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Survey Finds Public Support For Legal Interventions Directed At Health Behavior To Fight Noncommunicable Disease

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ABSTRACT The high prevalence of chronic diseases in the United States with lifestyle-related risk factors, such as obesity and tobacco use, has sparked interest in legal strategies to influence health behavior. However, little is known about the public's willingness to accept these policies as legitimate, which in turn may affect compliance. We present results from a national survey of 1,817 US adults concerning the acceptability of different public health legal interventions that address noncommunicable, or chronic, diseases. We found that support for these new interventions is high overall; substantially greater among African Americans and Hispanics than among whites; and tied to perceptions of democratic representation in policy making. There was much support for strategies that enable people to exercise healthful choices—for example, menu labeling and improving access to nicotine patches—but considerably less for more coercive measures, such as insurance premium surcharges. These findings suggest that the least coercive path will be the smoothest and that support for interventions may be widespread among different social groups. In addition, the findings underscore the need for policy makers to involve the public in decision making, understand the public's values, and communicate how policy decisions reflect this understanding.

The increasing burden of noncommunicable diseases is one of the greatest challenges currently facing American public health. Although infectious diseases continue to pose a threat to the nation's health, their relative burden has been dwarfed by that of noncommunicable illnesses, particularly diseases associated with modifiable risk factors such as overeating, physical inactivity, and alcohol and tobacco use.[1] Consequently, there is increasing interest in using law and policy to influence these behavioral risk factors.

From a public health perspective, the mandate for population-level interventions is clear. In 2000 the three leading causes of death in the United States were tobacco use (contributing to 18.1 percent of all deaths), poor diet and physical inactivity (16.6 percent of deaths), and alcohol consumption (3.5 percent of deaths).[1] The economic impact of health conditions related to these risk factors is also staggering.[2,3]

Many health departments and legislative bodies in the United States have adopted policies that apply both traditional and more innovative public health tools to combat tobacco use, obesity, heart disease, diabetes, and other chronic health conditions.[4–6] Examples include hemoglobin A1c surveillance programs to track the level of blood sugar control in people with diabetes, bans on the use of trans fat to reduce people's intake of particularly harmful fats,

increased taxation of cigarettes, and school-based body mass index screenings to identify obese and overweight children.

These initiatives have provoked intense political and moral debates. The initiatives are part of the "new frontier" of public health law[7]—historically, relatively few legal interventions have focused on behavior to prevent noncommunicable diseases, and new initiatives venture into new and controversial terrain. Critics assert that legal initiatives to combat obesity and other chronic health conditions unduly restrict individuals' liberties and exceed the appropriate scope of governmental authority in public health.[8,9]

The controversy calls into question the public's willingness to view as legitimate uses of the power of the state any new-frontier interventions that attempt to use the law to prevent noncommunicable disease by influencing personal health behavior. Securing and maintaining legitimacy—that is, the public belief that officials have moral and legal authority to address the problem of noncommunicable disease and its behavioral underpinnings—is critically important because that authority affects people's willingness to support and comply with public policies.[10,11] Compliance with such interventions, in turn, is a critical determinant of the extent to which the policies will achieve their objectives.

Previous studies have not examined whether there is a relationship between legitimacy and compliance concerning public health laws. In other areas, although the evidence is somewhat mixed, studies have found legitimacy to be associated with an increased likelihood of compliance with government regulations,[12] taxes,[13] and enlistment,[14] as well as an increased willingness to defer to legal authorities such as the police and courts.[15]

To date, public health agencies have moved through the contested territory of noncommunicable disease control without the benefit of a solid understanding of how the public views these initiatives. Prior research suggests that factors such as public trust and perceptions of government competence influence support for infectious disease control measures[16] and that educational attainment and sex predict a person's support for some policies to address obesity.[17] However, no studies have examined predictors of support for new-frontier public health initiatives across a range of noncommunicable health conditions.

