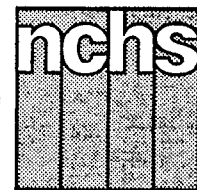


# Advance Data



From Vital and Health Statistics of the CENTERS FOR DISEASE CONTROL/National Center for Health Statistics

## Office Visits for Otitis Media: United States, 1975–90

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During 1990, there were an estimated 24.5 million visits made to office-based physicians in the United States at which the principal diagnosis was otitis media, nearly one visit for every 10 persons. These visits accounted for 3.5 percent of all office visits and represented the second most frequent illness diagnosis. For children under age 15, otitis media represented the most frequent diagnosis in physician office practices. Since 1975, the first year these data were collected, the number of otitis media visits has increased almost

150 percent (figure 1), and the annual visit rate has more than doubled.

This report presents national estimates pertaining to office visits with a diagnosis of otitis media between 1975 and 1990. These estimates are based upon data collected in the National Ambulatory Medical Care Survey (NAMCS), a national probability sample survey conducted by the Division of Health Care Statistics of the National Center for Health Statistics, Centers for Disease Control. Statistics on patient,

physician, and visit characteristics for visits with a diagnosis of otitis media are presented and compared for four years: 1975, 1980, 1985, and 1990.

A copy of the 1990 Patient Record, the survey instrument used by participating physicians to record information about their patients' office visits, is displayed in figure 2. Although some changes have been made in this form over the years, the basic format has remained the same, and it is hoped that this will provide a useful reference point for readers.

In item 10 of the Patient Record, physicians were asked to record a principal diagnosis (the diagnosis most closely associated with the patient's most important reason for visit) as well as any other significant current diagnoses. Up to three diagnoses were coded and classified for each visit. For the 1975 survey year, diagnoses were coded according to the *Eighth Revision International Classification of Diseases, adapted for use in the United States (ICDA-8)* (1). For survey years 1980, 1985, and 1990, diagnoses were coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)* (2). This report will focus primarily on office visits in which the patient's principal

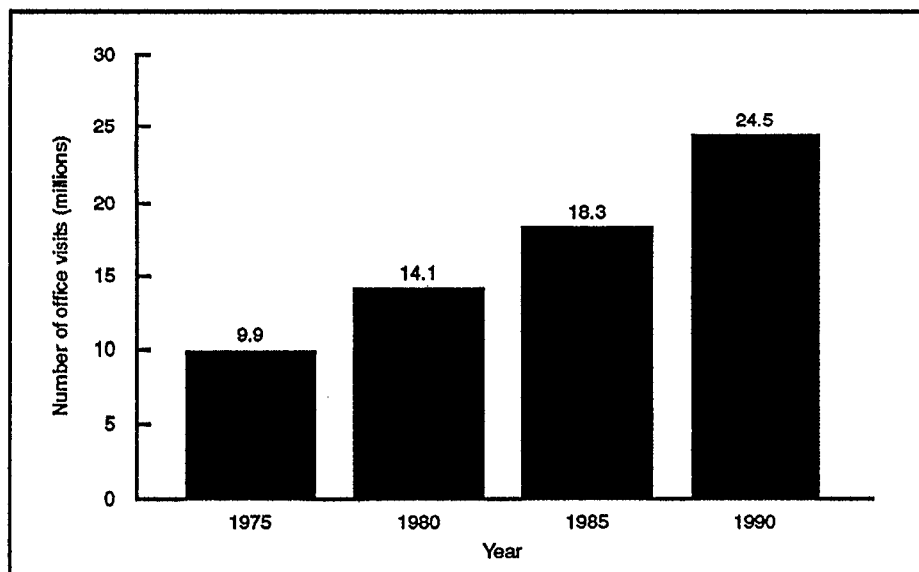


Figure 1. Office visits with a principal diagnosis of otitis media: United States, 1975–90



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Centers for Disease Control  
National Center for Health Statistics



Assurance of Confidentiality—All information which would permit identification of an individual, a practice, or an establishment will be held confidential, will be used only by persons engaged in and for the purposes of the survey and will not be disclosed or released to other persons or used for any other purpose.		Department of Health and Human Services Centers for Disease Control Public Health Service National Center for Health Statistics		<b>A</b>	
<b>1. DATE OF VISIT</b> ____/____/____ <small>Month Day Year</small>		<b>PATIENT RECORD</b> <b>NATIONAL AMBULATORY MEDICAL CARE SURVEY</b>			OMB No. 0920-0234 Expires 8-31-89 (PHS) 6105A
<b>2. ZIP CODE</b> _____	<b>4. SEX</b> 1 <input type="checkbox"/> FEMALE 2 <input type="checkbox"/> MALE	<b>5. COLOR OR RACE</b> 1 <input type="checkbox"/> WHITE 2 <input type="checkbox"/> BLACK 3 <input type="checkbox"/> ASIAN/PACIFIC ISLANDER 4 <input type="checkbox"/> AMERICAN INDIAN/ESKIMO/ALEUT	<b>6. ETHNICITY</b> 1 <input type="checkbox"/> HISPANIC ORIGIN 2 <input type="checkbox"/> NOT HISPANIC	<b>7. EXPECTED SOURCE(S) OF PAYMENT</b> <i>[Check all that apply]</i> 1 <input type="checkbox"/> SELF-PAY    4 <input type="checkbox"/> BLUE CROSS/BLUE SHIELD    7 <input type="checkbox"/> NO CHARGE 2 <input type="checkbox"/> MEDICARE    5 <input type="checkbox"/> OTHER COMMERCIAL INSURANCE    8 <input type="checkbox"/> OTHER <i>[Specify]</i> 3 <input type="checkbox"/> MEDICAID    6 <input type="checkbox"/> PRE-PAID PLAN HMO/PA/PPO	
<b>3. DATE OF BIRTH</b> ____/____/____ <small>Month Day Year</small>		<b>9. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT</b> <i>[In patient's own words]</i> a. MOST IMPORTANT _____ b. OTHER _____		<b>10. PHYSICIAN'S DIAGNOSES</b> a. PRINCIPAL DIAGNOSIS/PROBLEM ASSOCIATED WITH ITEM 9a. _____ b. OTHER SIGNIFICANT CURRENT DIAGNOSES _____	
<b>12. DIAGNOSTIC/SCREENING SERVICES THIS VISIT</b> <i>[Check all ordered or provided]</i> 1 <input type="checkbox"/> NONE    7 <input type="checkbox"/> BLOOD PRESSURE CHECK    13 <input type="checkbox"/> ORAL GLUCOSE TOL. 2 <input type="checkbox"/> PAP TEST    8 <input type="checkbox"/> URINALYSIS    14 <input type="checkbox"/> CHOLESTEROL MEASURE 3 <input type="checkbox"/> PELVIC EXAM    9 <input type="checkbox"/> CHEST X-RAY    15 <input type="checkbox"/> HIV SEROLOGY 4 <input type="checkbox"/> BREAST PALPATION    10 <input type="checkbox"/> DIGITAL RECTAL EXAM    16 <input type="checkbox"/> OTHER BLOOD TEST 5 <input type="checkbox"/> MAMMOGRAM    11 <input type="checkbox"/> PROCT/SIGMOIDOSCOPY    17 <input type="checkbox"/> OTHER <i>[Specify]</i> 6 <input type="checkbox"/> VISUAL ACUITY    12 <input type="checkbox"/> STOOL BLOOD EXAM		<b>13. COUNSELING/ADVICE</b> <i>[Check all ordered or provided]</i> 1 <input type="checkbox"/> NONE 2 <input type="checkbox"/> WEIGHT REDUCTION 3 <input type="checkbox"/> CHOLESTEROL REDUCTION 4 <input type="checkbox"/> SMOKING CESSATION 5 <input type="checkbox"/> HIV TRANSMISSION 6 <input type="checkbox"/> BREAST SELF-EXAM 7 <input type="checkbox"/> OTHER		<b>14. NON-MEDICATION THERAPY</b> <i>[Check all ordered or provided]</i> 1 <input type="checkbox"/> NONE 2 <input type="checkbox"/> PSYCHOTHERAPY 3 <input type="checkbox"/> CORRECTIVE LENSES 4 <input type="checkbox"/> AMBULATORY SURGERY 5 <input type="checkbox"/> PHYSIOTHERAPY 6 <input type="checkbox"/> OTHER <i>[Specify]</i>	
<b>15. MEDICATION THERAPY</b> <i>[Record all new or continued medications ordered or provided at this visit. Use the same brand name or generic name entered on any Rx or office medical record. Include immunizing and desensitizing agents.]</i> IF NONE, CHECK HERE <input type="checkbox"/>			<b>16. DISPOSITION THIS VISIT</b> <i>[Check all that apply]</i> 1 <input type="checkbox"/> NO FOLLOW-UP PLANNED 2 <input type="checkbox"/> RETURN AT SPECIFIED TIME 3 <input type="checkbox"/> RETURN IF NEEDED, P.R.N. 4 <input type="checkbox"/> TELEPHONE FOLLOW-UP PLANNED 5 <input type="checkbox"/> REFERRED TO OTHER PHYSICIAN 6 <input type="checkbox"/> RETURNED TO REFERRING PHYSICIAN 7 <input type="checkbox"/> ADMIT TO HOSPITAL 8 <input type="checkbox"/> OTHER <i>[Specify]</i>		<b>17. DURATION OF THIS VISIT</b> <i>[Time actually spent with physician]</i> _____ Minutes
1. _____		a. NEW MEDICATION? YES NO		b. FOR DX IN ITEM 10a? YES NO	
2. _____		1 <input type="checkbox"/> 2 <input type="checkbox"/>		1 <input type="checkbox"/> 2 <input type="checkbox"/>	
3. _____		1 <input type="checkbox"/> 2 <input type="checkbox"/>		1 <input type="checkbox"/> 2 <input type="checkbox"/>	
4. _____		1 <input type="checkbox"/> 2 <input type="checkbox"/>		1 <input type="checkbox"/> 2 <input type="checkbox"/>	
5. _____		1 <input type="checkbox"/> 2 <input type="checkbox"/>		1 <input type="checkbox"/> 2 <input type="checkbox"/>	

