Health Insurance and Chronic Conditions in Low-Income Urban Whites

J. R. Smolen, Roland J. Thorpe, JR., J. V. Bowie, D. J. Gaskin,
and T. A. LaVeist

ABSTRACT *Little is known about how health insurance contributes to the prevalence of chronic disease in the overlooked population of low-income urban whites. This study uses cross-sectional data on 491 low-income urban non-elderly non-Hispanic whites from the Exploring Health Disparities in Integrated Communities—Southwest Baltimore (EHDIC-SWB) study to examine the relationship between insurance status and chronic conditions (defined as participant report of ever being told by a doctor they had hypertension, diabetes, stroke, heart attack, anxiety or depression, asthma or emphysema, or cancer). In this sample, 45.8 % were uninsured, 28.3 % were publicly insured, and 25.9 % had private insurance. Insured participants had similar odds of having any chronic condition (odds ratios (OR) 1.06; 95 % confidence intervals (CI) 0.70–1.62) compared to uninsured participants. However, those who had public insurance had a higher odds of reporting any chronic condition compared to the privately insured (OR 2.29; 95 % CI 1.21–4.35). In low-income urban areas, the health of whites is not often considered. However, this is a significant population whose reported prevalence of chronic conditions has implications for the Medicaid expansion and the implementation of health insurance exchanges.*

KEYWORDS *Chronic conditions, Health insurance, Low-income urban whites, Affordable Care Act*

INTRODUCTION

The relationship between health insurance and chronic disease is complex. According to the 2005–2006 Medical Expenditure Panel Survey (MEPS), almost 36 % of uninsured adults have been diagnosed with at least one chronic condition.¹ Yet, the uninsured are more likely to have undiagnosed chronic disease and less likely to have a chronic condition that is well-managed.² Nearly 64 % of those on public insurance report at least one chronic condition.¹ The relationship between Medicaid and health outcomes is unclear; studies have shown: Medicaid recipients had higher 30-day mortality than those with private insurance,³ Medicaid recipients had better access to care than those with private health insurance because of lower

Smolen, Thorpe, Bowie, Gaskin, and LaVeist are with the Hopkins Center for Health Disparities Solutions, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; Smolen, Gaskin, and LaVeist are with the Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; Thorpe and Bowie are with the Department of Health Behavior and Society, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; Smolen is with the Undergraduate Program in Public Health Studies, Krieger School of Arts and Sciences, Johns Hopkins University, Baltimore, MD, USA.

Correspondence: Roland J. Thorpe, Jr., Hopkins Center for Health Disparities Solutions, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA. (E-mail: rthorpe@jhsph.edu)

cost-sharing,^{4, 5} and that Medicaid recipients had worse cardiovascular outcomes and higher clinical mortality than the uninsured.^{6–8} The underlying socioeconomic factors and access to community and family resources of those on Medicaid, and the extent to which studies measured and accounted for these, may account for this variation in findings.⁹

The association with health insurance must be examined because chronic disease poses a significant problem to the US healthcare system. Annual healthcare spending is nearly three times more for a patient with a chronic condition compared to one without.¹⁰ Considering that directly or indirectly the public ends up paying for the healthcare costs of the uninsured and those on Medicaid, the connection between health insurance and chronic disease merits exploration.

Low-income urban whites are a significant but overlooked population in discussions of uninsurance and public insurance. While a higher percentage of minorities are uninsured in the USA, non-Hispanic whites make up the largest number.¹¹ When it comes to literature on this and related health topics, however, low-income whites are largely ignored or unseen. Among research on low-income whites, attention is mostly paid to those living in rural areas. National datasets include data for low-income whites; yet, the datasets contain both urban and rural low-income whites, which may mask the differences between the two populations.¹² This conflation of race, residence, and poverty makes it difficult to find data that examine poverty by both residence and race. In urban areas, research attention is focused almost exclusively on racial and ethnic minorities. However, low-income urban whites may face the same risk profiles and resource deprivation as minorities living in urban settings.¹² The existing research generally captures a low-income urban sample that includes whites for comparison purposes. Though studies have found that low-income urban whites experience similar hospitalization, screening, and cancer rates as their minority counterparts, the implications of those findings were not fully explored.^{13–16} In the only study found to address low-income urban whites exclusively, Bowie and colleagues¹² found this population had poorer screening rates than the low-income whites in national datasets, as well as poorer general health status and higher rates of obesity.

