6	29.2
Social ideology*		
Liberal	44.7	59.1
Moderate	32.0	26.2
Conservative	23.3	14.6
Fiscal ideology*		
Liberal	13.7	26.6
Moderate	27.4	32.9
Conservative	58.9	40.5
<b>Opinions about health disparities</b>		
Agree that health disparities exist in their city*		
Strongly disagree	0.9	0.0
Disagree	4.6	2.3
Agree	53.0	36.2
Strongly agree	41.6	61.1
Believe that health disparities in their city are avoidable*		
Not at all avoidable	4.1	2.0
Somewhat avoidable	73.1	62.8
Very avoidable	22.4	34.6
Believe that health disparities in their city are unfair*		
Very unfair	32.9	52.5
Somewhat unfair	38.4	33.2
Somewhat fair	22.4	10.6
Very fair	4.1	2.3
Believe that city policies can have impacts on health disparities in their city*		
No impact	3.7	0.7
Little impact	26.5	7.3
Some impact	47.9	47.5
Major impact	21.9	44.5
Believe that factor has very strong effect on health disparities <sup>a</sup>		
Income*	67.6	82.7
Health insurance*	64.8	55.8
Education*	61.6	76.7
Health knowledge*	58.9	46.5
Housing quality*	44.3	64.8
Stress*	43.8	66.8
Where a person lives*	40.6	69.4
Genetics*	28.3	19.3

<sup>a</sup>Rating of 8, 9, or 10 on 0–10 point scale.

\* $\chi^2$   $P \leq .05$  for comparison between mayor and health commissioner samples.

beliefs that they are “very avoidable” and “very unfair” were each associated with a significantly higher probability of believing that city policies can have a “major impact” on disparities. These associations were of similar magnitude in the mayor (Table 2) and health commissioner (Table 3) samples.

Table 4 shows associations between opinions about health disparities and the belief that city policies can have a “major impact” on disparities after adjustment for other opinions, years in position, education, and fiscal and social ideology. After adjustment in the mayor sample, “strong agreement” that health disparities exist and the belief that disparities are “very avoidable” remained significantly associated with believing that city policies can have a “major impact.” However, the belief that health disparities are “very unfair” was no longer significantly associated with belief that city policies can have a “major impact.” After adjustment in the health commissioner sample, all 3 opinions remained significantly associated with the belief that city policies can have a “major impact” on health disparities. Associations were not substantially affected by adjustment for fiscal and social ideology in the mayor or health commissioner sample. Tests for interaction revealed that the strength of adjusted associations did not differ significantly between mayor and health commissioner sample respondents.

## DISCUSSION

Our study built on previous research about public opinion of health disparities<sup>12–23,31</sup> by characterizing opinions about health disparities among mayors, health commissioners, and their senior staff—policymakers who are well positioned to promote health equity. We found that these policymakers are generally aware of the existence and causes of health disparities in their cities but less aware of the avoidability of these disparities and the potential of city policies to have an impact on them. We also found that opinions about health disparities vary dramatically according to ideology among these policymakers. Furthermore, we found that mayors and their staff have significantly different opinions about disparities than do health commissioners and their staff. Finally, we found that

**TABLE 2—Bivariate Associations Between Individual Characteristics and Opinions About Health Disparities of Respondents in the Mayor Sample: United States, 2016**