\* U.S. GOVERNMENT PRINTING OFFICE:1989-228-197

Figure 2. Patient Record

diagnosis was recorded as otitis media.<sup>1</sup>  
It is necessary to keep in mind that the estimates presented in this

report are based on samples, and, as such, they are subject to sampling variability. The technical notes found at the end of this report discuss

briefly the sample design, sampling errors, and guidelines for use in evaluating the precision of NAMCS estimates.

<sup>1</sup>In order to compare diagnostic data from 1975 through 1990, it was necessary to ensure the comparability of codes used to classify diagnoses of otitis media during this time. For the purposes of this report, otitis media has been defined to include nonsuppurative otitis media (ICD-9-CM codes 381.0-381.4) as well

as suppurative and unspecified otitis media (ICD-9-CM codes 382.0-382.9). These codes were compared with ICDA-8 codes 381.0-381.9 (otitis media without mention of mastoiditis). ICDA-8 codes for 382.0-382.3 (otitis media with mention of mastoiditis) were also considered for inclusion in the analysis. However, mastoiditis is classified as a separate

condition in the ICD-9-CM, which could have lessened the comparability of these specific codes over the years. Despite this consideration, it was discovered that, for 1975, there were no NAMCS visits coded with a diagnosis in the range of 382, rendering this a nonissue and limiting data comparisons to the codes mentioned above.

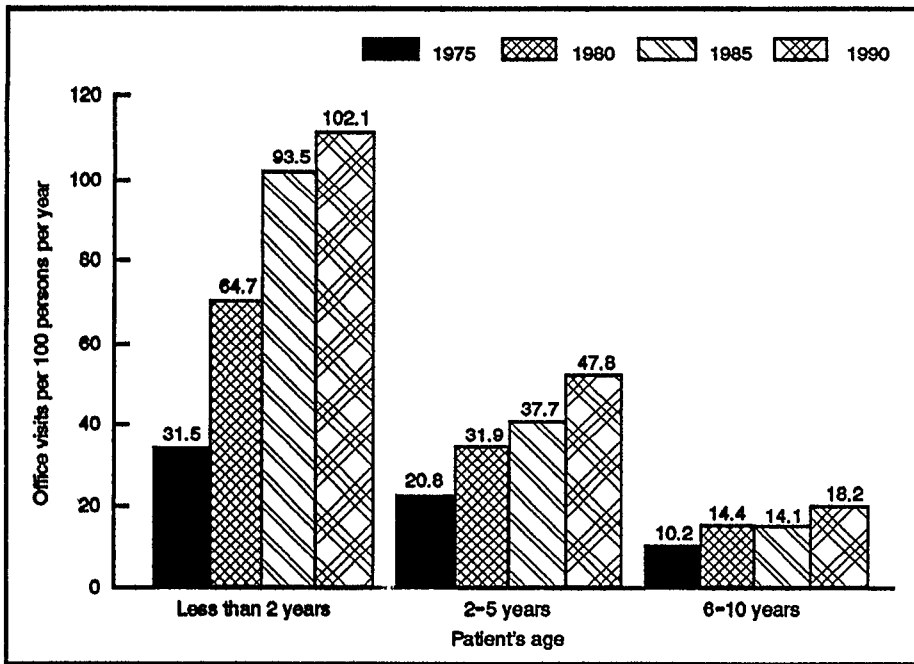


Figure 3. Annual visit rates for visits with a principal diagnosis of otitis media by patient's age: United States, 1975-90

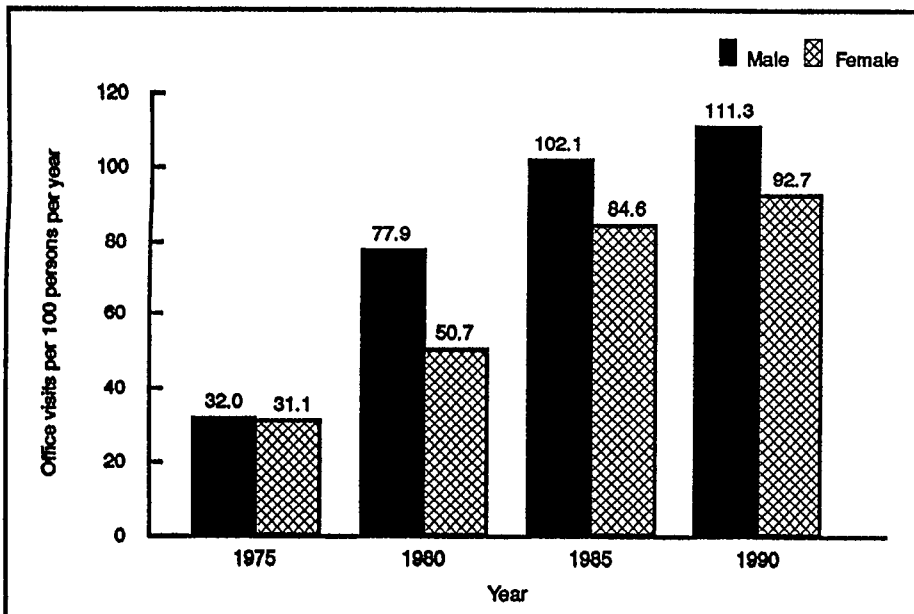


Figure 4. Annual otitis media visit rate for patients aged less than 2 years by sex: United States, 1975-90

**Patient characteristics**

Tables 1, 2, and 3 show visits with a principal diagnosis of otitis media by patient's age, sex, race, and geographic region between 1975 and 1990. Major findings are summarized below.

**Patient's age**

During 1975-90 the majority of visits for otitis media were made by

children. In 1975, 70.6 percent of otitis media visits were made by persons under the age of 15. By 1990, that percentage had increased to 80.5 percent.