In this article, we present results from a national survey of US adults concerning the acceptability of public health legal interventions addressing noncommunicable diseases. We found that support for new-frontier public health interventions is high overall, strongly associated with race and political orientation, and tied to perceptions of democratic representation in public health policy making. Our findings can help lawmakers as they consider what level of support they can expect for new-frontier public health initiatives, why support may be forthcoming, and from whom.

Study Questions

We investigated four sets of questions. First, how do Americans perceive the performance of public health officials and agencies, both generally and in specific domains?

Second, what are the public's attitudes toward new-frontier public health initiatives, and how do these attitudes compare to perceptions of traditional public health activities? Because *legitimacy* could have various meanings, our survey asked respondents how much they would support or oppose various government initiatives. We examined levels of support for government action on seven noncommunicable health conditions and fourteen specific strategies to address them.

Third, does support for new-frontier public health initiatives differ by demographic or health status characteristics? And fourth, how are attitudes toward these initiatives correlated with broader views about government, perceptions of the public health system, and opinions on personal responsibility for health?

Our empirical approach was guided by a detailed conceptual model of legitimacy adapted from three models set forth in the political science literature. The first is based on citizens' judgments about governmental trustworthiness.[12] This model examines the extent to which a government is motivated to deliver on its promises, do right for the people it serves, and seek policies that truly benefit the public, as well how capable it is of doing so.

The second model, referred to as the procedural fairness model, assesses whether a government is structured to ensure that issues are resolved in a regular, predictable way, and that access to decisional arenas—such as legislative bodies and court systems—is open and fair.[18] The third model is based on "attitudinal consistency," or the degree to which values expressed by a government are aligned with citizens' own values.[19]

The literature on predictors of public support for public health interventions is surprisingly limited. Although influential normative scholarship has emphasized such features as public justification and transparency in decision making as indispensable conditions in maintaining

public trust in various health contexts,[20,21] empirical validation of these theoretical assertions is scarce. There is evidence that procedural justice and trust in institutions influence citizens' evaluations of the police,[22] legal systems,[23] and scientific research,[24] but there are no published analyses of predictors of legitimacy in the public health context.

Prior opinion surveys about the public health system have focused on Americans' priorities in public health and the perceived performance of public health agencies.[25] The data shed light on the questions we are asking but fail to illuminate all of the drivers of legitimacy. In addition, many surveys have asked about support for specific public health initiatives, especially those aimed at obesity[26–31] and smoking.[32–36] However, surveys limited to a particular disease or risk factor are too narrowly focused to support an empirical analysis of legitimacy in new-frontier public health interventions generally. We report on predictors of legitimacy across a range of conceptual domains and intervention types.

Study Data And Methods

SURVEY QUESTIONNAIRE We designed a twenty-five-question survey instrument with structured response categories to elicit public views about the three domains of the conceptual model (trustworthiness, procedural fairness, and attitudinal consistency) and support for new-frontier public health laws (for a full copy of the survey instrument, see the online Appendix).[37]

The survey questionnaire was developed in consultation with an advisory group of public health officials and experts, as well as psychometric experts at Knowledge Networks (now part of GfK), a professional survey organization. The draft questionnaire was initially piloted on forty-two adults, five of whom participated in cognitive debriefing interviews, and then pretested on another thirty adults.

SURVEY ADMINISTRATION The final survey was administered online using KnowledgePanel, a standing, probability based, nationally representative sample of US adults maintained by Knowledge Networks. Panel members are recruited using random-digit dialing and address-based sampling, creating a sampling frame that covers approximately 97 percent of US households (additional information about panel design and sampling process is available in the Appendix).[37]

To support subgroup analyses, we oversampled people with diabetes and residents of the New York City metropolitan area. We anticipated that New Yorkers would be especially familiar with new-frontier public health interventions given that city's many initiatives in the area.

The survey was fielded between October 12 and October 24, 2011. Knowledge Networks processed and weighted the data using a three-step weighting process to adjust for known selection deviations during sampling, noncoverage and nonresponse bias resulting from panel recruitment methods and attrition, and the oversampling of New York City residents and people with diabetes. Knowledge Networks merged the survey data with its previously collected data on panel members' demographic characteristics, health status, and political attitudes and engagement.