Characteristic and Opinion	Strongly Agree That Health Disparities Exist in Their City (Yes)		Believe That Health Disparities in Their City Are Very Avoidable (Yes)		Believe That Health Disparities in Their City Are Very Unfair (Yes)		Believe That City Policies Can Have a Major Impact on Health Disparities in Their City (Yes)	
	%	OR (95% CI)	%	OR (95% CI)	%	OR (95% CI)	%	OR (95% CI)
<b>Individual characteristics</b>								
<b>Time in professional position, y</b>								
< 3	38.2	1 (Ref)	14.7	1 (Ref)	39.7	1 (Ref)	27.9	1 (Ref)
≥ 3	43.0	1.22 (0.68, 2.19)	25.8	1.98 (0.92, 4.26)	29.8	0.65 (0.36, 1.19)	19.2	0.61 (0.31, 1.19)
<b>Highest education level</b>								
College or less	34.7	1 (Ref)	23.5	1 (Ref)	23.5	1 (Ref)	20.4	1 (Ref)
Master's degree	48.3	1.76 (0.98, 3.17)	15.7	0.60 (0.29, 1.26)	42.7	2.43 (1.29, 4.57)	20.2	0.99 (0.48, 2.02)
Doctoral degree	43.8	1.46 (0.65, 3.30)	37.5	1.93 (0.82, 4.54)	34.4	1.64 (0.69, 3.90)	31.3	1.77 (0.73, 4.34)
<b>Social ideology</b>								
Conservative	17.6	1 (Ref)	17.6	1 (Ref)	9.8	1 (Ref)	7.8	1 (Ref)
Moderate	31.4	2.14 (0.89, 5.15)	21.4	1.24 (0.50, 3.12)	27.1	3.34 (1.15, 9.69)	22.9	3.48 (1.09, 11.14)
Liberal	61.2	7.37 (3.22, 16.84)	25.5	1.56 (0.67, 3.66)	49.0	8.26 (3.02, 22.61)	28.6	4.70 (1.55, 14.28)
<b>Fiscal ideology</b>								
Conservative	31.8	1 (Ref)	17.8	1 (Ref)	20.2	1 (Ref)	14.0	1 (Ref)
Moderate	51.7	2.29 (1.23, 4.30)	23.3	1.39 (0.66, 2.94)	40.0	2.51 (1.28, 4.93)	26.7	2.24 (1.05, 4.79)
Liberal	63.3	3.71 (1.62, 8.50)	40.0	3.04 (1.29, 7.18)	73.3	10.37 (4.14, 25.94)	46.7	5.40 (2.25, 12.92)
<b>Opinions about health disparities</b>								
<b>Strongly agree that health disparities exist in their city</b>								
No	..	..	18.8	1 (Ref)	21.9	1 (Ref)	12.5	1 (Ref)
Yes	..	..	27.5	1.63 (0.86, 3.08)	48.4	3.39 (1.88, 6.12)	35.2	3.80 (1.93, 7.48)
<b>Believe that health disparities in their city are very avoidable</b>								
No	39.1	1 (Ref)	..	..	30.2	1 (Ref)	15.4	1 (Ref)
Yes	51.0	1.63 (0.86, 3.08)	..	..	42.9	1.82 (0.94, 3.53)	42.9	4.13 (2.04, 8.33)
<b>Believe that health disparities in their city are very unfair</b>								
No	31.7	1 (Ref)	18.3	1 (Ref)	..	..	15.5	1 (Ref)
Yes	61.1	3.39 (1.88, 6.12)	29.2	1.82 (0.94, 3.53)	..	..	34.7	2.90 (1.49, 5.64)
<b>Believe that city policies can have a major impact on health disparities in their city</b>								
No	34.5	1 (Ref)	16.4	1 (Ref)	27.5	1 (Ref)	..	..
Yes	66.7	3.80 (1.93, 7.48)	43.8	4.13 (2.04, 8.33)	52.1	2.90 (1.49, 5.64)	..	..

Note. CI = confidence interval; OR = odds ratio. Respondents n = 230.

opinions about health disparities (i.e., existence, avoidability) are independently associated with the belief that city policies can have a “major impact” on disparities.

The finding that nearly one third of mayor respondents thought that city policies could have “little” or “no impact” on health disparities might reflect the extent to which mayors think they can, and are politically incentivized to, address issues related to income and education—2 of the factors that mayor respondents most frequently identified as having a “very strong effect” on health

disparities. A 2015 survey of US mayors found that “economic inequity” and “schools” were the 2 issues that mayors believed they had the least control over.<sup>32</sup> The survey also found that these were the 2 issues that mayors perceived as having the least influence on their constituents’ opinions of their mayoral performance.

