Background: There have been population-based studies conducted in England and the United States that suggest an increase in prevalence of atopic dermatitis among black and/or Asian children.

Objective: To assess whether health care utilization for atopic dermatitis differs among different ethnic groups in the United States.

Design: Weighted data on representative office visits by whites, blacks, and Asian/Pacific Islanders were analyzed using a cross-sectional study, the National Ambulatory Medical Care Survey (NAMCS), from 1990 through 1998 using statistical software.

Setting: The NAMCS is an ongoing data collection effort by the Division of Health Care Statistics, National Center for Health Statistics, Centers for Disease Control and Prevention. The survey samples representative visits to US office-based physicians during a representative week of practice.

Patients: All outpatient visits were analyzed and compared with those for patients diagnosed as having atopic dermatitis (International Classification of Diseases, Ninth Revision, Clinical Modification, code 691.80).

Main Outcome Measure: Diagnosis of atopic dermatitis by race.

Results: Of 570 million estimated visits for skin conditions, 7.9 million were for atopic dermatitis. The numbers of per capita visits for atopic dermatitis among blacks and Asian/Pacific Islanders were 2-fold and 6-fold higher, respectively, than among whites. The odds ratios (95% confidence intervals) for atopic dermatitis visits by blacks and Asian/Pacific Islanders relative to whites were 3.4 (2.5-4.7) and 6.7 (4.8-9.5), respectively.

Conclusions: Blacks and Asian/Pacific Islanders are much more likely to visit physicians for atopic dermatitis than are whites and may benefit from education and early intervention efforts concerning the disease.

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SeveraL PopUlation-bASed studies suggest that atopic dermatitis is common in black and Asian/Pacific Islander children. Williams et al reported a 2-fold difference in the prevalence of atopic dermatitis between black Caribbean children and white children born in London, England. Similarly, a local US study found an increased prevalence of atopic dermatitis in black patients. Another British study suggested similar findings in infants of West Indian origin living in South East London.

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The aforementioned studies are prevalence studies, and one might predict differential health care utilization among different ethnic groups if the prevalence differences are significant. A retrospective analysis of 5912 patients in a Kaiser Permanente pediatric practice based in San Diego, Calif, suggests there is an increase in health care utilization for atopic dermatitis in patients of Asian origin, the highest levels being in Filipino patients.

Even though prior studies have suggested an increase in prevalence of atopic dermatitis among blacks and Asian/Pacific Islanders compared with whites, an analysis at a national level in any country of a representative sample of patients has never been conducted. Therefore, we sought to assess the relative disparity between the number of visits for atopic dermatitis among blacks and Asian/Pacific Islanders compared with whites using the data from the National Ambulatory Medical Care Survey (NAMCS).
METHODS

Data were compiled from the US NAMCS from 1990 through 1998. The NAMCS is conducted by the Division of Health Care Statistics, National Center for Health Statistics, Centers for Disease Control and Prevention. The survey samples representative visits to US office-based physicians during a representative week of practice. The sample of physicians includes both dermatologists and nondermatologists. Government-run practices (such as Veterans Affairs facilities) are not included. The survey does not attempt to follow up with individual patients over multiple visits. The data are weighted to produce national estimates that describe the utilization of ambulatory medical care services in the United States.

The NAMCS identifies 4 racial classifications: whites, blacks, Asian/Pacific Islanders, and American Indian/Eskimo/Aleuts. We excluded the data for American Indian, Eskimo, and Aleuts because their total number of atopic dermatitis visits (approximately 11,000) was not reliably estimated using this survey. Similarly, we did not analyze proportions of the population identified as being Hispanic since there were only an estimated 74,500 atopic dermatitis visits among Hispanics, also below the threshold for reliable estimation. Dermatologic or skin condition visits were operationally defined as those having International Classification of Diseases, Ninth Revision, Clinical Modification codes as listed in Table 1. Data from the 1994 US Census (midpoint between 1990 and 1998) were used to calculate per capita inferences. Data manipulation and analyses were performed using SAS (Cary, NC) and STATA (College Station, Tex) systems. Categorical analysis and logistic regression procedures that take into account sampling variability were used to calculate the estimates.

Although health utilization information is not analogous to incidence or prevalence, it has significance for both.

RESULTS

From 1990 through 1998, there was an estimated total of 6.6 billion office visits for all conditions, cutaneous and otherwise: 5.7 billion (86.4%) among whites, 630 million (9.6%) among blacks, and 220 million (3.4%) among Asian/Pacific Islanders (Table 2). Of approximately 570 million estimated skin visits, 500 million (87.6%) were by whites, 47 million (8.2%) by blacks, and 20 million (3.5%) by Asian/Pacific Islanders. Blacks and Asian/Pacific Islanders accounted for 20.1% and 16.1% of visits for atopic dermatitis, respectively.