DATA ANALYSIS We divided the variables into two groups by combining responses of somewhat or strongly support and somewhat or strongly oppose. Then we used multivariate logistic regression to analyze predictors of support for government action in new-frontier public health areas and for specific public health legal interventions.

A separate model was run for each of the outcome variables. Predictor variables—which were kept consistent across models to facilitate comparisons of effect sizes across models—were demographic characteristics, health status, perceptions of public health officials, political ideological orientation and engagement, and views on responsibility for health.

Analyses were performed using the statistical analysis software Stata, version 11. Probability weights were supplied by Knowledge Networks. Missing data were rare (2.6 percent or less for any question). Collinearity checks were performed, and the final model included only moderate ($\rho < 0.57$) correlations among the explanatory variables.

We performed two sensitivity analyses. First, we eliminated one variable that had moderate correlations with other covariates and compared the results of the full and reduced-form models. Second, we compared the results of models run with and without survey weights. The results were robust to these changes.

LIMITATIONS Like all surveys, our study was subject to nonsampling error, including nonresponse bias. Notwithstanding the high response rate and weighting corrections for nonresponse, it is still possible that our sample was nonrepresentative in some way for which we could not adjust.

Additionally, most survey respondents had not directly experienced most of the new-frontier public health policies about which our questionnaire asked, and their reported levels of support may not reflect how they would actually respond to these initiatives. Furthermore, although we

provided respondents with definitions of public health policies and officials, we did not assess their level of knowledge of public health agencies or activities, which may have influenced their responses.

Finally, reported opposition to new-frontier public health initiatives may simply reflect a generalized suspicion of government. However, the fact that most respondents rated public health agencies' and officials' performance highly undercuts this hypothesis. Approval levels for the Centers for Disease Control and Prevention were particularly high, even though antigovernment sentiment tends to be directed at the national government.

Study Results

SAMPLE CHARACTERISTICS Of 2,690 American adults invited to participate, 1,817 (67.5 percent) completed the survey. Respondents' characteristics are presented in the Appendix.[37]

In brief, 44 percent were current or former smokers, and nearly 72 percent were overweight or obese. Because of deliberate oversampling, 22 percent had diabetes, and nearly 14 percent resided in the New York City metropolitan area. All results reported below represent national estimates derived through application of appropriate survey weights.

PERCEPTIONS OF PUBLIC HEALTH AGENCIES AND OFFICIALS Survey respondents had a positive view of the performance of public health agencies, although the agencies were perceived to be more effective in some areas than others. Seventy-five percent of respondents rated the Centers for Disease Control and Prevention's overall performance as excellent or good, and a majority also gave high ratings to state and local health officials (Exhibit 1).

Perceptions of the fairness and representativeness of public health officials' decision making were more mixed. Only about one in three Americans perceived that public health officials "always" or "usually" make decisions in a fair way, respect people's rights, and understand the public's values. And roughly one in four had a much more negative perception, reporting that officials "rarely" or "never" demonstrated these characteristics.

Although 75 percent of respondents gave high ratings to the performance of the government's system of providing vaccines against infectious diseases, performance ratings were lower for other health threats, especially chronic diseases and obesity (Exhibit 1). Perceived performance in these areas was low. However, the proportions of respondents who felt that the government had