Little is known about the chronic disease prevalence and insurance status of low-income urban whites. According to data from MEPS, among the non-elderly poor living in a metropolitan statistical area who are uninsured, 35.05 % are non-Hispanic whites—yet, this population goes unrecognized. The implications of this gap in knowledge and understanding are serious. This paper aims to examine the association between health insurance status and chronic disease prevalence in a sample of low-income urban non-elderly white adults; it hypothesizes that those who are uninsured or on public insurance will have greater odds of reporting any chronic condition than those who have private insurance.

METHODS

Exploring Health Disparities in Integrated Communities—Southwest Baltimore (EHDIC-SWB) is a cross-sectional face-to-face survey of the adult population (age 18 and older) of two contiguous census tracts that was conducted in 2003. In addition to being economically homogenous, the study site was also racially balanced and well integrated, with almost equal proportions of African American and non-Hispanic white residents. In the two census tracts, the racial distribution was 51 % African American and 44 % non-Hispanic white, and the median income for the study area was \$24,002, with no race difference. The census tracts were

block listed to identify every occupied dwelling in the study area. During block listing, we identified 2,618 structures. Of those, 1,636 structures were determined to be occupied residential housing units (excluding commercial and vacant residential structures). After at least five attempts, contact was made with an eligible adult in 1,244 occupied residential housing units. Of that number, 65.8 % were enrolled in the study resulting in 1,489 study participants (41.9 % of the 3,555 adults living in these two census tracts recorded in the 2000 Census).

Comparisons to the 2000 Census for the study area indicated that the EHDIC-SWB sample included a higher proportion of blacks and women, but was otherwise similar with respect to other demographic and socioeconomic indicators.¹⁷ For instance, our sample was 59.3 % African American and 44.4 % male, whereas the 2000 Census data showed the population was 51 % African American and 49.7 % male. Age distributions in our sample and 2000 Census data were similar with the median age for both samples—35–44 years. The lack of race difference in median income in the census, \$23,500 (African American) vs. \$24,100 (non-Hispanic whites), was replicated in EHDIC, \$23,400 (African American) vs. \$24,900 (non-Hispanic whites).

The survey was administered in person by a trained interviewer and consisted of a structured questionnaire, which included demographic and socioeconomic information, self-reported health behaviors and chronic conditions, and three blood pressure measurements. The EHDIC Study has been described in greater detail elsewhere.^{17–20} The study was approved by the Committee on Human Research at the Johns Hopkins Bloomberg School of Public Health. This project only included the 491 non-Hispanic whites who were under the age of 65, as those over the age of 65 are overwhelmingly covered through Medicare.

MEASURES

Outcome

The outcome measure of this project was any chronic condition. This outcome was determined by asking participants if a doctor ever told them that they had any of the following conditions: hypertension, diabetes, stroke, heart attack, anxiety or depression, asthma or emphysema, or cancer. Those who responded “yes” to any of those options were classified as having “any chronic condition.”

Main Independent Variable

Insurance status and type were the main independent variables. Insurance status was determined by asking respondents if they were covered by “private insurance,” “Medicare,” “Medicaid,” or “other type of insurance.” Respondents who answered yes to any of these questions were classified as insured, while those who responded no to all the options were considered uninsured. Insurance type was differentiated for those who had insurance as “private insurance” or “public insurance.” Due to the average income and age of this sample, it was assumed that most respondents who had public insurance received Medicaid. Some respondents indicated they received Medicare, but it has been previously shown that public insurance recipients do not always accurately recall which type of public insurance they receive.²¹ Therefore the category of “public insurance” contained all respondents who answered they were covered by “Medicare” or “Medicaid.” Seven respondents selected both private insurance and Medicare or Medicaid. These respondents were

placed into the private insurance category, as the private insurer may be the primary payer.

