Prevalence, Awareness, Treatment, and Predictors of Control of Hypertension in New York City

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**Background**—Hypertension-related risk in urban areas may vary from national estimates; however, objective data on prevalence and treatment in local areas are scarce. We assessed hypertension prevalence, awareness, treatment, and control among New York City (NYC) adults.

**Methods and Results**—The NYC Health And Nutrition Examination Survey (HANES), modeled on the national HANES, was conducted in 2004 with a representative sample of noninstitutionalized NYC residents ≥20 years of age. Hypertension outcomes were examined with interview and examination data (n = 1975). Multiple logistic regression was used to assess factors associated with control among adults with hypertension. We found that 25.6% of NYC adults had hypertension. Blacks had a higher prevalence than whites (32.8% versus 21.1%, P < 0.001), as did Hispanics (26.5% versus 21.1%, P < 0.05). Foreign-born residents who had lived in the United States for <10 years had lower rates than those who had lived in the United States longer (20.0% versus 27.5%, P < 0.05). Among adults with hypertension, 83.0% were diagnosed, 72.7% were treated, and 47.1% had hypertension controlled. Of those treated, 64.8% had hypertension controlled. After adjustment for sociodemographic variables among all adults with treated hypertension, lack of a routine place of medical care was most strongly associated with poor control levels (adjusted odds ratio 0.21, 95% confidence interval 0.07 to 0.66). Among nonelderly adults with treated hypertension, blacks had 4-fold lower odds than whites of having hypertension controlled (adjusted odds ratio 0.24, 95% confidence interval 0.06 to 0.92).

**Conclusions**—In NYC, hypertension is common and frequently uncontrolled. Low levels of control are associated with poor access to care. Racial disparities in prevalence and control are evident among nonelderly adults. (Circ Cardiovasc Qual Outcomes. 2008;1:46-53.)

**Key Words:** blood pressure ■ cardiovascular diseases ■ epidemiology ■ hypertension ■ prevention

Hypertension is a major modifiable risk factor for cardiovascular disease (CVD), the leading cause of death in the United States. Although the prevention and control of hypertension is a recognized health priority, efforts to reduce the national burden of hypertension and improve control have had limited success. National studies with objective measurements of blood pressure, such as the National Health And Nutrition Examination Survey (NHANES), have been used to accurately describe trends, populations at risk, and hypertension control rates, but the ability to monitor local disease patterns and to guide effective public health interventions on the basis of analysis of national data sets is limited. Many local health authorities rely on telephone survey–derived estimates of hypertension prevalence for these purposes; however, self-reported data cannot capture undiagnosed hypertension and may not provide accurate information on either prevalence or control of diagnosed hypertension. Objective measurements of key health conditions at the local level, including hypertension, are needed.

**Clinical Perspective see p 53**

A scientific statement recently released by the American Heart Association recommended that states and certain localities develop surveillance capacity that would include direct assessment of “awareness, detection, treatment, and control of obesity, hypertension, dyslipidemia, and diabetes.” The New York City (NYC) Department of Health and Mental Hygiene is the first to conduct a community-level Health And Nutrition Examination Survey (HANES), modeled on NHANES and designed to be replicated periodically for surveillance purposes. In the present study, we describe hypertension prevalence; estimate rates of awareness, treatment, and control; and explore associations between hypertension control and socioeconomic and demographic factors. Analysis of these community-level data provides an understanding of the impact of NYC’s higher than average proportion of poor people, blacks, Latinos, and immigrants, demographics known to influence hypertension prevalence and
control. We consider important indicators of local access to care related to hypertension control. Our findings highlight important local differences in disease patterns in this diverse and densely populated urban environment compared with national estimates, identify opportunities to prevent and control hypertension and reduce disparities in NYC, and provide a baseline for evaluation of related local interventions. The present analysis may also inform other health departments, policy makers, and researchers considering surveillance and hypertension-related interventions in similar populations and settings.