EXHIBIT 1

Public Perceptions Of Public Health Agencies And Officials

Performance of public health agencies and officials[a]	**Excellent**	**Good**	**Fair**	**Poor**	
CDC	17.1%	57.9%	21.6%	3.3%	
State health department	7.4	53.2	33.0	6.4	
Public health officials in local community	7.2	47.8	36.7	8.3	
Performance of government's system in:[b]	**Excellent**	**Good**	**Fair**	**Poor**	
Providing vaccines	22.7	52.7	19.3	5.3	
Detecting and preventing foodborne illness	7.5	43.7	34.4	14.4	
Preventing the spread of HIV/AIDS	6.7	43.1	38.0	12.2	
Reducing tobacco use	6.8	35.5	37.4	20.4	
Reducing obesity	5.1	29.7	43.2	22.1	
Preventing unintentional injuries	4.4	42.2	42.2	11.2	
Preventing chronic illnesses	4.1	33.7	45.6	16.5	
Trust in public health agencies and officials[c]	**A lot**	**Somewhat**	**Not too much**	**None at all**	
CDC	40.4	44.4	11.1	4.1	
State health department	22.0	55.6	17.3	5.2	
Public health officials in local community	18.7	54.8	19.9	6.6	
Perceptions of public health officials:	**Always**	**Usually**	**Sometimes**	**Rarely**	**Never**
Officials make decisions in a fair way	2.1	28.1	47.9	17.0	4.9
Officials respect people's rights	4.2	34.3	41.0	15.1	5.4
Officials understand the public's values	2.1	27.6	43.8	21.2	5.3

SOURCE Authors' survey of 1,817 US adults (weighted data). **NOTES** Percentages may not sum to 100 because of rounding. CDC is Centers for Disease Control and Prevention. [a]Question: "How would you rate the performance of the following agencies or individuals?" [b]Question: "How would you rate the performance of our government's system in each of the following areas?" [c]Question: "How much would you trust each of the following sources to provide accurate information about health problems or issues that are important to you?"

"a great deal" or "some" responsibility to address chronic diseases and obesity were much higher (69 percent and 61 percent; data not shown). These figures suggest that the performance ratings may reflect a view that the government has done too little, rather than too much, in those areas.

PERCEIVED LEGITIMACY OF NEW-FRONTIER PUBLIC HEALTH INITIATIVES

▶OVERALL LEVELS OF SUPPORT: Respondents were asked to rate the amount of responsibility that the government had to address various health challenges, representing both new-frontier and traditional areas for public health. With the exception of preventing unintentional injuries, a majority of respondents reported that the government had either "a great deal" or "some" responsibility to address each of the challenges.

However, higher proportions of respondents reported that government had "a great deal" of responsibility to address traditional public health challenges such as detecting and preventing foodborne illness, preventing HIV/AIDS, providing vaccines for infectious diseases, and preventing unintentional injuries, in contrast to meeting new-frontier health challenges such as preventing chronic illness, reducing tobacco use, and reducing obesity by encouraging healthy lifestyles.

Although some respondents did not perceive a strong governmental responsibility to address new-frontier public health conditions, there were very high levels of support for government action in such areas. Strong majorities of respondents expressed support for government action in each of seven new-frontier areas, ranging from 70 percent for government action to reduce alcohol consumption to nearly 90 percent for government action to prevent cancer (Exhibit 2).

Acceptance of specific legal strategies was inversely related to the degree that they involve coercion or otherwise intrude into personal behavior. We examined support for four legal initiatives, selected to represent a range of coercive measures, in each of the following three areas: tobacco use, "obesity and related diseases like diabetes and heart disease," and childhood obesity. In each case, support was highest for the least restrictive policy and decreased markedly as the burdensomeness and punitiveness of the policies increased (Exhibit 2).

To further explore the reasons why people oppose new-frontier public health policies, we asked respondents to rate their support for two legal initiatives. The first was a hemoglobin A1c surveillance scheme modeled after New York City's program to track blood sugar control in people with diabetes. The second was a legal mandate that all food manufacturers and chain restaurants substantially reduce the amount of sodium in their products.

Two-thirds of respondents supported the surveillance scheme and three-quarters supported the sodium reduction requirement. Among those who opposed the policies, in both cases, fewer than 10 percent cited skepticism of their effectiveness as the primary reason. Nearly 80 percent of those opposed to the surveillance scheme grounded their opposition in a perception that "the policy would intrude too much into individual privacy," and nearly 77 percent of those opposed to the sodium reduction mandate felt that "government should stay out of matters like what people eat."