We found that mayors’ and health commissioners’ opinions about health disparities varied dramatically according to their social and fiscal ideology. Although these findings are consistent with previous public opinion

research,<sup>19,20,22</sup> they raise questions regarding how information about health disparities reaches and is interpreted by city policymakers with varying ideologies. It is possible that information about health disparities does not reach conservative policymakers. News stories about health disparities are more common in liberal than conservative news outlets and rarely contain information about policy strategies to reduce disparities, and news consumption is increasingly polarized along ideological lines.<sup>33</sup> It is also possible that information about health disparities



**TABLE 3—Bivariate Associations Between Individual Characteristics and Opinions About Health Disparities of Respondents in the Health Commissioner Sample: United States, 2016**

Characteristic and Opinion	Strongly Agree That Health Disparities Exist in Their City (Yes)		Believe That Health Disparities in Their City Are Very Avoidable (Yes)		Believe That Health Disparities in Their City Are Very Unfair (Yes)		Believe That City Policies Can Have a Major Impact on Health Disparities in Their City (Yes)	
	%	OR (95% CI)	%	OR (95% CI)	%	OR (95% CI)	%	OR (95% CI)
<b>Individual characteristics</b>								
<b>Time in professional position, y</b>								
<3	61.1	1 (Ref)	38.9	1 (Ref)	58.9	1 (Ref)	46.3	1 (Ref)
≥3	61.2	1.02 (0.62, 1.68)	32.5	0.77 (0.46, 1.27)	49.5	0.69 (0.42, 1.12)	43.7	0.90 (0.55, 1.47)
<b>Highest education level</b>								
College or less	46.8	1 (Ref)	17.0	1 (Ref)	40.4	1 (Ref)	27.7	1 (Ref)
Master's degree	56.6	1.48 (0.78, 2.84)	34.3	2.48 (1.09, 5.68)	49.4	1.46 (0.75, 2.81)	38.6	1.64 (0.81, 3.34)
Doctoral degree	77.3	4.07 (1.89, 8.75)	44.3	3.86 (1.61, 9.23)	64.8	3.00 (1.44, 6.27)	64.8	4.81 (2.22, 10.43)
<b>Social ideology</b>								
Conservative	34.1	1 (Ref)	15.9	1 (Ref)	22.7	1 (Ref)	13.6	1 (Ref)
Moderate	50.6	2.04 (0.95, 4.38)	20.3	1.39 (0.52, 3.69)	39.2	2.34 (1.01, 5.43)	39.2	4.09 (1.55, 10.81)
Liberal	72.5	5.09 (2.52, 10.30)	45.5	4.41 (1.87, 10.43)	65.7	6.63 (3.07, 14.33)	54.5	7.58 (3.05, 18.85)
<b>Fiscal ideology</b>								
Conservative	50.8	1 (Ref)	27.9	1 (Ref)	33.6	1 (Ref)	33.6	1 (Ref)
Moderate	65.7	1.91 (1.10, 3.30)	35.4	1.42 (0.80, 2.52)	61.6	3.27 (1.87, 5.71)	50.5	2.02 (1.17, 3.47)
Liberal	71.3	2.40 (1.32, 4.37)	43.8	1.99 (1.10, 3.60)	70.0	4.50 (2.45, 8.27)	53.8	2.30 (1.29, 4.09)
<b>Opinions about health disparities</b>								
<b>Strongly agree that health disparities exist in their city</b>								
No	..	..	20.7	1 (Ref)	29.3	1 (Ref)	26.7	1 (Ref)
Yes	..	..	43.5	2.92 (1.71, 4.98)	67.4	5.09 (3.07, 8.46)	56.0	3.49 (2.11, 5.77)
<b>Believe that health disparities in their city are very avoidable</b>								
No	53.3	1 (Ref)	..	..	40.5	1 (Ref)	34.9	1 (Ref)
Yes	76.9	2.92 (1.71, 4.98)	..	..	76.0	5.00 (2.90, 8.63)	63.5	3.24 (1.98, 5.33)
<b>Believe that health disparities in their city are very unfair</b>								
No	41.7	1 (Ref)	16.5	1 (Ref)	..	..	27.3	1 (Ref)
Yes	78.5	5.09 (3.07, 8.46)	50.0	5.00 (2.90, 8.63)	..	..	58.9	3.80 (2.33, 6.20)
<b>Believe that city policies can have a major impact on health disparities in their city</b>								
No	48.5	1 (Ref)	22.8	1 (Ref)	38.9	1 (Ref)	..	..
Yes	76.9	3.49 (2.11, 5.77)	49.3	3.24 (1.98, 5.33)	69.4	3.80 (2.33, 6.20)	..	..

