



Racial/Ethnic Disparities in Prevalence, Treatment, and Control of Hypertension—United States, 1999-2002

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For blacks in the United States, health disparities can mean earlier deaths, decreased quality of life, loss of economic opportunities, and perceptions of injustice. For society, these disparities translate into less than optimal productivity, higher health-care costs, and social inequity. By 2050, an estimated 61 million black persons will reside in the United States, amounting to approximately 15% of the total U.S. population.⁹

To promote consistency in measuring progress toward achieving the national health objectives, a workgroup appointed by the U.S. Department of Health and Human Services (DHHS) has recommended that (1) progress toward eliminating disparities for individual subpopulations be measured by the percentage difference between each subpopulation rate and the most favorable or best subpopulation rate in each domain and (2) all measures be expressed in terms of adverse events.¹⁰ DHHS conducts periodic reviews to monitor progress toward achieving the national health objectives, and progress toward elimination of health disparities is part of those reviews.

The reports in this week's *MMWR* describe health disparities experienced by blacks in stroke, hypertension, nationally notifiable diseases, and childhood asthma. Information about ongoing public awareness initiatives to eliminate racial/ethnic health disparities (e.g., Closing the Health Gap and Take a Loved One to the Doctor Day) is available at <http://www.cdc.gov/omh/aboutus/disparities.htm>.

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*See also: CDC. Health disparities experienced by racial/ethnic minority populations. *MMWR* 2004;53:755. CDC. Health disparities experienced by Hispanics—United States. *MMWR* 2004;53:935-7.
†Differences not tested for statistical significance.

Racial/Ethnic Disparities in Prevalence, Treatment, and Control of Hypertension—United States, 1999-2002

MMWR. 2005;54:7-9

1 table omitted

HIGH BLOOD PRESSURE (HBP) IS A MAJOR risk factor for heart disease and stroke, end-stage renal disease, and peripheral vascular disease and is a chief contributor to adult disability.¹ Approximately one in four adults in the United States has hypertension.² Although effective therapy has been available for more than 50 years,³ most persons with hypertension do not have their blood pressure (BP) under control.⁴ National health objectives for 2010 include reducing the proportion of adults with

HBP to 16% (baseline: 28%), increasing the proportion of adults with hypertension who are taking action to control it to 95% (baseline: 82%), and increasing the proportion of adults with controlled BP to 50% (baseline: 18%).⁵ During 1990-2000, the prevalence of hypertension, the percentage of those with hypertension who were aware of their condition, and treatment and control of hypertension increased among non-Hispanic whites, non-Hispanic blacks, and Hispanics.^{6,7} CDC analyzed data from the National Health and Nutrition Examination Surveys (NHANES) for 1999-2002. This report summarizes the results of that analysis, which determined that racial/ethnic disparities in awareness of, treatment for, and control of hypertension persist. If national health objectives are to be met, public health efforts must continue to focus on the prevention of HBP and must improve awareness, treatment, and control of hypertension among minority populations.

NHANES is a stratified, multistage probability sample of the civilian, non-institutionalized U.S. population. Both the survey interview population of 7,000 U.S. adults aged ≥ 20 years and the 5,000 respondents who completed the health examination each year included oversamples of low-income persons, persons aged ≥ 60 years, blacks, and Mexican Americans. The analysis described in this report is based on data from those persons who were non-Hispanic white, non-Hispanic black, or Mexican American with BP measurements. Pregnant women were excluded from the analysis. Hypertension was defined as having an average systolic BP ≥ 140 mm Hg or diastolic BP ≥ 90 mm Hg or taking BP medication. BP measures were based on the average of three BP readings. Persons with hypertension were considered (1) to be aware of their condition if they reported in the interview that a health-care professional had told them their BP was high, (2) to have been treated if they reported using antihypertensive medication, and (3) to have controlled BP if they were hypertensive but their BP measurements were $< 140/90$ mm Hg.

Statistical software was used to obtain weighted population estimates, age-specific and age-standardized prevalences and proportions, and 95% confidence intervals (CIs).