▶DIFFERENCES ACROSS POPULATION SUBGROUPS: Multivariate analyses revealed sig-

EXHIBIT 2

Public Support For New-Frontier Public Health Initiatives

	Support	Oppose
HOW MUCH DO YOU SUPPORT OR OPPOSE GOVERNMENT ACTION TO:		
Prevent cancer	88.9%	11.2%
Prevent heart disease	85.6	14.4
Help people control their diabetes	83.7	16.3
Prevent childhood obesity	81.3	18.7
Prevent and reduce tobacco use	75.9	24.1
Prevent obesity in adults	75.8	24.2
Reduce alcohol consumption	70.2	29.8
SUPPORT FOR POLICIES TO REDUCE OBESITY AND RELATED DISEASES[a]		
Increase affordability of fruits and vegetables	83.6	16.4
Require postings of calorie counts	80.8	19.2
Prevent use of food stamps for soda and other sugary beverages	75.7	24.3
$50 annual surcharge on insurance premiums of obese individuals	37.6	62.4
SUPPORT FOR POLICIES TO REDUCE CHILDHOOD OBESITY[b]		
Require more instruction in public schools about the health risks of obesity	89.2	10.8
Require public school students to participate in at least 45 minutes of daily physical activity	88.4	11.6
Require BMI screening and surveillance of schoolchildren	52.0	48.0
Make possession of soda and other junk foods a disciplinary offense	32.5	67.5
SUPPORT FOR POLICIES TO REDUCE TOBACCO USE[c]		
Provide people with free nicotine patches	72.6	27.4
Require cigarette packages to display graphic images[d]	63.4	36.6
Make it illegal to smoke in private spaces	37.9	62.2
Permit employers to test and fire for tobacco use	20.0	80.0
SUPPORT FOR:		
Requiring food manufacturers and chain restaurants to significantly reduce sodium content of their foods	75.9	24.1
Hemoglobin A1c surveillance program	65.7	34.4

SOURCE Authors' survey of 1,817 US adults. **NOTES** "Support" includes both somewhat and strongly support; "oppose" includes both somewhat and strongly oppose. BMI is body mass index. [a]Question: "Thinking about government policies to reduce obesity and related diseases like diabetes and heart disease, how much would you support the following policies?" [b]Question: "Thinking about government policies specifically aimed to reduce childhood obesity, how much would you support the following policies?" [c]Question: "Thinking about government policies specifically designed to reduce tobacco use, how much would you support the following policies?" [d]Full text: "A policy requiring cigarette packages to display graphic images depicting the health effects of smoking (such as blackened lungs)."

nificant differences in support for government action in new-frontier public health areas across population subgroups, with African Americans, women, and people ages eighteen to thirty-five reporting higher levels of support for government action than whites, men, and older Americans (Exhibit 3). For a version of Exhibit 3 including data on reducing alcohol consumption, see the Appendix.[37]

The difference across races was especially large and consistently significant for all seven new-frontier public health areas. The odds of supporting new-frontier initiatives were two to four times higher for African Americans than for whites, depending on the health condition addressed. Hispanics were also significantly more supportive than whites of government action in two areas, prevention of heart disease and control of diabetes.

The association of race and other demographic characteristics with support for specific new-frontier public health interventions was less consistent. African Americans, women, people with lower incomes and levels of educational attainment, and those ages eighteen to thirty-five were significantly more likely than others to support

EXHIBIT 3

Regression Results (Odds Ratios) For Support For Government Action In New-Frontier Public Health Areas