Note. CI = confidence interval; OR = odds ratio. Respondents n = 305.

reaches conservative policymakers but is not perceived as credible because it conveys liberal values (e.g., fairness, social justice) and is inconsistent with a conservative worldview.<sup>34</sup> Experimental research has found that conservative audiences often reject messages about health disparities and the social determinants of health for these reasons.<sup>18–22,31</sup>

Our findings indicate that city policymakers are more aware of health disparities and the impact of socioeconomic factors on health than is the general public. In a 2011

survey of US adults, Robert and Booske<sup>16</sup> found that 48% of respondents who were at 200% or more of the federal poverty limit believed that genetics had a “very strong effect” on health and that 42% believed that income had a “very strong effect.” By contrast, we found that 28.3% of mayor respondents and 19.3% of health commissioner respondents believed that genetics had a “very strong effect” on health disparities and that 67.6% of mayor respondents and 82.7% of health commissioner respondents

believed that income had a “very strong effect.”

There is ambiguity about how to most appropriately interpret the meaning of a respondent “strongly agreeing” that health disparities exist as opposed to “agreeing.” It is plausible that “agreement” indicates that health disparities are perceived as fact whereas “strongly agree” also indicates that their existence is perceived as problematic and a priority to address. This is supported by the findings that both mayor and health commissioner

**TABLE 4—Adjusted Odds Ratios of Mayor and Health Commissioner Respondents Believing That City Policies Can Have a “Major Impact” on Health Disparities Given the Presence of Other Opinions About Health Disparities: United States, 2016**

Opinions About Health Disparities	Model 1, <sup>a</sup> AOR (95% CI)	Model 2, <sup>b</sup> AOR (95% CI)	Model 3, <sup>c</sup> AOR (95% CI)	Model 4, <sup>d</sup> AOR (95% CI)
<b>Mayor sample</b>				
Strongly agree that health disparities exist in their city	3.30 (1.54, 7.09)	3.05 (1.40, 6.67)	3.06 (1.36, 6.88)	3.05 (1.35, 6.88)
Believe that health disparities in their city are very avoidable	4.63 (2.11, 10.16)	3.93 (1.73, 8.92)	4.37 (1.96, 9.76)	3.83 (1.67, 8.78)
Believe that health disparities in their city are very unfair	1.89 (0.89, 4.00)	1.58 (0.71, 3.53)	1.80 (0.84, 3.88)	1.53 (0.68, 3.41)
<b>Health commissioner sample</b>				
Strongly agree that health disparities exist in their city	2.03 (1.15, 3.56)	1.94 (1.10, 3.44)	1.78 (0.99, 3.19)	1.78 (0.99, 3.19)
Believe that health disparities in their city are very avoidable	1.97 (1.13, 3.42)	2.02 (1.15, 3.53)	1.90 (1.08, 3.36)	1.91 (1.08, 3.37)
Believe that health disparities in their city are very unfair	2.30 (1.32, 3.99)	2.06 (1.16, 3.65)	2.00 (1.13, 3.54)	1.95 (1.09, 3.49)

Note. AOR = adjusted odds ratio; CI = confidence interval. Multivariable logistic regression. All models adjusted for all opinions about disparities.

<sup>a</sup>Adjusted for other opinions, years in position, and education.

<sup>b</sup>Adjusted for other opinions, years in position, education, and fiscal ideology.

<sup>c</sup>Adjusted for other opinions, years in position, education, and social ideology.

<sup>d</sup>Adjusted for other opinions, years in position, education, fiscal ideology, and social ideology.

respondents who “strongly agreed” that health disparities exist were twice as likely to perceive health disparities as being “very unfair” than were those who did not “strongly agree.”

Our results indicate that local policymakers’ perceptions of the impact of city policies on health disparities might be improved. In both the mayor and health commissioner samples, “strong agreement” that disparities exist and the belief that disparities are “very avoidable” were independently associated with the belief that city policies can have a “major impact” on disparities, after adjusting for ideology and other characteristics. Although we cannot make inferences about the causal direction of these associations because of our cross-sectional design, these findings suggest that increasing knowledge about the existence and avoidability of disparities could help improve perceptions of policy impact.