**Methods**

NYC HANES, conducted according to NHANES procedures, is a population-based, cross-sectional survey of noninstitutionalized NYC adult residents ≥20 years of age. Detailed information on data collection components, protocols, and study design has been published elsewhere. Briefly, a 3-stage cluster sampling plan was used to recruit participants between June and December 2004. The stages of sample selection were as follows: (1) selection of census blocks or groups of blocks; (2) random selection of households within selected segments; and (3) random selection of study participants within households. The survey included a face-to-face computer-assisted personal interview, private audio computer-assisted self-interview, physical examination, and laboratory testing. All of the study participants gave informed consent, and the study received approval from the NYC Department of Health and Mental Hygiene Institutional Review Board. Of the 3047 selected eligible survey participants, 1999 individuals completed the interview and at least 1 examination component (cooperation rate 66%), which yielded an overall survey response rate of 55%. We were able to assess differences between responders and nonresponders by sex, age group, and borough of residence. Cooperation rates were similar by sex but varied somewhat by age group and borough of residence. Fifty-nine percent of adults ≥65 years of age responded, and 51% responded in Staten Island. These analyses included participants who answered the blood pressure screening interview question and had valid blood pressure measurements (n=1975). For each participant, 3 to 4 systolic/diastolic blood pressure measurements were taken with standardized NHANES protocols and equipment. The blood pressure measurement was the average of these measurements, excluding the first reading. If only one valid measurement was available, it was used.

Hypertension was defined as (1) an average systolic blood pressure ≥140 mm Hg, (2) an average diastolic blood pressure ≥90 mm Hg, or (3) current use of prescribed antihypertensive medication (self-reported). Hypertensive participants were considered aware of their hypertension if they reported that they had ever been told by a healthcare professional that they had hypertension or were told aware of their hypertension if they reported that they had ever received prescribed antihypertensive medications for hypertension (self-reported). Hypertensive participants were considered controlled if they had an average systolic blood pressure <140 mm Hg and an average diastolic blood pressure <90 mm Hg. Levels of hypertension awareness and treatment in those with uncontrolled hypertension were further stratified by stage 1 (average systolic blood pressure ≥140 to 159 mm Hg), stage 2 (average systolic blood pressure 90 to 99 mm Hg), and stage 3 (average systolic blood pressure ≥160 mm Hg). Participants whose systolic and diastolic blood pressure fell into different stages were categorized as being in stage II.

Hypertension outcomes were estimated across subgroups based on sociodemographic characteristics and access to care. We reclassified self-reported race and Hispanic origin as non-Hispanic white, non-Hispanic black, non-Hispanic Asian, and Hispanic. Multiracial respondents selecting a main race were recoded into the selected category. Participants whose answers did not correspond to one category were categorized as ‘other’; estimates for this group were not shown because of the small sample size (n=28). For insurance coverage, participants reporting any private health insurance were classified as having private insurance. Otherwise, persons ≥65 years of age who reported having Medicare were classified as having Medicare, and other government coverage included all remaining participants who reported having Medicaid, Medicare, or another government program. Individuals who reported having no usual place of care or who indicated a hospital emergency department as the type of place they usually go for care were considered to have no routine place of care.

Analyses were weighted to adjust for the complex sampling design and nonresponse; weights were poststratified to represent the NYC adult population on age, sex, race/ethnicity, and borough of residence, then further adjusted to address component- and item-level nonresponse. SUDAAN version 9.0 (Research Triangle Institute, Research Triangle Park, NC) was used to apply sample weights and to obtain standard error estimates by Taylor series linearization. Prevalence estimates were age adjusted to the year 2000 US standard population ≥20 years of age unless otherwise noted. Because of the small numbers, particularly among the younger hypertensive population, estimates of awareness, treatment, and control within demographic subgroups were not age adjusted. Statistical significance for differences in bivariate comparisons was determined at the α=0.05 level with the t statistic derived from the general linear contrast procedure. Relative standard errors and 95% confidence intervals (CIs) were calculated for means and percentages. Estimates with relative standard errors of ≥30% were noted as unreliable.

Multiple logistic regression was used to assess factors associated with hypertension control, including sociodemographics and indicators of healthcare access among adults with treated hypertension. We adjusted our models based on known risk factors, including age, race/ethnicity, sex, place of birth, education, income level, insurance status, and having a routine place for care. We further explored hypertension control among those 20 to 64 years of age because of the lack of universal health coverage for this age group and because black–white disparities in NYC CVD mortality rates are greatest in those <65 years of age.

The authors had full access to the data and take full responsibility for the integrity of the data. All authors have read and agree to the manuscript as written. Detailed information on the design and execution of the 2004 NYC HANES survey, including survey instruments and publications, is posted at www.nyc.gov/health/nycHANES. Researchers may also access public-use data sets and documentation on this site.