Examining this age group (under 15 years) more closely, visit rates were found to be highest among children under the age of 2 years for three of the four survey years presented here. (In 1975 visit rates for children aged less than 2 years

and for those aged 2-5 years were higher than visit rates for other age groups but were not statistically different from each other.)

Furthermore, the visit rate for children under the age of 2 years jumped from 31.5 visits per 100 children in 1975 to 102.1 visits per 100 children in 1990, an increase of 224.1 percent (figure 3).

Increasing visit rates were also noted in the groups 2-5 years of age and 6-10 years of age. Among children aged 2-5 years, the visit rate rose from 20.8 visits per 100 children in 1975 to 47.8 visits in 1990, up 129.8 percent. Among those 6-10 years of age, the increase was 78.4 percent, from 10.2 visits per 100 children in 1975 to 18.2 visits per 100 children in 1990.

Although the visit rate for children aged 11-14 years was 3.3 visits per 100 in 1975 and 8 visits per 100 in 1990, this difference was not found to be statistically significant. No significant increase was noted between 1975 and 1990 in the visit rate for persons in the age groups 15-24 years, 25-44 years, 45-64 years, and 65 years and over.

**Visit rates by age and sex**

For each of the years presented here, the likelihood of a physician visit for otitis media is about the same for males and females. In 1990, for example, males accounted for 52.5 percent of the visits and females 47.5 percent, a difference that is not statistically significant. Annual visit rates are not statistically different for males and females, being 10.7 visits per 100 males and 9.3 per 100 females in 1990.

Within age groups, the increases in visit rates for males and females from 1975 to 1990 are similar. The visit rate for males under the age of 2 years increased dramatically from 32 visits per 100 male children in 1975 to 111.3 visits per 100 male children in 1990, an increase of 247.8 percent. The increase was only slightly less for females, with a visit rate climbing from 31.1 visits per 100 female children in 1975 to 92.7 visits per 100

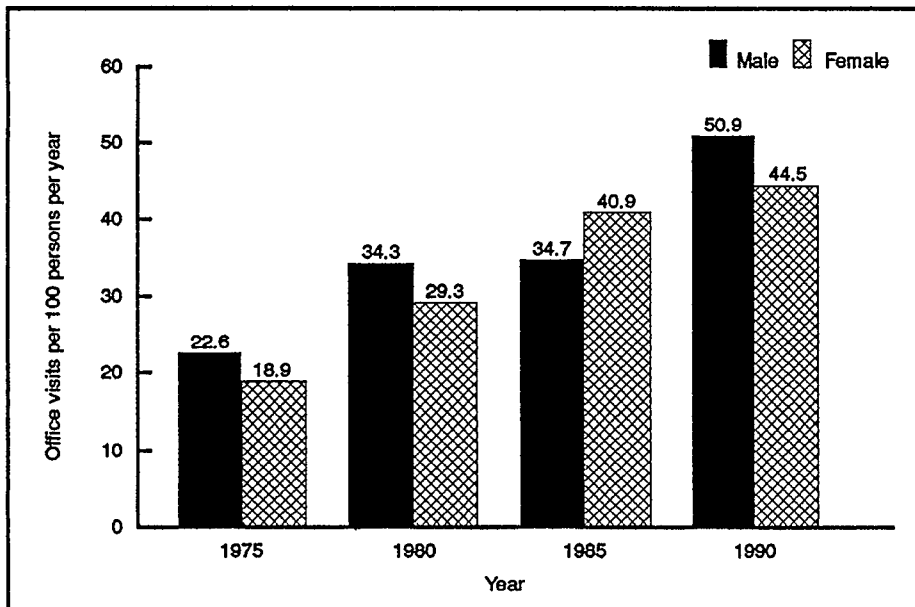


Figure 5. Annual otitis media visit rates for patients aged 2–5 years by sex: United States, 1975–90

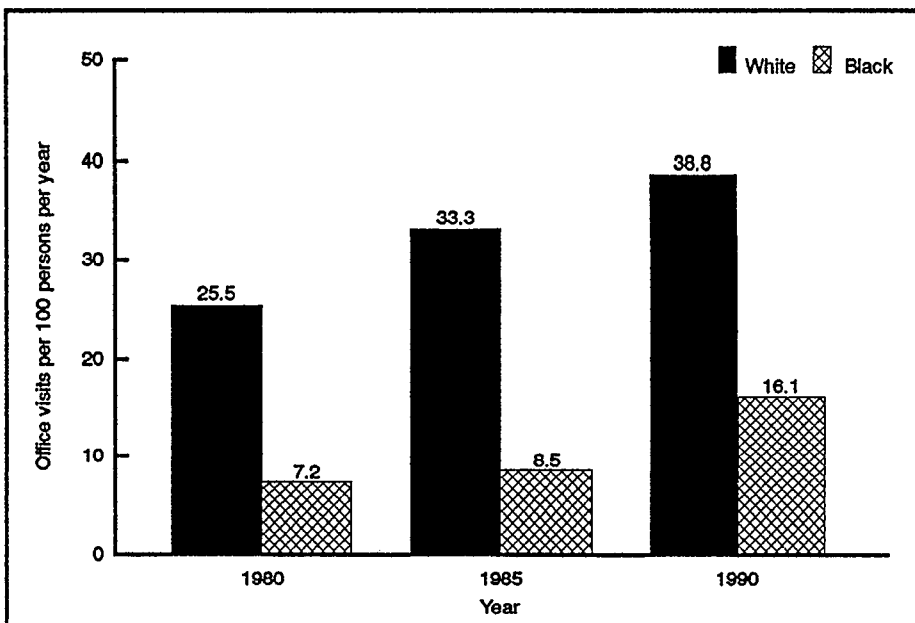


Figure 6. Annual otitis media visit rates for patients aged less than 15 years according to race: United States, 1980–90

in 1990, or a difference of 198.1 percent (figure 4).

Significant increases were also noted among males and females aged 2–5 years between 1975 and 1990, with the male visit rate rising from 22.6 visits to 50.9 visits per 100 males, and the rate for females climbing from 18.9 visits to 44.5 visits per 100 females (figure 5). Visit rates for males and females in the age

groups 6–10 years and 15 years and over did not appear to increase significantly during this time period. Estimates for the age group 11–14 years could not be compared, due to unreliably small estimates in earlier years.

#### Visit rates by race

Visit rates for a principal diagnosis of otitis media were

significantly higher for white persons under the age of 15 years than for black persons in the same age group for 1980, 1985, and 1990. The small number of visits for otitis media made by black persons in 1975, and by black persons aged 15 years and over in 1980, 1985, and 1990 made calculation and comparison of these rates statistically unreliable. Rates for race categories other than white and black persons were statistically unreliable due to small sample size for all data years and did not permit comparisons.

White persons under the age of 15 years made about 25.5 visits per 100 in 1980, compared with 7.2 visits per 100 black persons aged less than 15 years in 1980. By 1990 corresponding visit rates were 38.8 and 16.1, respectively, with both groups showing an increase over the time period, although the increase was greater among white persons than among black persons (figure 6).

#### Visit rates by geographic region

Visit rates for four geographic regions of the United States (Northeast, Midwest, South, and West) were not found to differ significantly from each other either in 1975 or in 1990, although substantial increases were noted in each of these four regions over the 1975–90 time period. The pattern of change varied by region (figure 7).

The overall otitis media visit rate for the northeast region jumped from 3.9 visits per 100 persons in 1975 to 9.2 visits per 100 persons in 1980, making the northeastern visit rate for 1980 substantially higher than the three other regional rates. The northeastern visit rates for 1985 and 1990 did not change significantly from the 1980 level.

In the midwestern region a significant increase in the otitis media visit rate was seen between 1980 and 1985, when the rate rose from 5.0 visits per 100 persons to 8.2 visits per 100. Significantly higher visit rates were found in the southern region in 1990 compared with 1985 and in the western region in 1985 compared with 1975.

