

HEALTH STATUS AMONG REACH 2010 COMMUNITIES, 2001–2002

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INTRODUCTION

Individuals in racial and ethnic minority groups account for an increasingly large proportion of the US population. In the 2000 US Census, one of every 4 Americans was a member of a racial or ethnic minority group,¹ and projections indicate that by 2010, one in 3 Americans will be a minority. This proportion is expected to continue to increase at such a rate that by 2050, one in 2 Americans will be a minority.² Although overall US morbidity and mortality rates have declined, the health status of minorities continues to lag behind that of the general US population.

In 1999, the Centers for Disease Control and Prevention (CDC) launched the Racial and Ethnic Approaches to Community Health (REACH) 2010 project to help community coalitions design, implement, and evaluate community-driven strategies to eliminate health disparities in 6 priority areas: cardiovascular diseases, diabetes mellitus, HIV infection and AIDS, infant mortality, breast and cervical cancer screening and management, and child and adult immunization. As a part of surveillance and project evaluation, the CDC contracted with the National Organization for Research at the University of Chicago to conduct annual REACH 2010 Risk Factor Surveys. This report presents the aggregated data from the first survey year in 21 communities from June 2001 through August 2002.

METHODS

The survey sampled eligible households and interviewed an average of 1,000 minority residents, aged 18 years or older, in 21 communities from 14

states (Alabama, California, Georgia, Illinois, Louisiana, Massachusetts, Michigan, New York, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Washington). The survey locations and populations were consistent with the REACH 2010 intervention programs. The interventions in these communities focused on cardiovascular disease, diabetes, and breast and cervical cancer screening and management. Areas surveyed included specific counties, census tracts, ZIP codes, neighborhood areas, and tribal areas. In 18 communities where telephone coverage was $\geq 80\%$, interviews were conducted by telephone. Face-to-face interviews were conducted in the other 3 communities, either because the telephone coverage rate was low or inconclusive, or where cooperation by telephone was expected to be difficult. The median response rate for household screening was 74% among the accessible households, and was 72% for family member interview among the eligible members. Five communities had multiple ethnic groups. In all, the survey collected information from 14 Black/African American groups, 7 Hispanic/Latino groups, 4 Asian groups, and 2 American Indian groups, for a total sample comprising 10,953 Blacks/African Americans, 4,257 Hispanics/Latinos, 4,204 Asians, and 1,791 American Indians.

Uniform screening and interview questionnaires were used for all communities, and were administered in English, Spanish, Vietnamese, Khmer, or Chinese Mandarin. The REACH 2010 household member interview questionnaire was modeled closely after that used in the Behavioral Risk Factor Surveillance System (BRFSS). The questionnaire included questions related to respondents' health status; healthcare ac-

The REACH 2010 Risk Factor Survey was conducted in 21 minority communities in the United States during June 2001–August 2002. The survey included 10,953 Blacks/African Americans, 4,257 Hispanics/Latinos, 4,204 Asians, and 1,791 American Indians. Data demonstrate that residents in the minority communities bear a greater socioeconomic, risk factor, and disease burden than do members of the general US population. However, substantial variations in the prevalence of risk factors and chronic conditions also indicated that public health priorities should vary among different racial/ethnic groups, and even among communities within each group, and that culturally sensitive primary and secondary prevention strategies should be tailored to meet community-specific needs. (*Ethn Dis.* 2004; 14[suppl 1]:S1-9–S1-13)

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Table 1. Age- and gender-adjusted prevalence (%) of selected socioeconomic indicators, risk factors, and chronic diseases in 4 minority populations from 21 US communities—REACH 2010 Risk Factor Survey, 2001–2002