	Prevent cancer	Prevent heart disease	Help people control diabetes	Prevent childhood obesity	Prevent tobacco use	Prevent adult obesity
SOCIODEMOGRAPHIC CHARACTERISTICS						
Age 18–35	1.8**	1.2	2.0***	1.5	1.5*	1.6**
African American	3.9**	2.8**	4.3***	3.3**	2.1**	2.4**
Hispanic	1.7	2.2**	2.8***	1.4	1.3	1.3
Male	1.0	0.9	1.3	0.9	0.6***	0.8
Resident of New York metro area	3.0***	1.3	1.1	1.5	1.0	1.6
HEALTH STATUS						
Smokes	1.1	1.1	0.9	0.9	0.8	0.9
Has diabetes	2.2***	1.6**	1.7**	1.4	1.4*	1.5**
POLITICAL CHARACTERISTICS						
Liberal	1.5	1.0	1.0	1.5	1.5*	1.6**
Conservative	0.5***	0.5***	0.6***	0.5***	0.8	0.5***
BELIEFS						
Positive rating of government performance in addressing public health conditions	1.1	1.0	1.0	1.0*	1.0	1.0
Positive rating of performance of public health agencies	0.7	0.7**	0.7*	0.7	0.9	0.9
Trusts public health agencies	1.4	1.5*	1.7**	1.5*	1.2	1.4*
"People like me" can influence government priorities in public health	2.4***	2.0***	2.2***	1.9***	1.7***	1.5**
Personal understanding of officials' decisions about public health policy	1.9**	1.8**	1.2	0.9	1.5*	1.2
Public health officials make decisions in a fair way	0.9	1.2	1.5	2.2***	1.2	1.3
Public health officials respect people's rights	1.7*	1.4	1.4	1.8**	1.9***	1.4
Public health officials understand the public's values	1.4	0.9	1.5	2.7***	1.1	1.9***
Internal health locus of control	1.1***	1.1***	1.1***	1.1***	1.0	1.1***

SOURCE Authors' survey of 1,817 US adults. **NOTES** Logistic regression models predict the probability of strongly or somewhat supporting government action to address each health condition. The following additional respondent characteristics were included in all models and achieved significance in at least one model: income in the bottom two quintiles, other race, and political engagement. The following respondent characteristics were also included in all models but did not achieve significance in any model: educational attainment, marital status, presence of children in the household, employment status, disability, urbanicity, being overweight (body mass index >25), being elderly (older than age sixty-four), household income in the third or fourth quintile, and census division. "Internal health locus of control" was defined as the degree to which a person believes that health outcomes are a direct result of internal factors, such as one's own behavior, as measured by the Multidimensional Health Locus of Control scale in Wallston KA, Wallston BS, DeVellis R. Development of the multidimensional health locus of control (MHLC) scales. Health Educ Monogr. 1978;6:160–70. Full questions and complete results, including 95 percent confidence intervals, are available in the online Appendix (see Note 37 in text). *$p < 0.10$ **$p < 0.05$ ***$p < 0.01$

some of the initiatives tested, but the significance of these effects varied across initiatives (Exhibit 4). Banning smoking in private spaces was significantly associated with a greater number of demographic characteristics than other initiatives were.

We hypothesized that New York City residents would be more likely than other respondents to support new-frontier public health initiatives because they were particularly familiar with them. However, such an effect was generally not in evidence (Exhibits 3 and 4).

We anticipated that people who were overweight, smoked, or had diabetes would disproportionately oppose new-frontier public health initiatives because, as targets of such interventions, they might perceive the policies to be especially burdensome. Such an effect was present for smokers (Exhibit 4). However, people with diabetes were significantly more likely than

EXHIBIT 4

Regression Results (Odds Ratios) For Support For Specific New-Frontier Public Health Policies