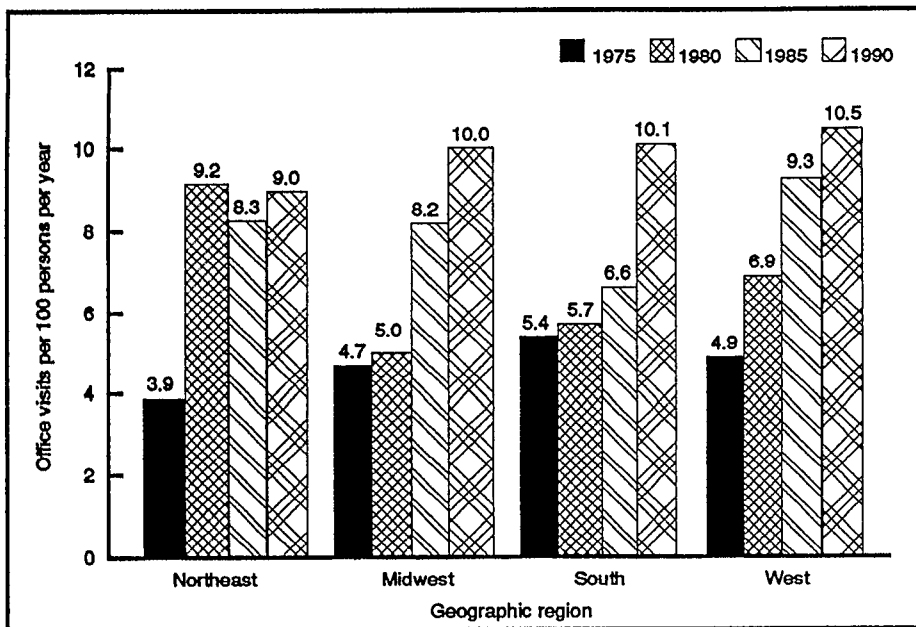


Figure 7. Annual otitis media visit rates by geographic region: United States, 1975–90

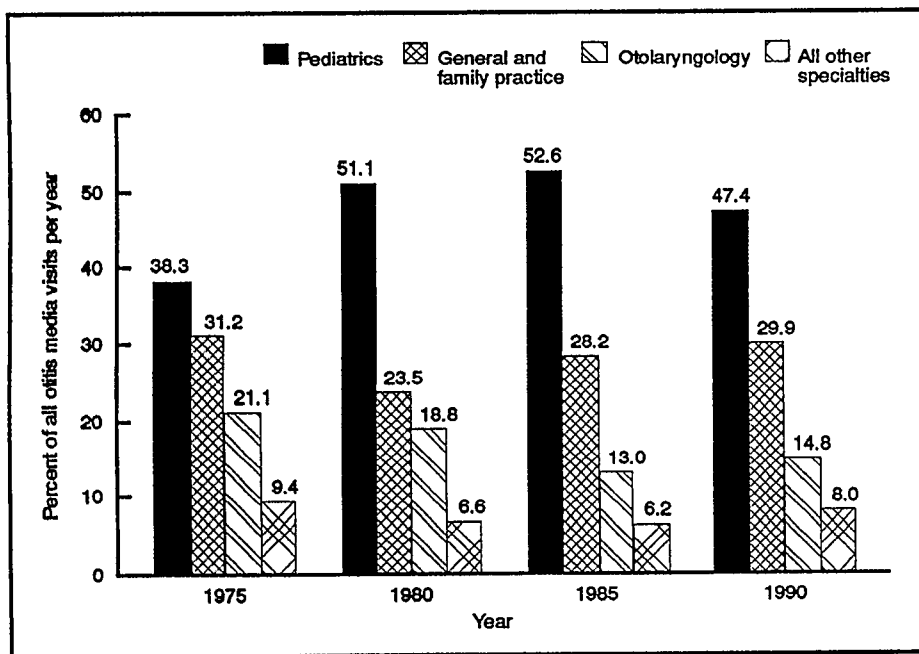


Figure 8. Percent of otitis media visits by physician specialty: United States, 1975–90

### Physician characteristics

Table 4 presents data on visits with a principal diagnosis of otitis media by physician specialty. Major findings are summarized below.

#### Physician specialty

In 1975 the majority of visits with a principal diagnosis of otitis media were made to pediatricians

(38.3 percent), general and family practitioners (31.2 percent), and otolaryngologists (21.1 percent). By 1990 the distribution of visits by physician specialty had not changed significantly. Pediatricians received 47.4 percent of the total in 1990, followed by general and family practitioners with 29.9 percent and otolaryngologists with 14.8 percent of the total number of visits with a

principal diagnosis of otitis media (figure 8).

### Visit rates to selected specialties

The visit rate for a principal diagnosis of otitis media increased significantly for pediatricians and general and family practice physicians between 1975 and 1990 (figure 9). The visit rate to pediatricians increased from 1.8 visits per 100 persons in 1975 to 4.7 visits per 100 in 1990. About 1.5 visits per 100 persons were made to general and family practice physicians in 1975, compared with 3.0 visits per 100 persons in 1990. The rate of visits with a first-listed diagnosis of otitis media did not differ significantly for otolaryngologists between 1975 and 1990.

An examination of visit rates by age to pediatricians and general and family practitioners shows that the largest increase in visits for otitis media occurred among visits to pediatricians by patients aged less than 2 years (figure 10). Substantial increases in the visit rate to these specialties were also noted for visits made by patients aged 2–5 years (figure 11). These findings paralleled the changes described earlier in overall visit rates by age.

### Visit characteristics

#### Reason for visit

Item 9 of the Patient Record asks the physician to record the patient's most important complaint, symptom, or other reason for this visit using the patient's (or patient surrogate's) own words. Before 1977 these responses were classified according to The National Ambulatory Medical Care Survey, symptom classification (SC) (3). From 1977 to the present, reasons for visit have been classified and coded according to "A Reason for Visit Classification for Ambulatory Care" (RVC) (4). The 10 most frequently mentioned principal reasons for visits with a first-listed diagnosis of otitis media in 1990 are

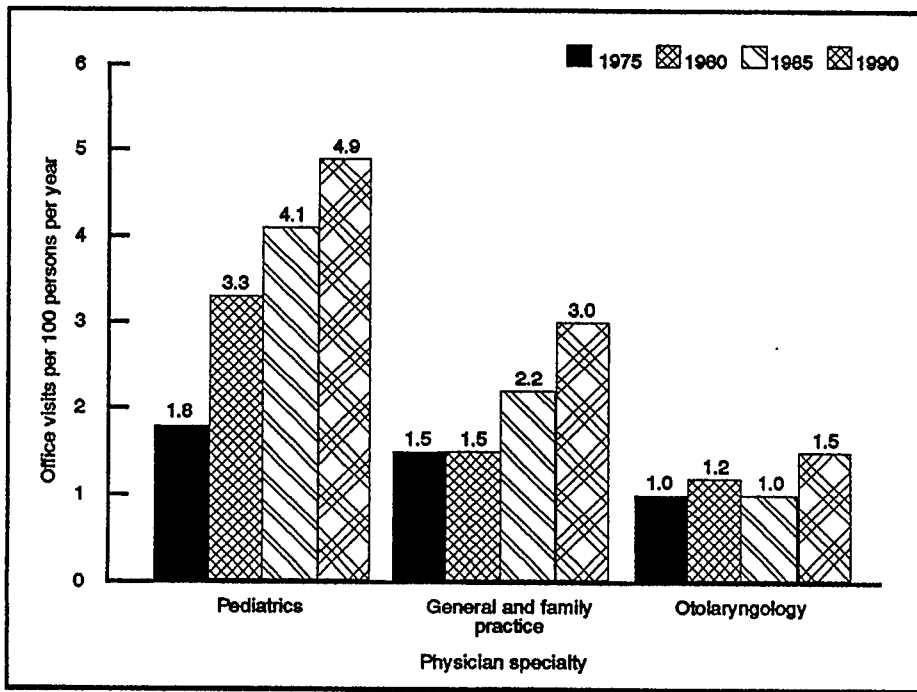


Figure 9. Annual otitis media visit rates for selected physician specialties: United States, 1975-90