	Blacks (N=10,953)		Hispanics (N=4,257)		Asians (N=4,204)		American Indians (N=1,791)		BRFSS*	
	Median (%)	(Range)	Median (%)	(Range)	Median (%)	(Range)	Median (%)	(Range)	Median (%)	(Range)
<High school education	19.9	(11.4–25.8)	55.6	(32.3–58.6)	30.0	(18.3–55.8)	23.3	(17.8–28.8)	10.9	(6.2–20.0)
Annual household income <\$25,000	49.8	(28.2–65.2)	67.8	(48.8–73.2)	53.1	(36.8–59.7)	47.4	(46.2–48.6)	29.5	(19.3–40.9)
Could not see a doctor because of the cost	17.7	(10.3–21.5)	25.6	(18.8–27.9)	12.5	(10.8–15.8)	12.6	(7.8–17.3)	10.1†	(6.0–17.3)
In poor or fair health	20.7	(13.2–27.1)	38.4	(28.1–44.6)	33.4	(17.6–49.2)	26.7	(26.4–27.0)	13.9	(9.6–22.9)
Obesity	33.7	(25.2–36.9)	28.6	(13.7–39.0)	3.3	(1.9–5.5)	38.5	(32.9–44.1)	20.7	(14.8–26.5)
Current smoking	24.2	(19.1–40.3)	17.1	(14.9–23.0)	15.0	(13.3–30.4)	38.9	(34.8–42.9)	23.7	(13.0–31.0)
Cardiovascular diseases	9.4	(7.1–11.5)	8.3	(5.0–10.5)	6.9	(1.5–9.2)	15.5	(14.7–16.2)	7.6‡	(5.4–11.7)
Hypertension	35.9	(31.1–43.6)	26.8	(21.0–31.0)	18.0	(16.9–19.7)	38.8	(36.2–41.4)	24.8	(20.1–31.3)
Diabetes mellitus	12.5	(8.3–15.4)	11.4	(7.0–41.5)	5.4	(4.8–7.9)	18.6	(13.0–24.1)	6.1	(4.2–9.3)
High blood cholesterol	29.9	(21.6–38.6)	35.6	(31.9–37.7)	24.9	(24.2–33.3)	33.9	(29.2–38.5)	27.2	(21.6–32.5)

* Based on data from the 2001 Behavioral Risk Factor Surveillance System (BRFSS) from 50 states and the District of Columbia.

† Based on data from 2000 BRFSS from 50 states and the District of Columbia.

‡ Based on data from 2001 BRFSS from 19 states and the District of Columbia.

cess; self-reported height and weight; cigarette smoking; awareness of hypertension, cholesterol, and cardiovascular disease; diabetes and diabetes care; and receipt of preventive services, such as mammography, Papanicolaou (Pap) test, and influenza and pneumococcal vaccinations.

Data Analysis

Analysis was performed by ethnicity/race and community, and data were weighted to represent the community surveyed. We first calculated the age- and gender-adjusted prevalence by ethnicity/race for each community, using the gender and age distribution of the US population in the 2000 US Census as the standard. (No adjustment was made for the percentage of persons aged ≥ 65 who received preventive services, and only age-adjustments were made for the percentage receiving mammograms and Pap tests). We next determined the adjusted medians and ranges for communities in each racial/ethnic category. We then compared these medians with the adjusted medians derived from the BRFSS in 50 states and the District of Columbia. The BRFSS is a cross-sectional telephone survey conducted monthly by state health departments

with assistance from the CDC.³ The survey is designed to gather information from a representative sample of each state's noninstitutionalized civilian residents aged ≥ 18 years. Most of the national estimates were based on 2001 BRFSS data. Because some 2001 data were not available, national estimates on barriers to obtaining health care, and on mammogram and Pap tests, were obtained from 2000 BRFSS. Survey Data Analysis (SUDAAN)⁴ was used in the analyses to account for the complex sampling design of both the REACH 2010 Risk Factor Survey, and the BRFSS.

RESULTS

Table 1 shows the medians and ranges for 2 socioeconomic indicators (ie, education and household income), access to care, and the prevalence of risk factors and chronic diseases among the 4 racial/ethnic groups. Compared with the entire US population, the minority communities in our survey had higher median percentage rates of adults who reported having less than a high school education, and having an annual household income lower than \$25,000. Mi-

nority respondents also were more likely to report that although they had needed to see a doctor in the previous 12 months, they could not, due to the cost. Of the 4 minority groups, Hispanics had the highest median percentages of people with low education (55.6%) and low income (67.8%) levels, followed by Asians (30.0% and 53.1% for education and income, respectively). Hispanics had the highest median percentage of people reporting that cost was a barrier to receiving healthcare (25.6%), followed by Blacks (17.7%).

Respondents were asked to rate their own general health as either excellent, very good, good, fair, or poor. In 2001, 13.9% of the adult US population reported fair or poor health. In REACH communities, the median percentage ranged from 20.7% in Black communities, to 38.4% in Hispanic communities. The medians in all REACH communities were higher than that at the national level.