**Results**

Among NYC adults, the prevalence of hypertension was 25.6% (95% CI 23.4% to 27.8%) and was similar for men and women (Table 1). Average blood pressure was 117.6/71.0 mm Hg; males had a higher mean than females (120.1/73.8 versus 115.7/68.7 mm Hg, P<0.001). Fewer than 1% of adults reported never having had their blood pressure taken by a health professional.

Hypertension prevalence increased with age, from 6.5% among 20- to 44-year-olds to 71.0% among adults ≥65 years of age (Table 2). Age- and sex-specific estimates indicated that women ≥65 years of age had the highest prevalence, significantly higher than men in the same age category (80.4% versus 62.0%, P<0.001). Prevalence among blacks was much higher than among whites (32.8% versus 21.1%, P<0.001); prevalence among Hispanics was also higher than among whites (26.5% versus 21.1%, P<0.005). Foreign-born individuals who had been living in the United States <10 years had a lower prevalence of hypertension than those in the United States ≥10 years (20.0% versus 27.5%, P<0.05). Prevalence of hypertension by nativity and duration
in the United States varied slightly by sex. Foreign-born males who had lived in the United States for 10 years had the highest rate (31.6%), significantly higher than their female counterparts (24.4%, \(P < 0.05\)), US-born males (24.6%, \(P < 0.05\)), or foreign-born males who had arrived within the past 10 years (14.3%, \(P < 0.01\)). Differences by nativity were not observed in women.

Socioeconomic factors including education and income were associated with hypertension. Adults with more than a high school education had lower rates (20.9%) than adults

Table 1. Clinical and Behavioral Characteristics of Participants in NYC HANES, 2004, Adults \(\geq 20\) Years of Age

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total (n=1975)</th>
<th>Men (n=822)</th>
<th>Women (n=1153)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension, %</td>
<td>25.6 (23.4–27.8)</td>
<td>25.5 (22.5–28.7)</td>
<td>26.0 (23.5–28.8)</td>
</tr>
<tr>
<td>Mean systolic BP, mm Hg</td>
<td>117.6 (116.7–118.6)</td>
<td>120.1 (119.0–121.3)</td>
<td>115.7 (114.5–116.8)</td>
</tr>
<tr>
<td>Mean diastolic BP, mm Hg</td>
<td>71.0 (70.4–71.6)</td>
<td>73.8 (73.0–74.6)</td>
<td>68.7 (67.9–69.9)</td>
</tr>
<tr>
<td>Never had BP checked, %</td>
<td>0.8 (0.5–1.3)</td>
<td>1.3 (0.7–2.2)</td>
<td>0.4 (0.1–0.9)</td>
</tr>
</tbody>
</table>

BP indicates blood pressure. Values in parentheses are 95% CIs. Estimates are age adjusted to the 2000 US standard population.

Table 2. Prevalence of Hypertension by Demographic, Clinical, and Behavioral Characteristics Among NYC Adults \(\geq 20\) Years of Age, NYC HANES, 2004