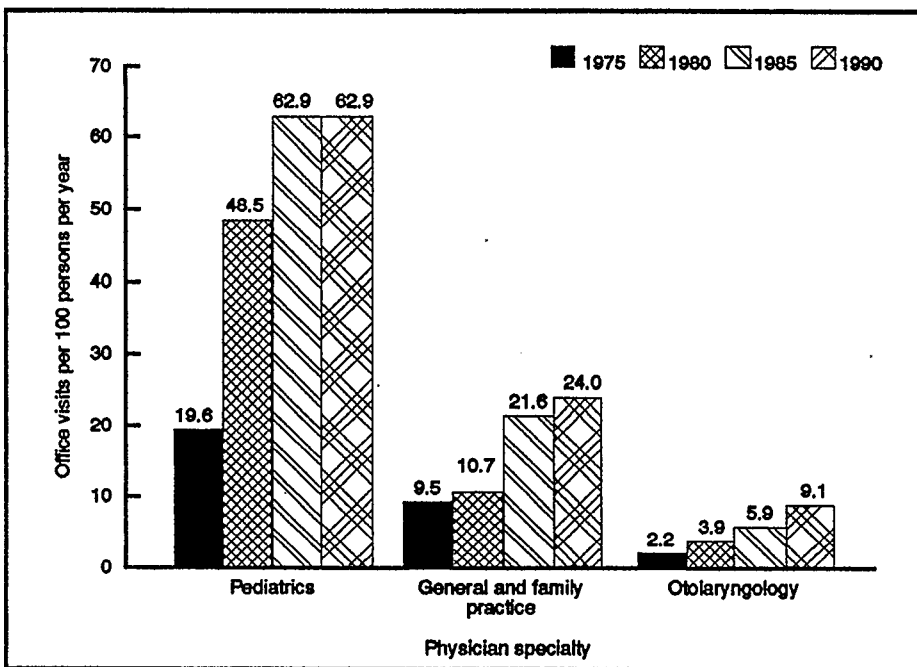


Figure 10. For selected physician specialties, annual otitis media visit rates for patients aged less than 2 years: United States, 1975-90

displayed in table 5. They have not changed substantially since 1975.

**Prior-visit status**

During 1990 about 57.0 percent of otitis media visits were made by "old" patients (patients who had seen the physician on a prior occasion) who were returning for care of an

"old" problem (a problem that had been treated previously by the physician), 28.2 percent were made by patients returning to the physician for care of a new problem, and 14.8 percent were made by new patients. These percentages were not statistically different from those reported in 1975. No significant

changes were noted in prior-visit status by age category between 1975 and 1990.

**Diagnosis and treatment**

The format used on the Patient Record to record diagnostic and therapeutic services ordered or provided by the physician at the office visit has undergone considerable revision since 1975, making categorical comparisons difficult for the years in question here. For 1990 about 74.1 percent of visits with a principal diagnosis of otitis media indicated that none of the diagnostic services listed were ordered or provided by the physician. In addition, 22.2 percent of visits included a mention of counseling and/or advice, and 5.8 percent included nonmedication therapy ordered or provided to the patient.

Despite the difficulties mentioned above in comparing diagnostic and treatment categories, one treatment category has remained fairly constant on the Patient Record and shows that the majority of otitis media visits made during 1975-90 included a mention of medication ordered or provided by the physician. As used in the NAMCS, the term "medication" is interchangeable with the term "drug" and refers to all new or continuing medication ordered or provided by the physician at the visit, including prescription and nonprescription preparations. In 1975, medications were ordered or provided at 78.5 percent of the visits with a principal diagnosis of otitis media; the corresponding percentage was 84.1 percent for 1990. This difference was not found to be statistically significant.

More specific data on drugs ordered or prescribed by the physician at the visit began to be collected on the 1980 NAMCS survey. For 1980, 1985, and 1990, amoxicillin was the most frequently mentioned medication (generic or brand name product) ordered or prescribed at visits with a principal diagnosis of otitis media. A list of the 10 most

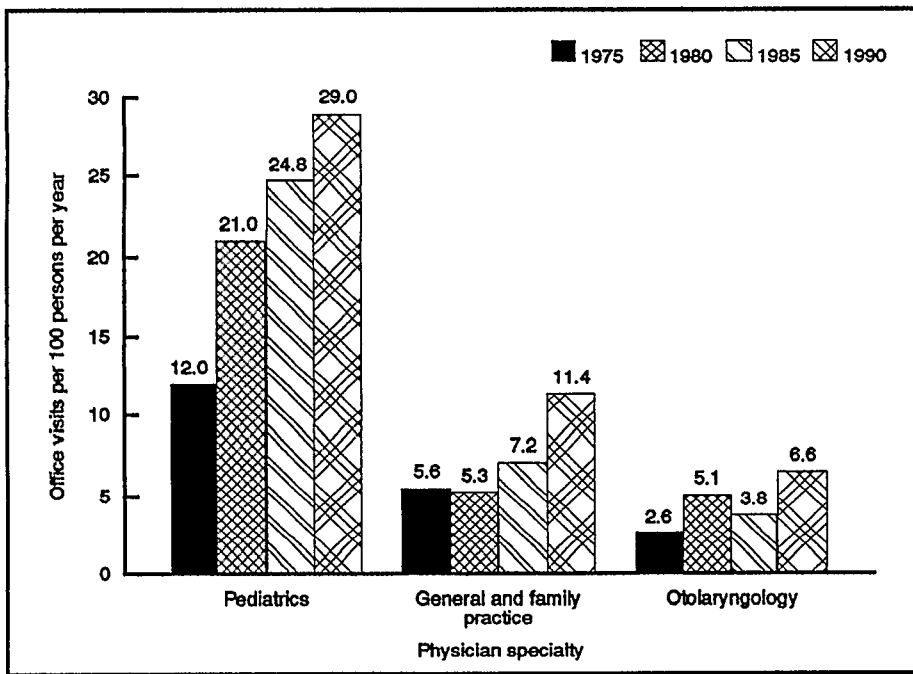


Figure 11. For selected physician specialties, annual otitis media visit rates for patients aged 2–5 years: United States, 1975–90

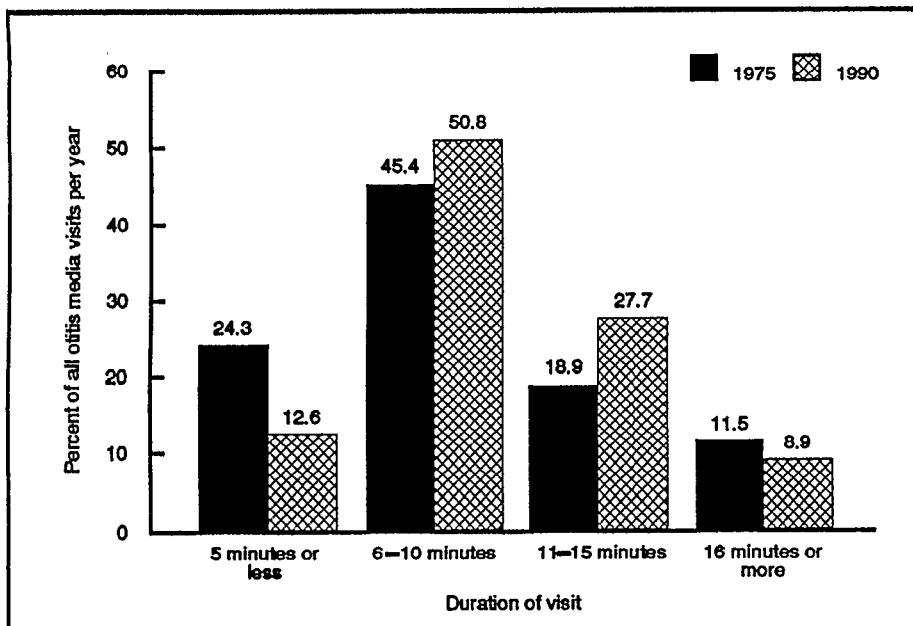


Figure 12. Percent of otitis media visits by duration of visit: United States, 1975 and 1990

frequently utilized medications for 1990 is shown in table 6.