During 1999-2002, the age-adjusted prevalence of hypertension in the study population was 28.6% (CI = 26.8%-30.4%). The prevalence of hypertension increased with age and was higher among women than men. The age-adjusted prevalence of hypertension was 40.5% among non-Hispanic blacks, 27.4% among non-Hispanic whites, and 25.1% among Mexican Americans. Of those with HBP, 63.4% (CI = 59.4%-67.4%) had been told that their BP was high. The proportion who were aware of having a high BP was greater among those aged ≥ 40 years (73.5% versus 48.7%), and the proportion was higher among women than men (69.3% versus 59.4%). Among adults with hypertension, the proportion who were aware of having HBP was 70.3% among non-Hispanic blacks, 62.9% among non-Hispanic whites, and 49.8% among Mexican Americans. Among those with hypertension, 45.3% (CI = 45.3%-52.8%) had been treated with antihypertensive medication. Percentages of those treated for HBP were higher among women than men (56.1% versus 45.2%) and increased with age. The age-adjusted proportion who reported treatment was 55.4% among non-Hispanic blacks, 48.6% among non-Hispanic whites, and 34.9% among Mexican Americans. Only 29% of U.S. adults with hypertension had controlled BP levels ($< 140/90$ mm Hg), and the proportion of hypertensive adults who had controlled their BP varied substantially by age group: 17.6% of those aged 20-39 years, 40.5% of those aged 40-59 years, and 31.4% of those aged ≥ 60 years. The proportion with controlled BP was similar among non-Hispanic blacks (29.8%) and non-Hispanic whites (29.8%) but substantially lower among Mexican Americans (17.3%).

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CDC Editorial Note: The findings of this report demonstrate continuing racial/ethnic disparities in the prevalence of hypertension and in the percentages of those with HBP who are aware of, are being treated for, and are in control of their condition. Because of the serious health consequences associated with HBP, greater efforts are needed to prevent HBP and/or improve BP control and HBP diagnosis rates among all populations. Greater efforts are needed specifically to prevent HBP among non-Hispanic blacks, who have a higher prevalence, and to increase BP treatment and control among Mexican Americans, who appear to have lower rates of treatment and control, compared with other racial/ethnic populations. For this report, CDC analyzed a 4-year period instead of the 2-year period represented in data published recently from 1999-2000 NHANES^{7,8}; therefore, this report also represents an update of those findings.

During 1991-1999, nearly 95% of U.S. adults had had a BP screening within the previous 2 years; however, levels of BP screening were lower among Hispanics than among non-Hispanic whites or non-Hispanic blacks.⁶ Lack of access to health-care services, insufficient attention by health-care providers, lack of necessary resources to engage in appropriate lifestyle modifications, cultural norms, and compliance in medication use might be barriers to prevention and control of HBP.

The findings in this report are subject to at least four limitations. First, NHANES only surveyed the noninstitutionalized population; persons in nursing homes and other institutions were not included. Second, Mexican Americans were the only Hispanic subpopulation sampled, even though the Hispanic population consists of only 66.1% Mexican Americans⁹; information for the other Hispanic subpopulations was not of sufficient size for reliable analysis. Third, although a strength of NHANES is the collection of actual BP measurements, these measurements are taken during the same visit and therefore do

not reflect the actual care guidelines, which state that the determination of HBP should be based on measurements from two separate visits. Finally, analyses were restricted to NHANES participants who had BP measurements and do not include those who might have hypertension but did not have BP measurements.

The prevention and management of HBP is a major public health challenge. HBP usually has no signs or symptoms and is called "the silent killer." Untreated or uncontrolled HBP increases risk for heart disease, renal disease, and stroke. Recommendations by the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure advise health-care providers regarding screening, detecting, treating, and monitoring cases of HBP and hypertension.³ In addition, BP surveillance data should be used to monitor and evaluate the effectiveness of interventions designed to prevent and control HBP. To reduce disparities and improve HBP prevention and control among U.S. adults, public health officials and clinicians need to increase their efforts to treat and control BP levels among persons with hypertension, and promote physical activity, nutrition changes (e.g., reducing high salt/sodium), weight reduction or management, stress reduction, and routine BP screening.