Covariates

Age and household income were measured as continuous variables in the analysis. Household income was divided by 5,000 to compute a more meaningful odds ratio. Marital status was divided into five binary variables: married or living as married, divorced, widowed, separated, and never been married. Educational level was determined first by receipt of a high school diploma, high school equivalency, or GED test, then by level of schooling. This resulted in educational level categories of “high school diploma or GED,” “eighth grade or less, no GED,” “some high school, no GED or diploma,” and “more than high school,”

Employment status was represented by three binary variables of “employed,” “unemployed,” or “other.” The category “employed” included only those with full-time employment. “Unemployed” encompassed the responses “working part-time” or “unemployed”. Those who responded “working part-time” were not analyzed separately, as generally only full-time employment is associated with benefits, including health insurance. The category of “other” included the responses “retired,” “disabled,” “attending school,” or “maintaining the home.”

Statistical Analysis

Means and standard deviations were calculated to summarize continuous variables, and proportions were performed to summarize categorical variables for the total sample. ANOVA was used to compare continuous variables by insurance groups. For categorical variables, a chi-square test was used to compare categorical variables by insurance type. Odds ratios (OR) and 95 % confidence intervals (CI) were calculated for logistic regressions. These regressions were used to examine the relationship between insurance status and having any chronic condition, and between insurance type and having any chronic condition. These models controlled for age, income, educational level, employment status, marital status, and gender. *p* values less than 0.05 were considered statistically significant, and all tests were two-sided. All statistical analyses were performed using Stata v. 11 statistical analysis software (Stata Corp., College Station, TX).

RESULTS

Table 1 displays the demographic characteristics of the uninsured, publicly insured, and privately insured non-Hispanic white population under the age of 65 in EHDIC-SWB. Of the 491 study participants in this population, 54.6 % were female. The mean age was 39.6 ± 12.2 , and the mean income was $\$26,157.5 \pm 24,181.9$. The majority of respondents had never been married and had a GED or high school diploma. Of the sample, 30.6 % were employed full-time.

Of the 491 respondents, 28.3 % are publicly insured, 45.8 % are uninsured, and 25.9 % are privately insured. The publicly insured had the lowest income, followed by the uninsured; the privately insured had the highest income. A lower proportion of the uninsured were female. The privately insured had higher proportions married or living as married, and lower proportions separated. The uninsured had a lower proportion widowed than the privately or publicly insured and a higher proportion of never been married than the privately insured. The groups were similar in respect to high school diploma or GED. The privately insured had lower rates of less than

TABLE 1 Select characteristics of low-income non-elderly urban whites for the total sample and by insurance status and type in EHDIC-SWB

Characteristic	Total <i>n</i> =491	Uninsured <i>n</i> =225	Publicly insured <i>n</i> =139	Privately Insured <i>n</i> =127	<i>p</i> value
Age (years)±SD	39.6±12.2	38.0±11.5	40.8±12.3	41.1±13.1	0.055
Income ± SD	26,157.5±24,181.9	25,191.2±22,900.6	14,270.8±14,116.3	40,879.2±27,340.5	<0.001
Female (%)	54.6	47.1	62.6	59.1	0.021
Marital status (%)					
Married or living as married	26.1	18.7	24.5	41.3	<0.001
Widowed	5.7	3.1	7.9	7.9	0.115
Divorced	18.4	20.9	18.0	14.3	0.497
Separated	9.6	11.6	13.0	2.4	0.009
Never been married	40.2	45.8	36.7	34.1	0.115
Educational level (%)					
Eighth grade or less, no GED	18.1	20.4	23.0	8.7	0.13
Some high school, no GED or diploma	28.3	32.0	33.8	15.8	0.004
High school diploma or GED	34.6	35.6	36.7	30.7	0.527
More than high school	18.9	12.0	6.5	44.9	<0.001
Employment status (%)					
Unemployed	40.2	53.3	35.5	22.1	<0.001
Employed	30.6	28.0	10.1	57.5	<0.001
Other	29.2	18.7	54.4	20.5	<0.001

SD standard deviation

an eighth grade education without a GED and some high school education without a GED/diploma. The uninsured and publicly insured had lower rates of more than a high school education than the privately insured. The privately insured had higher rates of employment and lower rates of unemployment than the publicly insured or uninsured. The publicly insured had higher rates of other employment.

The distribution of any chronic condition by insurance type is shown in Table 2. Those with public insurance had the highest proportion of having any chronic condition, 74.8 %, and were significantly more likely to report any chronic condition than the uninsured (56.9 %), and those with private insurance (48.8 %).