**Duration of visit**

More than half (about 63 percent) of all visits with a principal diagnosis of otitis media lasted 10 minutes or less in 1975 and 1990. However, a higher percentage of visits in 1975 lasted 5 minutes or less (24.3 percent) compared with

1990 (12.6 percent). At the same time more visits in 1990 lasted 11–15 minutes (27.7 percent) compared with 1975 (18.9 percent). Data on duration of visit are displayed in figure 12.

Visit duration for the two youngest age groups appeared to increase between 1975 and 1990. Whereas more than one-third (34.9 percent) of visits made by

patients under the age of 2 years lasted less than 5 minutes in 1975, the same was true for only 11.3 percent of patients in this age group in 1990. Similarly, for visits made by those 2–5 years of age, about one-quarter (25.6 percent) lasted 5 minutes or less in 1975 compared with just 12.7 percent in 1990.

There appeared to be a substantially higher percentage of visits of short duration among younger patients (66.6 percent of visits by patients aged 0–24 years lasted 10 minutes or less in 1990), compared with older patients (38.4 percent of visits made by patients aged 25 years and over lasted 10 minutes or less in 1990).

**Disposition of visit**

More than half of all otitis media visits resulted in a scheduled return visit in 1975 (58.7 percent), not significantly different than the 65.1 percent found in 1990. The percent of otitis media visits resulting in a scheduled return visit did not appear to differ by age in 1975. However, in 1990, persons in the two youngest age groups (less than 2 years and 2–5 years) were found to be more likely to have a return visit scheduled than were those in the aggregated 15 years and over age group. Data on disposition of visit are displayed in table 7.

**Otitis media as a principal diagnosis**

In 1975, otitis media was the fifth most frequently mentioned morbidity-related principal diagnosis, and the eighth most common principal diagnosis overall.<sup>2</sup> (It should be kept in mind that the rank orderings presented within this report may not be entirely reliable, as some estimates may not differ statistically

<sup>2</sup>Morbidity-related diagnoses are those classifiable to illness or injury (ICD-9-CM codes 001–999). Diagnoses other than those related to illness or injury are classified by the ICD-9-CM supplementary classification codes V01–V82, and include general medical examinations, routine prenatal examinations, health supervision of an infant or child, etc.

from other near estimates due to sampling variability.) By 1990 it was the second most frequently mentioned principal diagnosis overall, after essential hypertension (table 8).

Furthermore, among visits made by males in 1990, otitis media was the most frequently reported principal diagnosis, recorded at approximately 4.6 percent of these visits, a significantly higher proportion than for visits by females. Among females, this diagnosis was listed at about 2.7 percent of visits. It was the second most frequent morbidity-related principal diagnosis after essential hypertension among females and the fourth most frequent of all reported diagnoses among females.

### Ranked diagnoses by age group

For 1975 and 1990 otitis media was the most frequently reported morbidity-related principal diagnosis among visits made by children under the age of 2 years. However, the percentage of visits for otitis media made by children in this age group increased from 7.3 percent of all visits made by children under age 2 in 1975 to 17.4 percent of all visits in this age category in 1990.

A similar pattern was seen among children aged 2–5 years, with visits for otitis media, the most frequently reported principal diagnosis in this age group in 1975 and 1990, jumping from 10.4 percent of the total in 1975 to 18.1 percent in 1990.

Among children aged 6–10 years, otitis media was the most frequently mentioned morbidity-related principal diagnosis for 1975 and 1990, representing 6.9 percent and 10.5 percent, respectively, of visits made by this age group.

Although it ranked 6th as a morbidity-related principal diagnosis among those 11–14 years of age in 1975 (2.6 percent of visits), otitis media was the most frequently reported morbidity-related principal diagnosis among this age group in 1990, accounting for 5.2 percent of all visits made by children aged 11–14 years.

In comparison, for visits made by persons aged 15 years and over, otitis media was listed as the principal diagnosis at only 0.6 percent of visits in 1975, making it the 20th most frequently mentioned morbidity-related principal diagnosis. For 1990 it was listed at 0.8 percent of visits in the age category 15 years and over, making it the 21st most frequent morbidity-related principal diagnosis, and the 24th most frequent of all principal diagnoses for this age group (figure 13).

### Ranked diagnoses by physician specialty

In 1975 about 1.3 percent of office visits to general and family practitioners resulted in a principal diagnosis of otitis media, making

otitis media the 13th most frequently listed morbidity-related principal diagnosis among office visits to general and family practice physicians during that year. By 1990, however, 3.5 percent of all visits to this specialty listed otitis media as the principal diagnosis, making it the 3rd most frequently mentioned morbidity-related principal diagnosis among visits to general and family practice physicians.

Among visits to pediatricians, otitis media was the most frequently reported morbidity-related principal diagnosis for 1975 and 1990, but the percentage of visits with this diagnosis increased from 8.1 percent of the total number of visits to pediatricians in 1975 to 14.3 percent in 1990.

Otitis media was also the most frequently rendered principal diagnosis at office visits to otolaryngologists for 1975 and 1990, and the proportion of visits with this diagnosis increased from 12.8 percent of all visits to this specialty in 1975 to 20.2 percent in 1990 (figure 14).

### Concomitant diagnoses

About 18.2 percent of visits with a principal diagnosis of otitis media in 1975 also listed a second diagnosis; for 1990, about 31.6 percent of visits did so. Diseases of the respiratory system were mentioned at 66.3 percent of visits listing a second diagnosis in 1975 and at 59.2 percent of visits listing a second diagnosis in 1990.

### Otitis media as a second- or third-listed diagnosis

In addition to the 9.9 million office visits with a principal diagnosis of otitis media in 1975, an additional 2.9 million visits were made at which the second- or third-listed diagnosis was otitis media, for a total of about 12.8 million visits related to otitis media, or 2.3 percent of all visits made during that year. In 1990 otitis media was listed as the second or third diagnosis at an additional 5.9 million visits, for a total of about 30.3 million otitis media-related office visits, or approximately 4.3 percent of

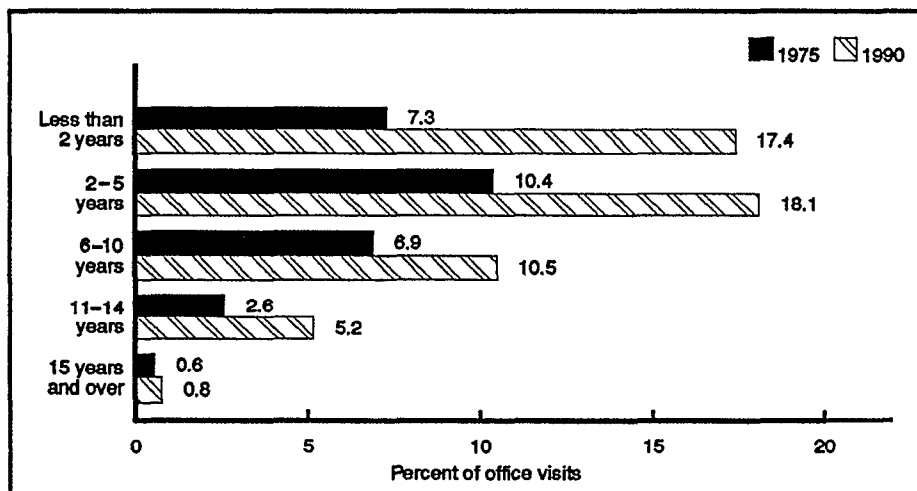


Figure 13. Percent of office visits with a principal diagnosis of otitis media by patient's age: United States, 1975 and 1990