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Brief Report: Tularemia Associated With a Hamster Bite—Colorado, 2004

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IN APRIL 2004, THE COLORADO DEPARTMENT of Public Health and Environment (CDPHE) was notified about a boy aged 3 years with diagnosed tularemia associated with a hamster bite. Tularemia has not been associated previously with pet hamsters. CDPHE conducted an investigation to determine whether other owners of hamsters were at risk. Clinicians and public health officials should be aware that pet hamsters are a potential source of tularemia.

During January 2–February 8, the boy was exposed to six hamsters that his family had purchased from a pet store in the Denver metropolitan area. Each hamster reportedly died from “wet tail disease” (i.e., diarrhea) within 1 week of purchase. One hamster bit the child on the left ring finger shortly before it died. Seven days later, the child had fever, malaise, painful left axillary lymphadenopathy, and skin sloughing at the bite site. After treatment with amoxicillin clavulanate failed, the patient underwent excisional biopsy of a left axillary lymph node 49 days after symptom onset for persistent painful lymphadenopathy and intermittent fever. Tissue culture yielded a suspected *Francisella tularensis* isolate, which was confirmed by real-time polymerase chain reaction and timed-release fluorescence at the CDPHE laboratory. Convalescent serology was positive at a titer of 4,096, and the isolate was

identified by CDC as type B. No other risk factors for tularemia exposure were identified, including no other animal contact, no exposure to game meat, and no known mosquito, tick, or fly bites. The patient improved after treatment with ciprofloxacin.

Workers at the pet store reported an unusual number of deaths among hamsters but not other animals during January–February; no carcasses were available for testing. One of two cats kept as store pets had a positive serologic test for *F. tularensis* at a titer of 256. Neither cat had appeared ill to store employees.

Lists of employees, pet suppliers, and customers who purchased hamsters during December 2003–February 2004 were obtained from the store owner. Fifteen of 18 customers were located and interviewed. Eight of these had hamsters that died within 2 weeks of purchase, but all carcasses had been disposed of and were unavailable for testing. One customer and one employee who had febrile illness after being bitten by hamsters from the store were negative for *F. tularensis* by serologic testing. The same customer's hamster was available, and it was also negative for *F. tularensis* by serology and culture.

Approximately 80% of the 50 hamsters at the pet store came from customers who had pets with unanticipated litters. The other 20% were purchased from two small-pet breeders. These breeders were contacted, and neither reported an unusually high number of deaths of hamsters or other animals. One breeder also supplied animals to two pet stores in Wyoming. The Wyoming Department of Health had not been notified of any tularemia cases linked to these stores.

Confirmation of a hamster as the infectious source was limited by the delay between the patient's illness onset and diagnosis and subsequent lack of availability of implicated hamsters for testing. Nonetheless, the hamster that bit the patient was the most likely cause of infection because no other exposures or risk factors were identified. The

positive serologic test for *F. tularensis* in a pet cat at the store suggested that other animals in the store might have been exposed to *F. tularensis*. In addition, the proximity of the onset of the patient's illness to the timing of the hamster bite, reports of illness among hamsters, and the deaths of hamsters at the pet store indicated an infected hamster as the likely source of illness. A possible scenario, similar to an outbreak of tularemia that involved zoo primates,¹ is that infected wild rodents infested the store and spread the infection to hamsters by urinating and defecating through metal screens covering hamster cages. The infected cat might have had a subclinical or unrecognized illness after catching or eating an infected wild rodent.

The storeowner was advised to set traps for wild rodents and to inform the state health department of any recurrent animal deaths or reports of ill customers or staff. No other cases have been identified.

Although tularemia has been associated with hamster hunting in Russia,² it has not been associated previously with pet hamsters in the United States. However, clinicians and public health officials should be aware that pet hamsters might be a potential source of tularemia. Moreover, because *F. tularensis* is a potential agent of biologic terrorism,³ clinicians should have a heightened awareness of tularemia.

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