After adjusting for potential confounders, those who were insured had similar odds of having any chronic condition as those who were uninsured (OR 1.06; 95 % CI 0.70–1.62). When distinguishing between the types of insurance, those with private insurance had similar odds of reporting any chronic condition (OR 0.63; 95 % CI 0.36–1.09), as did those with public insurance (OR 1.56; 95 % CI 0.93–2.63), compared to those without insurance. These results are not shown.

To assess the question of whether those with public insurance had greater odds of reporting any chronic condition than those with private insurance, a logistic regression model was specified with the privately insured as the reference group. As can be seen in Table 3, those who were uninsured had similar odds of reporting any chronic condition compared to those on private insurance (OR 1.45; 95 % CI 0.85–2.49). However, those with public insurance had greater odds of reporting a chronic disease than those with private insurance (OR 2.29; 95 % CI 1.21–4.35).

Those with the employment status “other” also had a greater odds of having any chronic condition. This is likely due to the inclusion in that category of those who are unable to work due to disability, and the association between disability and chronic conditions.²² None of the other covariates were statistically significant predictors. This is possibly due to multicollinearity. A Wald test was performed to assess the covariates for joint significance, and it was found that all covariates were significant contributors to the model’s fit.

DISCUSSION

This study shows that in a low-income urban white population, both the uninsured and insured had statistically similar odds of having any chronic condition. However, having public insurance was associated with greater odds of having any chronic condition compared to those with private insurance.

TABLE 2 Distribution of reporting any chronic condition in low-income non-elderly urban whites in EHDIC-SWB

Type of insurance	Any chronic condition		
	<i>n</i>	%	<i>p</i> value
Uninsured	128	56.9	<0.001
Public insurance	104	74.8	
Private insurance	62	48.8	

Any chronic condition included hypertension, cardiovascular disease, cancer, diabetes, asthma or emphysema, and anxiety or depression

TABLE 3 Association between having any chronic condition and type of insurance as compared to private insurance in low-income non-elderly urban whites in EHDIC-SWB

	OR (95 % CI)
Insurance status	
Private insurance	1.00
Uninsured	1.45 (0.85–2.49)
Public insurance	2.29 (1.21–4.35)
Age	1.05 (1.03–1.08)
Gender	0.78 (0.51–1.20)
Income	1.01 (0.97–1.06)
Employment status	
Employed	1.00
Unemployed	1.18 (0.72–1.94)
Other	2.73 (1.51–4.96)
Marital status	
Married or living as married	1.00
Widowed	0.85 (0.30–2.39)
Divorced	1.22 (0.64–2.31)
Separated	1.35 (0.61–3.01)
Never been married	0.85 (0.50–1.46)
Educational level	
High school diploma or GED	1.00
Eighth grade or less, no GED	1.43 (0.77–2.63)
Some high school, no GED or diploma	1.42 (0.86–2.36)
More than high school	0.95 (0.52–1.72)

Models were adjusted for age, income, marital status, and educational status. Any chronic condition included hypertension, cardiovascular disease, cancer, diabetes, asthma or emphysema, and anxiety or depression

Why would those with public insurance have a poorer health profile than the privately insured? It was expected that the uninsured would have the worst health profile—yet, the uninsured were similar to the insured in terms of reporting any chronic condition. In fact, the uninsured make up a small proportion of the total number of Americans living with chronic disease.¹⁰ This may be in part because their lack of care or infrequent care means they are less likely to visit a doctor and be informed by that doctor that they have a chronic condition.² Chronic conditions such as hypertension and heart disease may remain symptomless until the disease has progressed, which can further compound the problem. Therefore, the uninsured would be less likely to report the condition on a survey regardless of true disease status. As this study used participants' report of ever being told they had a chronic condition and did not perform any medical exams or screenings to determine chronic condition status, only the prevalence of reported chronic disease can be determined. In order to determine the true prevalence of a chronic disease, a study would need to perform medical exams and screenings to assess each respondent.