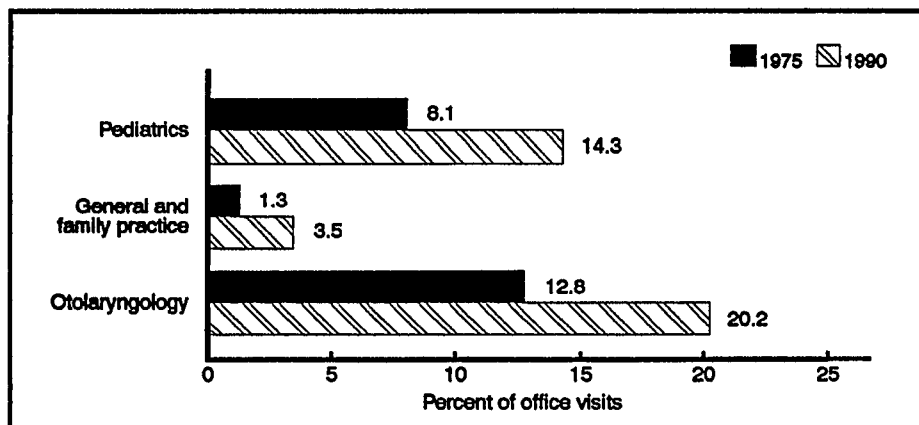


Figure 14. Percent of office visits with a principal diagnosis of otitis media for selected specialties: United States, 1975 and 1990

5. National Center for Health Statistics. Current estimates from the National Health Interview Survey, United States, 1982. National Center for Health Statistics. Vital Health Stat 10(150). 1985.

6. Adams PF, Benson V. Current estimates from the National Health Interview Survey. National Center for Health Statistics. Vital Health Stat 10(181). 1991.

all visits made during this 12-month period. First-listed diagnoses for visits with a second- or third-listed diagnosis of otitis media were most frequently diseases of the respiratory system for 1975 and 1990.

### Summary and discussion

Data from the National Ambulatory Medical Care Survey show a steady increase in the number and rate of physician office visits for otitis media over the period from 1975 to 1990. The annual visit rate during this period more than doubled, and for children under age 15, increased 175 percent. Though the increase is greatest for males under age 2, there are substantial increases for males and females under age 15. Reasons for this dramatic increase are not readily apparent. Data from the National Health Interview Survey (NHIS), however, suggest that the increased visit rate may reflect an increase in the incidence of ear infections. According to NHIS data, the incidence of acute ear infections among the U.S. population increased by about 40 percent between 1982 and 1990, from 6.1 to 8.6 conditions per 100 persons per year. This compares with an increase of about 52 percent in the physician office visit rate for otitis media, from 1980 to 1990. (Because of gaps in data collection, it is not possible to compare precisely concurrent time

periods.) The under 15 age group, which accounts for about 80 percent of otitis media physician office visits, experienced a 60 percent increase in office visit rate from 1980 to 1990. This parallels data from the NHIS that show a 60 percent increase in the incidence of acute ear infections among the under 17 age group from 1982 to 1990 (5,6). The reporting of an acute ear infection in the NHIS does not necessarily equate to an incidence of otitis media, but the parallel increases in ear infection incidence and otitis media physician visits are mutually supportive and likely to be related.

### References

1. National Center for Health Statistics. Eighth Revision International Classification of Diseases, adapted for use in the United States. Washington: Public Health Service. 1967.
2. Public Health Service and Health Care Financing Administration. International Classification of Diseases, 9th Revision, clinical modification. Washington: Public Health Service. 1980.
3. Meads S, McLemore T. The National Ambulatory Medical Care Survey: Symptom classification. National Center for Health Statistics. Vital and Health Stat 2(63). 1974.
4. Schneider D, Appleton L, McLemore T. A reason for visit classification for ambulatory care. National Center for Health Statistics. Vital and Health Stat 2(78). 1979.

Table 1. Number, percent distribution, and annual rate of office visits with a principal diagnosis of otitis media by patient's age and sex: United States: 1975-90

<i>Sex and age</i>	<i>1975</i>	<i>1980</i>	<i>1985</i>	<i>1990</i>
Number of visits in thousands				
Both sexes				
All ages . . . . .	9,899	14,138	18,341	24,458
Under 15 years . . . . .	6,991	11,160	15,014	19,680
0-1 year . . . . .	1,860	4,280	6,819	8,146
2-5 years . . . . .	2,796	3,926	5,337	7,145
6-10 years . . . . .	1,787	2,383	2,295	3,297
11-14 years . . . . .	548	571	562	1,092
15 years and over . . . . .	2,907	2,979	3,328	4,777
15-24 years . . . . .	805	1,051	1,036	927
25-44 years . . . . .	1,027	1,052	1,154	2,056
45-64 years . . . . .	698	525	638	1,239
65 years and over . . . . .	*377	*351	500	555
Female				
All ages . . . . .	5,201	6,489	9,483	11,731
Under 15 years . . . . .	3,292	4,884	7,381	8,928
0-1 year . . . . .	909	1,625	3,041	3,634
2-5 years . . . . .	1,228	1,774	2,797	3,238
6-10 years . . . . .	872	1,226	1,176	1,477
11-14 years . . . . .	*283	*259	367	579
15 years and over . . . . .	1,910	1,605	2,102	2,804
15-24 years . . . . .	*496	510	628	565
25-44 years . . . . .	697	629	728	1,297
45-64 years . . . . .	*453	*257	423	643
65 years and over . . . . .	*264	*209	323	*299
Male				
All ages . . . . .	4,697	7,650	8,858	12,728
Under 15 years . . . . .	3,698	6,276	7,633	10,753
0-1 year . . . . .	951	2,655	3,779	4,512
2-5 years . . . . .	1,569	2,152	2,540	3,907
6-10 years . . . . .	914	1,157	1,119	1,820
11-14 years . . . . .	*264	*312	*195	*514
15 years and over . . . . .	1,000	1,374	1,225	1,975
15-24 years . . . . .	*310	541	408	*362
25-44 years . . . . .	*331	423	425	759
45-64 years . . . . .	*245	*269	*215	597
65 years and over . . . . .	*114	*141	*177	*257
Both sexes				
Percent distribution				
All ages . . . . .	100.0	100.0	100.0	100.0
Under 15 years . . . . .	70.6	78.9	81.9	80.5
0-1 year . . . . .	18.8	30.3	37.2	33.3
2-5 years . . . . .	28.2	27.8	29.1	29.2
6-10 years . . . . .	18.1	16.9	12.5	13.5
11-14 years . . . . .	5.5	4.0	3.1	4.5
15 years and over . . . . .	29.4	21.1	18.1	19.5
15-24 years . . . . .	8.1	7.4	5.6	3.8
25-44 years . . . . .	10.4	7.4	6.3	8.4
45-64 years . . . . .	7.1	3.7	3.5	5.1
65 years and over . . . . .	*3.8	2.5	2.7	2.3
Female				
All ages . . . . .	52.5	45.9	51.7	48.0
Under 15 years . . . . .	33.3	34.5	40.2	36.5
0-1 year . . . . .	9.2	11.5	16.6	14.9
2-5 years . . . . .	12.4	12.5	15.2	13.2
6-10 years . . . . .	8.8	8.7	6.4	6.0
11-14 years . . . . .	*2.9	*1.8	2.0	2.4
15 years and over . . . . .	19.3	11.4	11.5	11.5
15-24 years . . . . .	5.0	3.6	3.4	2.3
25-44 years . . . . .	7.0	4.4	4.0	5.3
45-64 years . . . . .	*4.6	*1.8	2.3	2.6
65 years and over . . . . .	*2.7	*1.5	1.8	1.2