## Limitations

The mayor sample response rate was 30.3%, but this is considered good for a sample of elected officials<sup>30</sup> and higher than the response rates to many surveys about health disparities conducted with the general public.<sup>12,14–16</sup> In the mayor sample, respondents from Midwestern cities were overrepresented, and respondents from Western cities were underrepresented. Because the proportion of residents who identify as ideologically conservative is slightly higher in Midwestern (38%) than Western (33%) states,<sup>35</sup> it is possible that conservatives are overrepresented in the mayor sample and that our results underestimate

awareness about health disparities among mayors and their senior staff.

The majority of survey respondents were senior staff in the mayor (56.1%) and health commissioner (66.9%) samples. Although the staff respondents were not meaningfully different from the mayor and health commissioner respondents in terms of their opinions about health disparities, research is needed to understand the roles these staff play in local policymaking processes and to determine whether senior staff-focused communication strategies are warranted. We also did not assess why respondents thought that city policies could or could not affect health disparities. We did not link survey respondents to data about health disparities in their cities. Although the magnitude of health disparities varies between cities, there is a strong empirical basis for assuming that socially advantaged groups are, on average, in better health than are disadvantaged groups in all cities.<sup>4–6</sup>

## Public Health Implications

Our study has at least 3 clear implications for disparities communication interventions. First, as our findings suggest that many city policymakers are not fully aware of the potential of city policies to reduce health disparities, communication interventions should identify specific policy actions that city governments can take.<sup>7,8</sup> Our results also suggest that increasing knowledge about the existence and avoidability of disparities might improve understandings of policy impact.

Second, as we found that ideologically conservative city policymakers are less aware

of the existence and avoidability of health disparities than are their moderate and liberal counterparts, some communication interventions should frame messages for policymakers in ways that resonate with a conservative worldview and disseminate information via sources that conservative policymakers perceive as trustworthy.

Third, and most broadly, our findings highlight a need to target policymakers, in addition to the general public, when implementing communication interventions designed to enhance understanding about the existence and avoidability of health disparities. [AJPH](#)

## CONTRIBUTORS

J. Purtle conceptualized the study and led the writing of the article. J. Purtle, R. M. Henson, A. Carroll-Scott, J. Kolker, and A. V. Diez Roux contributed to the survey design and analysis plan. J. Purtle and A. V. Diez Roux secured funding. R. Joshi led the analysis. All authors contributed to article revisions.

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The study was approved by the Drexel University institutional review board (1607004702).

## REFERENCES

- Engels F. *The Condition of the Working Class in England*. Oxford, UK: Oxford University Press; 1993.
- DuBois WEB. The health and physique of the Negro American. *Am J Public Health*. 2003;93(2):272–276.