	Less sodium in foods	Hemoglobin A1c test reports	$50 higher insurance fee for obese	BMI screening in schools	Smoking ban in private spaces	Graphic labels on cigarettes
SOCIODEMOGRAPHIC CHARACTERISTICS						
Age 18–35	1.1	1.7***	1.7***	1.2	1.9***	1.4*
Age 65+	1.5*	0.9	1.2	1.0	1.7***	1.4*
African American	2.3**	1.3	0.8	1.1	2.1***	1.5
Hispanic	1.2	0.8	0.9	1.1	1.8***	0.9
Male	0.6***	1.1	1.1	1.4**	0.8*	0.9
1st (lowest) income quintile	1.1	2.3***	1.0	2.0***	1.9**	1.4
2nd income quintile	1.3	1.5*	1.0	1.4	1.8***	1.2
HEALTH STATUS						
Overweight (BMI >25)	1.1	1.1	0.6***	0.9	1.0	1.2
Smokes	0.8	0.9	0.8	0.7***	0.4***	0.7***
Has diabetes	1.4	0.7*	0.7	1.2	1.6**	1.1
POLITICAL CHARACTERISTICS						
Liberal	0.9	1.2	0.9	0.8	0.8	1.2
Conservative	0.5***	0.7***	0.8	0.6***	0.7*	0.7**
BELIEFS						
Positive rating of government performance in addressing public health conditions	1.0	1.0	1.1	1.0	1.0	1.0
Positive rating of performance of public health agencies	0.7*	1.0	0.9	1.0	1.1	1.0
Trusts public health agencies	1.1	1.1	0.8	1.0	0.7**	1.1
"People like me" can influence government priorities in public health	1.2	1.2	1.2	1.4**	1.4**	1.4**
Personal understanding of officials' decisions about public health policy	1.2	1.1	1.4*	1.3	1.2	1.6***
Public health officials make decisions in a fair way	1.1	1.0	0.9	1.0	0.8	0.8
Public health officials respect people's rights	0.9	0.9	1.0	0.9	1.1	1.0
Public health officials understand the public's values	2.7***	1.9***	1.4*	1.5**	1.5*	1.4*
Internal health locus of control	1.0*	1.1***	1.1***	1.1***	1.0*	1.0*

SOURCE Authors' survey of 1,817 US adults. **NOTES** Logistic regression models predict the probability of strongly or somewhat supporting each policy. The following additional respondent characteristics were included in all models and achieved significance in at least one model: household income in the third income quintile; other race; educational attainment; and one census region. The following respondent characteristics were also included in all models but did not achieve significance in any model: disability; urbanicity; residence in New York City metropolitan area; residence in other census regions; and household income in the fourth income quintile. For an explanation of internal health locus of control, see notes to Exhibit 3. Full questions and complete results, including 95 percent confidence intervals, are available in the online Appendix (see Note 37 in text). BMI is body mass index. *$p < 0.1$ **$p < 0.05$ ***$p < 0.01$

others to support government action in new-frontier public health areas and no less likely to support specific policies (Exhibit 3). Being overweight predicted lower support only for insurance premium surcharges on obese subscribers (Exhibit 4).

▶BELIEFS ABOUT GOVERNMENT AND HEALTH: As expected, support for most new-frontier public health initiatives was significantly lower among political conservatives and respondents who believed health status to be strongly controllable through individual action (Exhibits 3 and 4). Results concerning beliefs about public health officials were more complex.

The belief that "people like me" can influence which public health problems the government chooses to prioritize was a strong and consistent predictor of support for government action and specific initiatives, with odds ratios of 1.5 to 2.4 (Exhibit 3). Respondents were also significantly more likely to support new-frontier public health initiatives if they perceived that public health officials understood the public's values (Exhibit 4). However, perceptions of public health officials' and agencies' performance, trust in public health officials, perceptions that they could be counted on to make decisions in a fair way, and perceptions that they respected people's rights were generally not significant predictors of support.

Policy Implications

As public health agencies seek to combat the increasing burden of chronic disease, they confront critical questions about how to set priorities and evaluate the wisdom of policy approaches. These decisions require careful weighing of the following considerations: the importance of the problem, the effectiveness and cost-effectiveness of various interventions, and the likelihood that the chosen interventions will enjoy public acceptance.

Public opinion should not be the sole determinant of public health policy agendas or policies.[38] However, if policy makers do not understand that opinion, policy choices may go seriously awry. When members of the public view a policy as legitimate, they may be more likely to comply with the behavioral changes that public health officials are seeking to encourage, which strengthens the policy's chances for success.

Public backlash against some new-frontier public health interventions suggests that legitimacy is a major challenge facing public health officials working in this realm.[39] Identifying predictors of public support and ways to maximize that support thus provides key building blocks for informing sound policy decision making. Our findings suggest several lessons for public health policy makers considering new-frontier public health interventions.