While unable to account for undiagnosed chronic disease in the uninsured, this study did find that the publicly insured had greater odds of reporting any chronic condition. These increased odds among the publicly insured could be attributed to the underlying characteristics of the publicly insured population—but this study controls for many of the potential covariates, including educational attainment, marital status, income, employment status, and age. This study also accounts for

environmental and sociocultural conditions—participants were recruited from two contiguous census tracts in the same low-income neighborhood in Southwest Baltimore. All respondents, regardless of insurance type, lived in the same tracts, so it is unlikely that neighborhood factors such as walkability or access to safe spaces for exercise resulted in the difference between the groups. There are other possible mechanisms through which public insurance may contribute to the higher prevalence of chronic disease.

Public insurance may draw in those with poorer health. Of those eligible for Medicaid, people tend to enroll in the program when they need care. This leaves some of the healthier population eligible for Medicaid among the uninsured, as they are not suffering from a health problem that would push them to enroll.²³ It is also possible that the Medicaid population is sicker since illness can affect income in ways that may lead to Medicaid eligibility and consequent enrollment. A working adult with an income too high to be eligible for Medicaid could develop a chronic condition such as diabetes. That condition could progress to the point at which he or she would be forced to retire or work less due to the complications, and the loss of income could enable enrollment in Medicaid. If the population of the publicly insured has poor health because the insurance attracts those who are sick and need care, attempts to reduce the prevalence of chronic disease in low-income, urban populations will have to look beyond health insurance access to the reasons those people became sick in the first place.

This risk selection into the Medicaid population may be increased in low-income whites, since they are known to have lower Medicaid take-up. According to the 2002 National Survey of American Families, only 55 % of eligible low-income white adults actually enroll in Medicaid; although this is higher than the 43 % of Hispanics who enroll, it is lower than the African American enrollment rate of 63 %.²⁴ Low-income whites are also known to have lower take-up of other social benefit programs, such as food stamps. Participation in the Food Stamp Program is actually lower for non-Hispanic whites than for any other race/ethnicity.²⁵ Although data is not known for low-income urban whites specifically, it is possible that low participation in Medicaid in this population means that a higher percentage of those who do enroll are already sick.

Implications

The USA has already passed healthcare reform that will decrease the number of uninsured in this country.²⁶ The reform's emphasis on access to care is important in the proven effect that primary care and a regular source of care has on health.²³ However, as the results of this study show, having insurance does not necessarily reduce the prevalence of chronic disease. Many of those who currently receive public insurance already have chronic conditions, and some of those who will gain access to care through the Medicaid expansion will be diagnosed with chronic conditions they may have unknowingly had for years. Once Medicaid is expanded, particular attention must be paid to the management and control of these chronic conditions in order to bring down healthcare spending. Yet, the reform will only increase access to care among those who actually enroll in public insurance. Greater recognition of the low-income white population is necessary and especially the low-income urban white population, to understand their barriers to enrollment.

Since the uninsured had a similar health profile as the privately insured, concerns about costs skyrocketing due to the Medicaid expansion may be unfounded. Contrary to expectation, in low-income urban whites who are currently uninsured,

utilization after the Medicaid expansion may look more like that of their privately insured counterparts.

As this study exclusively examines the non-elderly population, not only is the public system going to have to support the care for chronic conditions, but it will also have to support that care for a longer period of time. Given the spiraling costs of healthcare in this country, it becomes urgent to further examine the health needs of low-income urban whites. If this population has a high disease burden even with access to health insurance, then other factors relating to disease prevention must be explored. These may be specific to this population, such as lower health literacy or lack of health education campaigns that target low-income urban whites, or they could be broader reasons such as reluctance to visit the doctor despite having access through public insurance.

Strengths and Limitations

EHDIC-SWB's main strength is that it examines the understudied population of low-income urban whites. Additionally, the sample size is large enough to make some conclusions about that population's health and the factors influencing it. EHDIC-SWB has shown that the population has poor health status, and this study allows an analysis of the contribution of health insurance.

The findings of this study should be considered in the context of the following limitations. While it is known that outcomes of uninsurance may vary by length of time spent uninsured or degree of cost-sharing of insurance providers,^{27, 28} the methodology of this study did not allow these to be examined nor did it allow for the establishment of temporal ordering between health insurance and having a chronic condition. A longitudinal design is needed to examine people who are free of disease both with and without insurance to examine the natural history of disease manifestation by insurance status and type.