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20–44 y (referent)</td>
<td>1188 (6.5)</td>
<td>5.0–8.4</td>
<td>492 (8.7)</td>
</tr>
<tr>
<td>45–64 y</td>
<td>605 (31.4)*</td>
<td>27.4–35.8</td>
<td>245 (31.0)*</td>
</tr>
<tr>
<td>(\geq 65) y</td>
<td>182 (71.0)*</td>
<td>62.8–78.1</td>
<td>85 (62.0)*</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, non-Hispanic (referent)</td>
<td>611 (21.1)</td>
<td>18.2–24.3</td>
<td>290 (20.1)</td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td>426 (32.8)*</td>
<td>28.7–37.2</td>
<td>159 (32.4)*</td>
</tr>
<tr>
<td>Asian, non-Hispanic</td>
<td>258 (24.7)</td>
<td>19.9–30.3</td>
<td>113 (24.4)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>652 (26.5)*</td>
<td>22.4–31.0</td>
<td>247 (29.7)*</td>
</tr>
<tr>
<td>Country of birth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US born (including territories; referent)</td>
<td>961 (25.8)</td>
<td>22.9–28.9</td>
<td>398 (24.6)</td>
</tr>
<tr>
<td>Foreign born (total)</td>
<td>994 (25.6)</td>
<td>22.8–28.6</td>
<td>411 (27.2)</td>
</tr>
<tr>
<td>In United States (\geq 10) y</td>
<td>616 (27.5)</td>
<td>24.1–31.0</td>
<td>243 (31.6)*</td>
</tr>
<tr>
<td>In United States (&lt; 10) y</td>
<td>378 (20.0)</td>
<td>14.5–26.8</td>
<td>168 (14.3)*†</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>568 (31.5)*</td>
<td>27.8–35.4</td>
<td>214 (30.4)*</td>
</tr>
<tr>
<td>High school</td>
<td>384 (28.5)*</td>
<td>24.7–32.7</td>
<td>169 (30.1)*</td>
</tr>
<tr>
<td>More than high school (referent)</td>
<td>1020 (20.9)</td>
<td>17.9–24.2</td>
<td>436 (21.3)</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;$20 000</td>
<td>650 (28.1)*</td>
<td>24.8–31.6</td>
<td>242 (26.4)</td>
</tr>
<tr>
<td>(\geq 20) 000 (referent)</td>
<td>1277 (23.7)</td>
<td>21.1–26.4</td>
<td>563 (24.8)</td>
</tr>
<tr>
<td>Insurance coverage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private (referent)</td>
<td>965 (23.4)</td>
<td>20.6–26.5</td>
<td>409 (23.8)</td>
</tr>
<tr>
<td>Medicare</td>
<td>81 (73.7)*</td>
<td>62.1–82.7</td>
<td>39 (61.8)*</td>
</tr>
<tr>
<td>Other government</td>
<td>455 (28.1)</td>
<td>23.8–32.8</td>
<td>125 (26.2)</td>
</tr>
<tr>
<td>Uninsured</td>
<td>465 (23.4)</td>
<td>18.9–28.5</td>
<td>244 (25.2)</td>
</tr>
<tr>
<td>Have a routine place of care</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (referent)</td>
<td>1427 (26.8)</td>
<td>24.3–29.5</td>
<td>537 (27.0)</td>
</tr>
<tr>
<td>No</td>
<td>546 (17.5)*</td>
<td>12.8–23.5</td>
<td>285 (17.8)*</td>
</tr>
</tbody>
</table>

Percentages for all characteristics (excluding age group) are age adjusted to the 2000 US standard population.

\*\(P < 0.05\) compared with the referent group.

†Estimate unreliable due to relative standard error \(\geq 30\%\).
with less than a high school education (31.5%, P < 0.001) or a high school education (28.5%, P < 0.01). A similar trend was observed across income gradients, in which the low-income group had higher levels than the higher-income group (28.1% versus 23.7%, P < 0.05).

Among adults with hypertension, unadjusted rates of awareness, treatment, and control were examined (Table 3). Seventeen percent of hypertensive adults were unaware of their condition, 47.1% were treated and had their hypertension controlled, 25.6% were treated but had their blood pressure uncontrolled, and the remaining 10.3% were diagnosed but not receiving treatment. Overall, more than 1 in 4 (27.3%) hypertensive adults were not being treated at the time of the survey. Almost one third of those with uncontrolled blood pressure had stage II hypertension (28.8%), and of those receiving treatment but with uncontrolled hypertension, 36.5% had stage II hypertension. Age adjustment to the 2000 US standard population modified these findings; 75.0% of adults with hypertension were aware of their condition, 62.5% were in treatment, and 43.6% were controlled.

Age was an important predictor of hypertension awareness; of adults 20 to 44 years old, only 70.3% knew of their condition, compared with 86.0% among those 45 to 64 years old (P < 0.05) and 84.3% of those ≥65 years old (P < 0.05).
Treatment was also lower for young adults (55.8%) than for those who were 45 to 64 years old (73.4%, \(P < 0.05\)) or those 65 years old (77.5%, \(P < 0.01\)). Among adults who were being treated (Table 4), however, control was lowest among adults 65 years of age compared with 20- to 44-year-olds (57.1% versus 77.0%, \(P < 0.05\)).

Insurance status and having a routine place of care demonstrated a strong association with hypertension awareness, treatment, and control. Uninsured adults were less likely to be aware of their condition than were adults with private insurance (60.2% versus 86.5%, \(P < 0.001\); Table 3); they were also less likely to be receiving treatment (42.6% versus 76.6%, \(P < 0.001\)) and to have their hypertension controlled (25.8% versus 52.0%, \(P < 0.01\)). Compared with those who had a routine place of care, adults with no routine place of care were less aware (65.5% versus 85.1%, \(P < 0.01\)), less frequently under treatment (42.1% versus 76.4%, \(P < 0.001\)), and much less likely to have their hypertension controlled (18.8% versus 50.8%, \(P < 0.001\)).