3. Braveman P. What are health disparities and health equity? We need to be clear. *Public Health Rep.* 2014; 129(suppl 2):5–8.
4. Williams DR. Miles to go before we sleep: racial inequities in health. *J Health Soc Behav.* 2012;53(3):279–295.
5. Weinstein JM, Geller A, Negussie Y, Baciu A. *Communities in Action: Pathways to Health Equity.* Washington, DC: National Academies Press; 2017.
6. Galea S, Freudenberg N, Vlahov D. Cities and population health. *Soc Sci Med.* 2005;60(5):1017–1033.
7. Adler NE, Cutler DM, Fielding JE, Galea S, Glymour MM, Koh HK. *Addressing Social Determinants of Health and Health Disparities: A Vital Direction for Health and Health Care Series.* Washington, DC: National Academy of Medicine; 2016.
8. Reeve B, Ashe M, Farias R, Gostin L. State and municipal innovations in obesity policy: why localities remain a necessary laboratory for innovation. *Am J Public Health.* 2015;105(3):442–450.
9. Stone D. Health equity in a Trump administration. *J Health Polit Policy Law.* 2017;42(5):995–1002.
10. Bishai DM, Frattaroli S, Pollack KM. Public health policies: Go Local! *Am J Public Health.* 2017;107(5):672–674.
11. Farrer L, Marinetti C, Cavaco YK, Costongs C. Advocacy for health equity: a synthesis review. *Milbank Q.* 2015;93(2):392–437.
12. Benz JK, Espinosa O, Welsh V, Fontes A. Awareness of racial and ethnic health disparities has improved only modestly over a decade. *Health Aff (Millwood).* 2011; 30(10):1860–1867.
13. Lundell H, Niederdeppe J, Clarke C. Public views about health causation, attributions of responsibility, and inequality. *J Health Commun.* 2013;18(9):1116–1130.
14. Booske BC, Robert SA, Rohan AM. Awareness of racial and socioeconomic health disparities in the United States: The National Opinion Survey on Health and Health Disparities, 2008–2009. *Prev Chronic Dis.* 2011;8(4):A73.
15. Bye L, Ghirardelli A, Fontes A. Promoting health equity and population health: how Americans' views differ. *Health Aff (Millwood).* 2016;35(11):1982–1990.
16. Robert SA, Booske BC. US opinions on health determinants and social policy as health policy. *Am J Public Health.* 2011;101(9):1655–1663.
17. Robert SA, Booske BC, Rigby E, Rohan AM. Public views on determinants of health, interventions to improve health, and priorities for government. *WMJ.* 2008;107(3): 124–130.
18. Niederdeppe J, Bu QL, Borah P, Kindig DA, Robert SA. Message design strategies to raise public awareness of social determinants of health and population health disparities. *Milbank Q.* 2008;86(3):481–513.
19. Gollust SE, Lantz PM, Ubel PA. The polarizing effect of news media messages about the social determinants of health. *Am J Public Health.* 2009;99(12):2160–2167.
20. Niederdeppe J, Roh S, Shapiro MA. Acknowledging individual responsibility while emphasizing social determinants in narratives to promote obesity-reducing public policy: a randomized experiment. *PLoS One.* 2015; 10(2):e0117565.
21. Gollust SE, Cappella JN. Understanding public resistance to messages about health disparities. *J Health Commun.* 2014;19(4):493–510.
22. Young R, Hinnant A, Leshner G. Individual and social determinants of obesity in strategic health messages: interaction with political ideology. *Health Commun.* 2016; 31(7):903–910.
23. Lynch J, Gollust SE. Playing fair: fairness beliefs and health policy preferences in the United States. *J Health Polit Policy Law.* 2010;35(6):849–887.
24. Purnell JQ, Goodman M, Tate WF, et al. For the sake of all: civic education on the social determinants of health and health disparities in St. Louis. *Urban Educ.* 2016; Epub ahead of print.
25. Woolf SH, Purnell JQ, Simon SM, et al. Translating evidence into population health improvement: strategies and barriers. *Annu Rev Public Health.* 2015;36:463–482.
26. Barber BR. *If Mayors Ruled the World: Dysfunctional Nations, Rising Cities.* New Haven, CT: Yale University Press; 2013.
27. Purtle J, Langellier B, Lê-Scherban F. A case study of the Philadelphia sugar-sweetened beverage tax policy-making process: implications for policy development and advocacy. *J Public Health Manag Pract.* 2018;24(1):4–8.
28. Freudenberg N, Atkinson S. Getting food policy on the mayoral table: a comparison of two election cycles in New York and London. *Public Health.* 2015;129(4): 295–302.
29. Hearne S, Castrucci BC, Leider JP, Rhoades EK, Russo P, Bass V. The future of urban health: needs, barriers, opportunities, and policy advancement at large urban health departments. *J Public Health Manag Pract.* 2015;21(suppl 1):S4–S13.
30. Fisher SH III, Herrick R. Old versus new: the comparative efficiency of mail and Internet surveys of state legislators. *State Polit Policy Q.* 2013;13(2):147–163.
31. Rigby E, Soss J, Booske BC, Rohan AMK, Robert SA. Public responses to health disparities: how group cues influence support for government intervention. *Soc Sci Q.* 2009;90(5):1321–1340.
32. Einstein KL, Glick DM. 2015 Menino survey of mayors. 2016. Available at: <https://www.bu.edu/ioc/files/2016/01/Menino-Survey-of-Mayors-2015-Final-Report.pdf>. Accessed February 24, 2018.
33. Gollust SE, Lantz PM. Communicating population health: print news media coverage of type 2 diabetes. *Soc Sci Med.* 2009;69(7):1091–1098.
34. Haidt J. *The Righteous Mind: Why Good People Are Divided by Politics and Religion.* New York, NY: Pantheon; 2012.
35. Pew Research Center. Political ideology by region. 2014. Available at: <http://www.pewforum.org/religious-landscape-study/compare/political-ideology/by/region>. Accessed February 24, 2018.