This study was performed in a low-income, urban, racially integrated community. The results are not generalizable to higher income or rural populations. Very little research exists on low-income urban whites, and no studies have compared those living in integrated communities to those living in non-integrated communities. More research is necessary to understand whether these results are generalizable to low-income urban whites living in non-integrated communities.

CONCLUSION

Although the current emphasis on racial disparities is a necessary and important focus in the field of public health, it has tuned researchers in urban areas to specifically look for inequities that affect racial minorities. Low-income urban whites are not only understudied, but their problems accessing care are also not fully appreciated; though they are a significant population with a costly burden of chronic disease, the national conversation on health insurance expansion does not seem to recognize their existence.

The burden presented to the healthcare system by the uninsured and the publicly insured is unlikely to be lessening anytime in the near future. Trends show that employer-sponsored insurance is slowly but steadily decreasing, leaving more Americans vulnerable to becoming uninsured or reliant on public insurance.²⁹ While the changes brought about by the Affordable Care Act will expand insurance coverage through Medicaid and health insurance exchanges, in a low-income urban neighborhood, non-Hispanic whites on public insurance had greater odds of

reporting any chronic condition than those who were privately insured. Risk selection may account for this poor health profile, which has implications for the implementation of the Medicaid expansion and the health insurance exchanges—Maryland alone has 220,000 uninsured non-elderly whites who will be eligible to enroll for coverage under the Affordable Care Act.³⁰ The possible lower prevalence of chronic disease in this currently uninsured population suggests that expansion of health insurance may not be as costly as some fear.

ACKNOWLEDGMENTS

This research was supported by grant# P60MD000214 from the National Institute on Minority Health and Health Disparities (NIMHD) of the National Institutes of Health (NIH), and a grant from Pfizer, Inc. to the last author.

REFERENCES

1. Machlin S, Woodwell D. Healthcare expenses for chronic conditions among non-elderly adults: variations by insurance coverage, 2005–06 (average annual estimates). Statistical brief no. 243. Rockville (MD): Agency for Healthcare Research and Quality. http://meps.ahrq.gov/mepsweb/data_files/publications/st243/stat243.pdf. Published 2009.
2. Wilper AP, Woolhandler S, Lasser KE, McCormick D, Bor DH, Himmelstein DU. Hypertension, diabetes, and elevated cholesterol among insured and uninsured U.S. adults. *Health Aff (Millwood)*. 2009; 28(6): w1151–9.
3. Lyon SM, Benson NM, Cooke CR, Iwashyna TJ, Ratcliffe SJ, Kahn JM. The effect of insurance status on mortality and procedural use in critically ill patients. *Am J Respir Crit Care Med*. 2011; 184(7): 809–815.
4. Freeman HE, Corey CR. Insurance status and access to health services among poor persons. *Health Serv Res*. 1993; 28(5): 531–541.
5. Hahn B, Flood AB. No insurance, public insurance, and private insurance: do these options contribute to differences in general health? *J Health Care Poor Underserved*. 1995; 6(1): 41–59.
6. Gaglia MA Jr, Torguson R, Xue Z, et al. Effect of insurance type on adverse cardiac events after percutaneous coronary intervention. *Am J Cardiol*. 2011; 107(5): 675–680.
7. Sada MJ, French WJ, Carlisle DM, Chandra NC, Gore JM, Rogers WJ. Influence of payor on use of invasive cardiac procedures and patient outcome after myocardial infarction in the United States. Participants in the national registry of myocardial infarction. *J Am Coll Cardiol*. 1998; 31(7): 1474–1480.
8. Bennett CL, Horner RD, Weinstein RA, et al. Racial differences in care among hospitalized patients with *Pneumocystis carinii* pneumonia in Chicago, New York, Los Angeles, Miami, and Raleigh-Durham. *Arch Intern Med*. 1995; 155(15): 1586–1592.
9. Frakt A, Carroll AE, Pollack HA, Reinhardt U. Our flawed but beneficial Medicaid program. *N Engl J Med*. 2011; 364(16): e31.
10. Robert Wood Johnson Foundation. Chronic care: Making the case for ongoing care. <http://www.rwjf.org/content/dam/farm/reports/reports/2010/rwjf54583>. Published February 2010.
11. DeNavas-Walt C, Proctor BD, Smith JC. Income, poverty, and health insurance coverage in the United States. U.S. Census Bureau. <http://www.census.gov/prod/2012pubs/p60-243.pdf>. Published September 2012.
12. Bowie JV, Juon HS, Dubay LC, et al. Cancer prevention behaviors in low-income urban whites: an understudied problem. *J Urban Health*. 2009; 86(6): 861–871.