In Table 4, we restricted our multivariable analyses to adults with treated hypertension. Model 1 included all adults 20 years old with treated hypertension, and model 2 was restricted to adults 65 years of age. After adjustment for sociodemographic factors among treated adults, those older than age 65 years were less likely than adults 20 to 44 years of age to have controlled hypertension (model 1; adjusted odds ratio [OR] 0.24, 95% CI 0.08 to 0.68). The lack of a routine place of care was also significantly associated with...
decreased odds of control in model 1 (adjusted OR 0.21, 95% CI 0.07 to 0.66). When older adults were excluded (model 2), having a routine place of care was no longer significant, and race/ethnicity was the only significant factor associated with control of hypertension after we controlled for other sociodemographic factors. Among treated adults <65 years of age, blacks had 4-fold lower odds than whites of having their hypertension controlled (adjusted OR 0.24, 95% CI 0.06 to 0.92). Although the association between having a routine place of care and control was not apparent when adults ≥65 years were excluded in model 2, we did not observe a significant interaction between age and having a routine place of care in model 1 (likely because of small sample size). Similarly, there was no significant interaction between age and race/ethnicity.

Discussion

The present examination survey showed that hypertension is common in NYC. Notably, having insurance and having a routine place of care were both strongly associated with higher rates of control among those with hypertension. Nevertheless, even for those with access to care, control was achieved by only half of those with disease, and a routine place of care remained important. Racial disparities existed in hypertension prevalence and control, particularly among adults <65 years of age.

Adult hypertension prevalence was lower in NYC than published national estimates (25.6% versus 29.6%). Higher rates might have been expected in NYC because of the city’s larger proportions of people living below the poverty level (20% versus 13% nationally) and of blacks (27% versus 12% nationally). 2 groups with well-described high rates of hypertension. Nevertheless, although blacks had higher rates than whites in NYC, blacks in NYC had less hypertension than blacks nationally (32.8% versus 39.1%). The lower prevalence in NYC may be the product of other local factors.

Although NYC may be performing better than the nation with respect to hypertension prevalence, there were significant inequities in disease distribution. Blacks had a 50% higher disease prevalence than whites, an excess risk that is observed nationally and is poorly understood. Higher local obesity rates among blacks than whites in NYC likely contribute to the hypertension disparity; however, obesity alone did not fully explain these disparities (stratified analysis not shown), nor did it account for the magnitude of observed disparities at the national level. Other hypertension risk factors that disproportionately affect blacks, including low birth weight, low early-life socioeconomic status, salt sensitivity, and discrimination may influence prevalence.

The racial–ethnic diversity of NYC’s population allows for the assessment of disparities in groups for which national data are unavailable. For example, NHANES does not provide stratifications for a total Hispanic population (although it does provide estimates of hypertension for Mexican Americans). Nationally, Mexican Americans had hypertension rates similar to whites. NYC’s Hispanic population, which is composed largely of Puerto Ricans and Dominicans, had higher hypertension rates than whites. Asians, for whom national prevalence estimates are also not available, were found to have similar prevalence and control rates to those of whites in NYC. NYC’s foreign-born population differs from the nation’s because it is not predominated by those of Mexican origin. Still, similar to national findings, the prevalence of hypertension increased with duration of US residency among NYC immigrants, which suggests that the health status of NYC’s immigrants worsens over time spent in the United States. These findings highlight the importance of local estimates among ethnic groups not previously available and indicate the utility of local examination surveys to identify priority populations for service improvement.

Medications to control hypertension have been available for decades, and many effective drugs are inexpensive. It is, therefore, alarming that more than half of those with hypertension remain uncontrolled and that only two thirds of those treated have hypertension controlled. Of those treated and uncontrolled, more than one third have stage II hypertension, which indicates a very high risk for a cardiovascular event. The observed association between insurance coverage, having a routine place of care, and rates of hypertension awareness, treatment, and control is striking and warrants further investigation, especially because urban living is associated with increased access to ambulatory care. Having insurance and a usual source of care are both associated with increased hypertension treatment and follow-up and would therefore be expected to improve control; however, we found routine place of care to be more strongly associated with hypertension control in treated adults than insurance status. These findings are supported by other research that found that although insurance facilitates access to a regular provider, of the 2 parameters, having a regular provider was a stronger predictor of care seeking and timely medical visits. Although not all studies in hypertensive populations have detected an independent association between having a regular provider and improved control, it has been described nationally and in NYC more than 15 years ago in a case–control study. Confirmation of the persistence of this finding in a representative sample of NYC residents bolsters the argument that systems-level improvements in care access and delivery will be central to improving hypertension control in NYC.