THE LEAST COERCIVE PATH IS THE SMOOTHEST One key finding is that the greater the restraint a legal intervention imposes on individual liberty, the greater public opposition to the intervention is likely to be. There was much support among our respondents for strategies that enable people to exercise healthful choices—for example, menu labeling and improving access to nicotine patches—but little support for more coercive measures, such as insurance premium surcharges.

Respondents who opposed particular policies identified their effects on liberty and privacy as the primary reason for that opposition far more frequently than concerns about the policies' effectiveness. These findings suggest that continuing the current focus on using law to shape health environments, instead of exerting more direct pressure on individual behavior, is a sound strategy for maximizing the legitimacy of policies.

SUPPORT MAY COME FROM SURPRISING QUARTERS Policy makers generally need not fear strong opposition from groups that feel "targeted" by a particular new-frontier public health intervention because of a health condition. Contrary to our expectations, except for the most punitive policies we examined, survey respondents were no less likely to support interventions aimed at obesity and diabetes if they had those health conditions than if they did not. This is consistent with political science research findings that self-interest has minimal explanatory power in explaining the attitudes of the American public.

Smokers, however, were less likely than other respondents to support policies to discourage tobacco use. This result suggests that self-interest may play out differently where an intervention targets a health behavior, rather than a health condition.

Our data also suggest that unlike self-interest, concern for one's social group may influence attitudes toward public health interventions. We found higher levels of support for government action in new-frontier public health areas among African Americans and, to a lesser degree, Hispanics. A possible explanation is that the diseases targeted by such interventions disproportionately affect minority communities.

PAY ATTENTION TO THE PUBLIC HEALTH POLICY-MAKING PROCESS Finally, and perhaps most importantly, policy makers should understand that people's beliefs about the public health policy-making process drive their perceptions of the legitimacy of new-frontier public

health interventions. The strongest predictor among the belief measures we tested was the perception that "people like me" can influence government priorities in public health. Also important was the belief that public health officials understand the public's values. These constructs were strong and consistent predictors of perceived legitimacy across multiple public health policies.

These measures relate to the notion of democratic representation in public health policy making. Interestingly, this construct appears to play a larger role in driving public support for new-frontier public health interventions than the trustworthiness of public health officials, their record on respecting individual rights, or their performance generally.

Thus, of the theoretical models of legitimacy that we discussed above and tested, the procedural-fairness model appears to have the greatest applicability in the public health realm. This model emphasizes reliable processes of resolving issues and open, fair access to decisional arenas. Our data suggest that the public's conception of fairness may have less to do with how particular decisions are made than with more general considerations of access to the decision-making process and faith that decision makers know their constituents well enough to carry out their will.

Conclusion

How, then, can policy makers maximize support for new-frontier public health interventions? First, they should involve the public in priority-setting activities in public health. Second, they should seek to understand the values held by different segments of the population and incorporate those values into policy decisions. Third and finally, they should communicate to the public how they incorporated those values into policy decisions. Public justification for important policy decisions should be offered in every instance and should reflect an understanding of and respect for the public's values.

Public health officials are currently working within a challenging political climate that includes a strong movement toward smaller government. In this context, the high level of public support that we found for government action to address new-frontier health problems is striking. Public health officials should be heartened by this finding. In moving forward, the challenge is to respond to this demand for a public health response to noncommunicable disease in ways that allow members of the public to feel that their voices are heard, understood, and valued. ■

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In this month's *Health Affairs*, Stephanie Morain and Michelle Mello report on a national survey gauging public opinion about legal interventions aimed at health behavior to fight noncommunicable, or chronic, diseases. The survey found strong support for such measures overall, but much more support for strategies that enable people to exercise healthful choices—for example, menu labeling and improving access to nicotine patches—than for more coercive measures, such as insurance premium surcharges. There were also large racial differences in support, with African Americans in particular, and Hispanics to some extent, more likely to be supportive than whites. The authors conclude that policy makers can smooth the path for adoption of measures to combat noncommunicable diseases by involving the public closely in the decision-making process.

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