Obesity was defined as a body mass index ≥ 30 kg/m², calculated from respondents' self-reported height and weight. The median prevalence of obesity was higher than the national median (20.7%) among American Indians (38.5%), Blacks (33.7%), and Hispanics

Table 2. Age- and gender-adjusted percentage (%) of use of selected preventive services in 4 minority populations from 21 US communities—REACH 2010 Risk Factor Survey, 2001–2002

	Blacks (N=10,953)		Hispanics (N=4,257)		Asians (N=4,204)		American Indians (N=1,791)		BRFSS*	
	Median (%)	(Range)	Median (%)	(Range)	Median (%)	(Range)	Median (%)	(Range)	Median (%)	(Range)
Ever had blood cholesterol checked	76.4	(66.4–84.1)	58.9	(47.5–62.3)	67.0	(47.5–72.3)	73.4	(72.3–74.5)	76.3	(69.0–84.0)
Examinations in the preceding year†										
Hemoglobin A _{1c}	70.9	(62.4–93.1)	67.0	(62.4–79.0)	56.3	(41.9–63.6)	75.7	(75.6–75.8)	75.2‡	(60.6–94.0)
Foot	69.2	(44.3–80.7)	52.5	(49.2–71.3)	53.5	(23.4–59.5)	72.5	(62.9–82.0)	66.6‡	(49.0–88.2)
Eye	71.6	(53.1–83.6)	62.5	(53.9–73.9)	67.5	(65.3–82.8)	56.2	(50.4–62.0)	66.2‡	(52.4–82.9)
Mammogram in the preceding 2 years§	84.5	(78.9–90.2)	74.1	(58.0–92.1)	72.4	(70.0–79.1)	73.8	(73.3–74.3)	79.2#	(70.9–89.6)
Pap test in the preceding 3 years	89.3	(81.3–94.3)	80.4	(68.3–93.1)	66.8	(63.6–73.5)	84.1	(82.3–85.8)	90.4#	(83.2–94.4)
Influenza vaccination in the preceding year¶	54.4	(45.6–72.7)	53.2	(49.3–65.0)	81.6	(77.2–86.4)	70.1	(67.9–72.3)	67.3	(54.9–79.0)
Ever had a pneumococcal vaccination¶	50.5	(39.5–67.2)	46.0	(32.2–51.0)	37.5	(18.8–45.0)	67.3	(63.4–71.1)	62.3	(49.0–70.9)

* Based on data from the 2001 Behavioral Risk Factor Surveillance System (BRFSS) from 50 states and the District of Columbia.

† Limited to patients with diabetes.

‡ Based on 2001 BRFSS from 41 states and the District of Columbia.

§ Limited to women aged ≥50 years.

|| Limited to women.

¶ Limited to persons aged ≥65 years.

Based on data from 2000 BRFSS from 50 states and the District of Columbia.

(28.6%), but lower among Asian communities (3.3%).

The median prevalence of current cigarette smoking was much higher than the national median (23.7%) in American Indian communities (38.9%), close to the national median in Black communities (24.2%), and lower than the national median in Hispanic (17.1%) and Asian (15.0%) communities.

The presence of cardiovascular diseases was defined as having been told by a doctor that one had ever had a heart attack or myocardial infarction, angina or coronary heart disease, or stroke. The median prevalence of cardiovascular disease ranged from 6.9% in Asian communities, to 15.5% in American Indian communities. The 2001 BRFSS data, which were available from only 19 states and the District of Columbia, showed the median national prevalence to be 7.6%.

American Indian and Black communities had a higher median prevalence of self-reported high blood pressure and diabetes, compared to all US residents, and the prevalence of diabetes

among Hispanics (11.4%) was also higher than the national estimate.

The respondents were asked whether they had ever had their blood cholesterol checked, and whether they had been told by a health professional that they had high blood cholesterol. The median prevalence of high blood cholesterol among respondents who had ever had their blood cholesterol checked ranged from 24.9% in Asian communities, to 35.6% in Hispanic communities. The median prevalence of high blood cholesterol was higher in Hispanic and American Indian communities (33.9%), compared to the United States as a whole.

The age- and gender-adjusted percentages of adults who reported receiving selected preventive services are presented in Table 2. The median percentage of adults who had gotten their blood cholesterol checked ranged from 58.9% in Hispanic communities, to 76.4% in Black communities. The medians were lower than the national median (76.3%) in Hispanic and Asian (67.0%) communities, and near the na-

tional median in Black and American Indian (73.4%) communities.

Respondents who reported having diabetes were asked 3 additional questions about diabetes preventive-care practices during the preceding year (ie, whether they had been given a glycosylated hemoglobin [HbA_{1c}] test, whether their feet had been checked for any sores or irritations, and whether they had received a dilated-eye examination). In the 2001 BRFSS, similar questions were asked in 41 states and the District of Columbia. In Hispanic and Asian communities, the median percentages of respondents with diabetes who had been given a HbA_{1c} test and foot examination were lower than the national median, while in Black and American Indian communities, the medians were close to, or above, the national median. In American Indian communities, the median percentage of respondents who reported having dilated-eye examination (56.2%) was below national median (66.2%), while the medians for the 3 other minority groups

were similar to, or above, the national median.