Although the present findings stress the contribution of insurance and a medical home to the detection, treatment, and ultimate control of hypertension, sizable race/ethnic disparities in hypertension control were observed among treated hypertensive adults <65 years of age, even after adjustment for usual care and insurance status. Virtually all patients with hypertension can achieve blood pressure control, irrespective of race. Recognized race-related quality-of-care differentials exist and are likely related to a combination of provider, patient, and systems-level factors; however, the evidence base needed to understand how to effectively eliminate contributors is limited and urgently needed.

The present study has limitations associated with potential measurement error, survey response rates, and small sample size for subgroup analyses. First, although a clinical diagnosis of hypertension requires documentation of elevated pressures on 2 separate office visits, our measurements were collected...
in 1 sitting, which potentially could have caused us to overestimate disease rates. On the other hand, prevalence and treatment may also have been underestimated, because these definitions do not capture adults who have been told they have high blood pressure but are controlling it through therapeutic lifestyle changes alone.34 The lower blood pressure target of 130/80 mm Hg for people with diabetes mellitus or chronic kidney disease was introduced in 2003,34 the year before data collection for the present study began. Because it was unlikely that all providers would have modified practices before the survey period, we did not use the new definition and thereby potentially underestimated hypertension prevalence and overestimated its control under current definitions. Another limitation is the 55% survey response rate. We addressed this potential selection bias through the use of survey weights that adjusted for information on age, sex, race/ethnicity, borough of residence, income, education, language spoken at home, and household size, obtained either directly from interviews or from neighborhood census data. Other potential sources of error include recall bias and measurement error. The latter was minimized and made nationally comparable by the use of standardized quality assurance procedures. Furthermore, small sample sizes for certain subgroups in NYC HANES may have limited the power to detect potentially important demographic variations.

Another limitation is that the present model could not measure all aspects of access to care. For example, insurance and an identified routine place of care may not guarantee consistent access to care over time. Each year, 32% of all New York State public insurance beneficiaries with a chronic condition experience a loss of coverage during recertification.35 These interruptions in coverage may delay needed follow-up and disrupt established patient–provider relationships, thus affecting chronic disease care.36 Hypertension is the leading cause of CVD-related death, yet its prevalence remains high, control is poor, and important health disparities persist. There are several steps that could be taken to address the problem of hypertension. Interventions that incorporate contextual changes, such as altering the built environment to increase physical activity or decreasing the sodium content in the food supply,37 offer the greatest potential for broad and long-term reductions in hypertension and merit public, industry, and government action. Such primary prevention strategies have not been pursued vigorously but would be effective and less costly than the medical management of hypertension and its consequences. Increasing insurance coverage and the number of individuals with a medical home are key areas for focused policy interventions. Still, these changes will not eliminate hypertension-related morbidity, because we observed persistently poor rates of control even among those with demographic and access-to-care advantages. Given the differential hypertension control rates of people in care by race, the expansion of coverage will not be sufficient to eliminate the wide disparities found. Aggressive systems-wide improvements in care that result in meaningful outcomes for all must be pursued.

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References
CLINICAL PERSPECTIVE

Preventing and controlling hypertension is a national public health priority, yet nationally, the disease remains common, is poorly controlled, and contributes more to racial disparities in years of potential life lost than any other disease. Findings from analyses of the New York City Health and Nutrition Examination Survey (NYC HANES), the first municipal survey of New York City adults and has a tremendous impact on clinical practices. Its high burden alone argues for increased physician advocacy and involvement in public health efforts to prevent the disease at the population level. The striking disparities found in hypertension prevalence call for increased efforts in low-income communities of color experiencing a disproportionate burden of disease. Our findings support that at the healthcare systems level, increasing insurance coverage and the number of individuals with a medical home contributes to improved rates of hypertension treatment and control. Yet our findings also suggest that these changes alone are unlikely to eliminate observed racial disparities in hypertension control. Clinicians must carefully consider and explore alternative methods of practice organization that will assure consistent and panel-wide patient improvements in disease management and outcomes.

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