Table 2 presents per capita estimates of numbers of visits for all skin conditions and the estimated number of atopic dermatitis visits for blacks and Asian/Pacific Islanders compared with whites. The calculated odds ratios (95% confidence intervals) for visits of blacks vs whites was 3.4 (2.5-4.7; P<.001), whereas for Asian/Pacific Islanders vs whites it was 6.7 (4.8-9.5; P<.001).

Female patients accounted for a greater proportion of estimated atopic dermatitis visits than male patients in all 3 groups. Among whites, 50.8% of atopic dermatitis visits were by female and 49.2% by male patients. Among blacks, female patients accounted for 62.9% of visits compared with 37.1% male. Finally, among Asian/Pacific Islanders, 55.9% of atopic dermatitis visits were by female patients, whereas 44.1% of visits were by male patients.

To further assess the variation in atopic dermatitis visits in different ethnic groups, we examined the relative number of visits for other diagnoses—including actinic keratosis, acne, psoriasis, and common warts—as controls (Table 2; Figure 2). For these common dermatologic conditions, whites had greater numbers of per capita visits than blacks and Asian/Pacific Islanders for all conditions, with the only exception of more acne visits by Asian/Pacific Islanders.

Blacks and Asian/Pacific Islanders were more likely to make office visits for atopic dermatitis than whites. Blacks are 3 times more likely and Asian/Pacific Islanders almost 7 times more likely than whites to make office visits at which atopic...
dermatitis is diagnosed. These differences are clearly not due to greater health care utilization in general by blacks or Asian/Pacific Islanders. We found that whites had a greater number of per capita visits for all medical conditions and all skin conditions. Given the overall lower health care utilization among blacks and Asian/Pacific Islanders, the observed higher utilization for atopic dermatitis is striking.

Genetic, cultural, and physical factors contribute to the incidence and prevalence of atopic dermatitis. The factors that have been mentioned include increased susceptibility to the irritant effects of repeated washing, increased sensitivity to antigens such as house dust mites, early infant feeding practices, differences in access to medical care, and differences in staphylococcal colonizations predisposing children of black or related descent and Asian descent to atopic dermatitis. The lack of familiarity of Asian/Pacific Islanders with atopic dermatitis could also contribute to increased visits.

Environmental factors may play a role as well. Studies conducted in Hawaii and New Zealand claim that migrant populations there have shown large increases in atopic dermatitis compared with people of similar genetic groups in their country of origin. These studies suggest that exposure to new or a larger pool of allergens, or other factors associated with urbanization, could cause such differences between the groups. However, Williams et al note that the prevalence of atopic dermatitis is increased in black Caribbean residents born in England.

Differences in health care utilization do not necessarily imply differences in disease prevalence. Previously, increased consultation rates for atopic dermatitis were identified in Asian children, but the prevalence of atopic dermatitis in this population was similar to that of other ethnic groups. The International Classification of Diseases, Ninth Revision, Clinical Modification coding used in the NAMCS does not provide information on the severity and duration of atopic dermatitis, and these factors could affect health care utilization. Differences in postinflammatory pigment changes might also affect health care utilization in the different groups. This study is dependent on the diagnosis made by the physician, and we do not know whether physicians diagnose atopic dermatitis differently in these different populations.

In general, there is lower health care utilization among blacks than other groups at least partly because of insurance status. In 1999, among Americans younger than 65 years, 21% of blacks were uninsured compared with 14% of whites. Because of insurance status, blacks are more likely to go to emergency departments for most of their medical care rather than use office-based care. Therefore, blacks may be even more likely to make visits for atopic dermatitis than the estimated proportions if they used emergency department care more often. At least 1 published report suggests that Asian/Pacific Islanders have fewer per capita physician office visits than whites. We did not confirm this conclu-
sion, finding that the relative proportions of all medical and all skin visits were roughly comparable to the population projections in these 2 groups. Nevertheless, general health care utilization patterns did not explain the greater per capita number of atopic dermatitis visits in the Asian/Pacific Islander group.

An important limitation of this study that we cannot overemphasize is the limited specificity of ethnic background in the NAMCS. There may be major differences within the limited ethnic categories used by the NAMCS (for example, the Asian/Pacific Islander group includes Chinese, Indian, Korean, Filipino, and many others). Differences between different subgroups could have opposing effects on health care utilization. While we recognize that this is a major limitation of this study, the NAMCS does not include more specific ethnic information.

The findings of the present study have implications for differences in incidence, prevalence, and/or severity of atopic dermatitis among different ethnic groups. The results also suggest potential target populations for information and perhaps early intervention efforts regarding atopic dermatitis. We hope the implications of this study promote further investigation into the genetic and behavioral factors that underlie the differences we have observed.

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REFERENCES