The median percentage of women aged ≥ 50 years who reported having had a mammogram in the previous 2 years ranged from 72.4% in Asian communities, to 84.5% in Black communities. The median percentage of adult women with an intact uterine cervix who reported having a Pap test in the previous 3 years ranged from 66.8% among Asian communities, to 89.3% in Black communities. The medians in Black communities for these 2 screening services were close to, or above, the national median from the 2000 BRFSS. For the other 3 minority groups, the medians were lower than the national median.

The median percentage of adults aged ≥ 65 years who reported that they had gotten an influenza vaccination in the preceding year ranged from 53.2% in Hispanic communities, to 81.6% in Asian communities. The medians in Black (54.4%) and Hispanic communities were lower than the national median (67.3%), while those in Asian and American Indian (70.1%) communities were higher. The median percentage of adults aged ≥ 65 years who reported ever receiving a pneumococcal vaccination ranged from 37.5% in Asian communities, to 67.3% in American Indian communities. All groups, except American Indians, reported a lower median immunization rate than the national estimate.

DISCUSSION

Findings from this REACH 2010 Risk Factor Survey revealed that, on a wide range of sociodemographic, risk factor, chronic diseases, and preventive services, minority communities do not fare as well as the general US population. Socioeconomic status, as measured by educational attainment and household income, was markedly lower in these minority communities. Minorities,

Hispanics in particular, also perceived cost as a greater barrier to health care, and rated their own general health to be worse, compared to self-reports of the general US population. There were some variations in risk factor levels and disease burdens among minority groups. Obesity, high blood pressure, and diabetes, were more common in Black and American Indian communities. In Hispanic communities, obesity and high blood cholesterol were common. Among the 4 minority groups, American Indians had the highest prevalence rates of cigarette smoking and cardiovascular disease. Although differences in rates of preventive service use between these minorities and the general population were generally smaller, several services were still substantially under-used in Hispanic and Asian communities.

Although the 4 minority groups studied all had lower socioeconomic and general health status, and less access to health care, compared to the general US population, the prevalence rates of various risk factors and chronic diseases varied widely among them. This variation indicates that public health priorities should be different for each community. According to the 2000 US Census, about 12.5% of the US resident population was non-Hispanic.⁵ Nearly 2 decades after the report of the Secretary's Task Force on Black and Minority Health in 1985 demonstrated health disparities in minority populations,⁶ a significant health gap continues to exist between Blacks and the general population. That report found that Blacks had the highest age-adjusted death rate in the nation,⁷ and our results indicated that obesity, hypertension, and diabetes were the major burdens in Black communities.

Hispanics are a rapidly growing minority population, now constituting 12.7% of the US population.⁵ However, there are relatively few data on Hispanics' health. In the present survey, Hispanics had the lowest levels of education and family income of the 4 minority

groups studied. They also had the worst self-rated general health, but often could not see a doctor because of the cost. Obesity was disproportionately prevalent in Hispanic communities. Only 60% of Hispanic had ever had their blood cholesterol checked, and more than one third of those who had it checked had high blood cholesterol. The percentage of Hispanic women who received Pap tests, and the percentage of Hispanics who had influenza and pneumonia vaccinations, were also far below the national average.

Although Asians/Pacific Islanders accounted for only 4% of the US population in 2000, they are the fastest growing ethnic minority in America. Our knowledge about the health of this group is less established than our knowledge about the health of the other minority groups studied, reflecting the small size of the population, as well as the more recent immigration of many Asian subgroups. The majority of the respondents in our surveyed Asian communities were Vietnamese, Cambodian, or Khmer. The percentages of respondents from these Asian groups with less than a high school education, and with an annual household income below \$25,000, were higher than in the general US population. Among the minority groups studied, the rates of mammograms, Pap tests, and pneumococcal vaccinations, were lowest in Asian communities.

American Indians, who constitute 1% of the total US population, also exhibit disproportionately high rates of health risk factors and chronic diseases. Among the minority groups we studied, they had the highest prevalence rates of obesity, smoking, cardiovascular disease, hypertension, and diabetes.