13. Robbins JM, Webb DA. Hospital admission rates for a racially diverse low-income cohort of patients with diabetes: the urban diabetes study. *Am J Public Health*. 2006; 96(7): 1260–1264.
14. Finney MF, Tumiel-Berhalter LM, Fox C, Jaen CR. Breast and cervical cancer screening for Puerto Ricans, African Americans, and non-Hispanic whites attending inner-city family practice centers. *Ethn Dis*. 2006; 16(4): 994–1000.
15. Tumiel-Berhalter LM, Finney MF, Jaen CR. Self-report and primary care medical record documentation of mammography and Pap smear utilization among low-income women. *J Natl Med Assoc*. 2004; 96(12): 1632–1639.
16. Gorey KM, Vena JE. The association of near poverty status with cancer incidence among Black and white adults. *J Community Health*. 1995; 20(4): 359–366.
17. LaVeist T, Thorpe R Jr, Bowen-Reid T, et al. Exploring health disparities in integrated communities: overview of the EHDIC study. *J Urban Health*. 2008; 85(1): 11–21.
18. Casagrande SS, Gary TL, LaVeist TA, Gaskin DJ, Cooper LA. Perceived discrimination and adherence to medical care in a racially integrated community. *J Gen Intern Med*. 2007; 22(3): 389–395.
19. Gary TL, Stark SA, LaVeist TA. Neighborhood characteristics and mental health among African Americans and whites living in a racially integrated urban community. *Health Place*. 2007; 13(2): 569–575.
20. Laveist TA, Thorpe RJ Jr, Mance GA, Jackson J. Overcoming confounding of race with socio-economic status and segregation to explore race disparities in smoking. *Addiction*. 2007; 102(Suppl 2): 65–70.
21. Call KT, Davern ME, Klerman JA, Lynch V. Comparing errors in Medicaid reporting across surveys: Evidence to date. *Health Serv Res*. 2013;48(2):652–64.
22. Gulley SP, Rasch EK, Chan L. The complex web of health: relationships among chronic conditions, disability, and health services. *Public Health Rep*. 2011; 126(4): 495–507.
23. Institute of Medicine. Care without coverage: too little, too late. 2002.
24. Davidoff A, Yemane A, Adams E. Health coverage for low-income adults: Eligibility and Enrollment in Medicaid and State Programs, 2002. The Henry J. Kaiser Family Foundation. <http://kff.org/medicaid/issue-brief/health-coverage-for-low-income-adults-eligibility/>. Published February 2005.
25. Currie J. US Food and Nutrition Programs. In: Moffit R, ed. Means-Tested Transfer Programs in the United States. Chicago, IL; 2003:199–289.
26. Rangel CB. The patient protection and affordable care act. 2010; Public Law 111–148.
27. Rhoades JA, Cohen SB. The long-term uninsured in America, 2004–2007: Estimates for the U.S. civilian noninstitutionalized population under age 65. Statistical brief no. 258. Rockville, MD: Agency for Healthcare Research and Quality. http://www.meps.ahrq.gov/mepsweb/data_stats/Pub_ProdResults_Details.jsp?pt=Statistical%20Brief&opt=2&id=920. Published August 2009.
28. Ayanian JZ, Weissman JS, Schneider EC, Ginsburg JA, Zaslavsky AM. Unmet health needs of uninsured adults in the United States. *JAMA*. 2000; 284(16): 2061–2069.
29. Institute of Medicine. America's uninsured crisis: Consequences for health and healthcare. Washington, DC: The National Academies Press; 2009.
30. Moon M, Cowdry RW. Health insurance coverage in Maryland through 2009. Maryland Health Care Commission. http://dlslibrary.state.md.us/publications/Exec/DHMH/MHCC/HIC_2009.pdf. Published January 2011.