The aggregation of risk factors and chronic disease in the communities we studied indicates the importance of implementing multifaceted and multisectorial strategies to reduce their prevalences. It also underscores the importance of primary prevention, emphasizing

ing lifestyle modification, including changes in diet, increase of physical activity levels, weight control, and smoking cessation. Multifaceted strategies should include educational programs, policies, and environmental interventions, accompanied by the identification and removal of barriers to healthcare access, and improvement in the quality of health care. In addition, mutually reinforcing population-wide approaches should be coupled with approaches that target people at high risk. Because no single health promotion paradigm would be appropriate for minority communities as diverse as those in this study, the development and implementation of multiple culturally appropriate paradigms is essential.

Nationwide, substantial progress has been made in increasing the percentage of people receiving clinical preventive services, such as mammography screening for breast cancer, and adult vaccinations for influenza and pneumococcal pneumonia.⁸ The results of this survey indicate that this progress has also occurred in Black and American Indian communities, both of which had reached, or were approaching, national rates of blood cholesterol, mammography, and Pap screening, and national rates of hemoglobin A_{1c} measurements and foot examinations, among patients with diabetes. In American Indian communities, rates of influenza and pneumococcal vaccination among the elderly actually exceeded the national level. However, survey results also demonstrated that such progress has not been uniform, and lingering racial/ethnic disparities in the access and delivery of preventive services continue to constitute an important public health challenge.

The findings in this report are sub-

ject to several limitations. First, each minority group in this survey is not a homogeneous group. There are large ethnic, cultural, and social diversities within the same racial/ethnic group. For example, Hispanics in this survey comprised Mexican, Puerto Rican, and Dominican Americans, etc. The samples of Asians comprised Vietnamese, Cambodian, and Chinese Americans. The data from this survey might not be representative of members of the same minority group in other communities. Second, because estimates are based on self-reported data, the prevalence of some chronic conditions and use of preventive services might be under- or over-estimated. Finally, except for 3 communities in which face-to-face interviews were conducted, data were generally collected through telephone interviews, meaning that individuals without telephones, and those who use only cell phones, were excluded. Despite these limitations, the REACH 2010 Risk Factor Survey has a number of strengths. It is the first and, by far, the largest community-based survey focused on our nation's multiple minorities; it was conducted from a single center, and included a series of quality control procedures, such as interviewer training, certification, standardization, and interview monitoring; and many of the survey's questionnaires were identical to those used in the BRFSS, which allowed us to compare data across the 2 surveys. Further, the interview questionnaires were administered in various languages, in addition to English. Therefore, this survey was able to include data from non-English speaking individuals.

In conclusion, data from the REACH 2010 Risk Factor Survey clearly demonstrate that there are continuing

health disparities between the general US population and Black, Hispanic, Asian/Pacific Islander, and American Indian communities. Nationwide, significant additional efforts will be required to eliminate these disparities. Public health officials will need to identify communities with high rates of risk factors and disease, and design targeted interventions that are culturally appropriate to each. The quantitative data from this survey provide important information for assessing, prioritizing, and planning such future intervention efforts.

REFERENCES

1. US Bureau of Census. US Summary: 2000, Census 2000 Profile. Issued July 2002. Available at: <http://www.census.gov/prod/2002pubs/>.
2. US Bureau of Census. Population projections of the United States by age, sex, race, and Hispanic origin: 1995 to 2050. Current Population Reports, No. P25-1130. Issued February 1996; revised April 1999. Available at: <http://www.census.gov/prod/1/pop/p25-1130/>.
3. Mokdad AH, Stroup DE, Giles WH. Public health surveillance for behavioral risk factors in a changing environment. Recommendations from the Behavioral Risk Factor Surveillance Team. *MMWR Recommendations Rep.* 2003;52:1-12.
4. Shah VB, Barnwell BG, Bieler GS. *SUDAAN: Software for the Statistical Analysis of Correlated Data. User's Manual.* Version 8. Research Triangle Park, NC: Research Triangle Institute; 2001.
5. Ingram DD, Parker JD, Schenker N, et al. United States census 2000 population with bridged race categories. National Center for Health Statistics. *Vital Health Stat* 2. 2003; 135.
6. US Department of Health and Human Service. *Report of the Secretary's Task Force on Black and Minority Health.* Washington, DC: US Dept of Health and Human Service; 1985.
7. Freid VM, Prager K, Mackay AP, Xia H. *Chartbook on Trends in the Health of Americans. Health, United States, 2003.* Hyattsville, Md: National Center for Health Statistics; 2003.
8. Nelson DE, Bland S, Powell-Griner E, et al. State trends in health risk factors and receipt of clinical preventive services among US adults during the 1990s. *JAMA.* 2002;287:2659-2667.