**Table 1. Number, percent distribution, and annual rate of office visits with a principal diagnosis of otitis media by patient's age and sex: United States: 1975-90—Con.**

<i>Sex and age</i>	1975	1980	1985	1990
<b>Male</b>				
Percent distribution				
All ages . . . . .	47.5	54.1	48.3	52.0
Under 15 years . . . . .	37.4	44.4	41.6	44.0
0-1 year . . . . .	9.6	18.8	20.6	18.4
2-5 years . . . . .	15.9	15.2	13.8	16.0
6-10 years . . . . .	9.2	8.2	6.1	7.4
11-14 years . . . . .	*2.7	*2.2	*1.1	2.1
15 years and over . . . . .	10.1	9.7	6.7	8.1
15-24 years . . . . .	*3.1	3.8	2.2	1.5
25-44 years . . . . .	*3.3	3.0	2.3	3.1
45-64 years . . . . .	*2.5	*1.9	*1.2	2.4
65 years and over . . . . .	*1.2	*1.0	*1.0	1.1
<b>Both sexes</b>				
Number of visits per 100 persons per year <sup>1</sup>				
All ages . . . . .	4.8	6.5	7.9	9.9
Under 15 years . . . . .	13.1	22.5	29.1	36.0
0-1 year . . . . .	31.5	64.7	93.5	102.1
2-5 years . . . . .	20.8	31.9	37.7	47.8
6-10 years . . . . .	10.2	14.4	14.1	18.2
11-14 years . . . . .	3.3	4.0	4.1	8.0
15 years and over . . . . .	1.9	1.8	1.8	2.5
15-24 years . . . . .	2.1	2.6	2.7	2.7
25-44 years . . . . .	2.0	1.7	1.6	2.6
45-64 years . . . . .	1.6	1.2	1.4	2.7
65 years and over . . . . .	*1.8	*1.5	1.9	1.9
<b>Female</b>				
All ages . . . . .	4.8	5.8	7.9	9.3
Under 15 years . . . . .	12.6	20.1	29.3	33.4
0-1 year . . . . .	31.1	50.7	84.6	92.7
2-5 years . . . . .	18.9	29.3	40.9	44.5
6-10 years . . . . .	10.1	15.3	14.7	16.6
11-14 years . . . . .	*3.5	*3.7	5.4	8.8
15 years and over . . . . .	2.3	1.8	2.2	2.8
15-24 years . . . . .	*2.5	2.5	3.2	3.2
25-44 years . . . . .	2.6	2.0	2.0	3.2
45-64 years . . . . .	*2.0	*1.1	1.8	2.7
65 years and over . . . . .	*2.1	*1.5	2.0	*1.7
<b>Male</b>				
All ages . . . . .	4.7	7.3	7.9	10.7
Under 15 years . . . . .	13.6	24.8	28.9	38.4
0-1 year . . . . .	32.0	77.9	102.1	111.3
2-5 years . . . . .	22.6	34.3	34.7	50.9
6-10 years . . . . .	10.3	13.6	13.5	19.7
11-14 years . . . . .	*3.2	*4.4	*2.7	7.3
15 years and over . . . . .	1.4	1.7	1.4	2.2
15-24 years . . . . .	*1.6	2.8	2.2	2.1
25-44 years . . . . .	*1.3	1.4	1.2	1.9
45-64 years . . . . .	*1.2	*1.3	*1.0	2.7
65 years and over . . . . .	*1.3	*1.4	*1.6	*2.1

<sup>1</sup>Based on U.S. Bureau of the Census estimates of the civilian, noninstitutionalized U.S. population as of July 1 for each survey year. Survey years 1975-1985 did not include Alaska and Hawaii, and population estimates for these years have been modified accordingly.

**Table 2. Number, percent distribution, and annual rate of office visits with a principal diagnosis of otitis media for patients aged less than 15 years according to race: United States, 1975-90**

<i>Race and age</i>	1975	1980	1985	1990 <sup>1</sup>
Number of visits in thousands				
Total . . . . .	6,991	11,160	15,014	19,006
White . . . . .	6,641	10,430	14,047	17,127
Black . . . . .	*237	544	671	1,373
Other . . . . .	*113	*186	*297	*507
Percent distribution				
Total . . . . .	100.0	100.0	100.0	100.0
White . . . . .	95.0	93.5	93.6	90.1
Black . . . . .	*3.4	4.9	4.5	7.2
Other . . . . .	*1.6	*1.7	*2.0	*2.7
Number of visits per 100 persons per year <sup>2</sup>				
Total . . . . .	13.1	22.5	29.1	34.7
White . . . . .	14.9	25.5	33.3	38.8
Black . . . . .	*3.0	7.2	8.5	16.1
Other . . . . .	*18.7	*16.9	*20.6	*24.9

<sup>1</sup>The 1990 NAMCS included an "unspecified" category in the race item. A total of 675,000 visits in 1990 having a race category of "unspecified" have been omitted from this table. Data years 1975-1985 imputed a race category where necessary.

<sup>2</sup>Based on U.S. Bureau of the Census estimates of the civilian, noninstitutionalized population of the United States as of July 1 for each survey year. Survey years 1975-1985 do not include Alaska and Hawaii, and population estimates for these years have been modified accordingly.

**Table 3. Number, percent distribution, and annual rate of office visits with a principal diagnosis of otitis media by geographic region: United States, 1975-90**

<i>Geographic region</i>	1975	1980	1985	1990
Number of visits in thousands				
All visits . . . . .	9,899	14,138	18,341	24,458
Northeast . . . . .	1,934	4,460	4,134	4,491
Midwest . . . . .	2,600	2,904	4,797	6,001
South . . . . .	3,592	4,044	5,290	8,466
West . . . . .	1,773	2,731	4,120	5,501
Percent distribution				
All visits . . . . .	100.0	100.0	100.0	100.0
Northeast . . . . .	19.5	31.5	22.5	18.4
Midwest . . . . .	26.3	20.5	26.2	24.5
South . . . . .	36.3	28.6	28.8	34.6
West . . . . .	17.9	19.3	22.5	22.5
Number of visits per 100 persons per year <sup>1</sup>				
All visits . . . . .	4.8	6.5	7.9	9.9
Northeast . . . . .	3.9	9.2	8.3	9.0
Midwest . . . . .	4.7	5.0	8.2	10.0
South . . . . .	5.4	5.7	6.6	10.1
West . . . . .	4.9	6.9	9.3	10.5

<sup>1</sup>Based on U.S. Bureau of the Census estimates of the civilian, noninstitutionalized population of the United States as of July 1 for each survey year. Survey years 1975-85 did not include Alaska and Hawaii, and population estimates for these years have been modified accordingly.

**Table 4. Number, percent distribution, and annual rate of office visits with a principal diagnosis of otitis media by physician specialty: United States, 1975-90**

<i>Physician specialty</i>	<i>1975</i>	<i>1980</i>	<i>1985</i>	<i>1990</i>
Number of visits in thousands				
All visits with a principal diagnosis of otitis media . . . . .	9,899	14,138	18,341	24,458
Pediatrics . . . . .	3,795	7,225	9,641	11,581
General and family practice . . . . .	3,087	3,320	5,165	7,301
Otolaryngology . . . . .	2,088	2,654	2,393	3,620
All other specialties . . . . .	929	939	1,142	1,956
Percent distribution				
All visits with a principal diagnosis of otitis media . . . . .	100.0	100.0	100.0	100.0
Pediatrics . . . . .	38.3	51.1	52.6	47.4
General and family practice . . . . .	31.2	23.5	28.2	29.9
Otolaryngology . . . . .	21.1	18.8	13.0	14.8
All other specialties . . . . .	9.4	6.6	6.2	8.0
Number of visits per 100 persons per year <sup>1</sup>				
All visits with a principal diagnosis of otitis media . . . . .	4.8	6.5	7.9	9.9
Pediatrics . . . . .	1.8	3.3	4.2	4.7
General and family practice . . . . .	1.5	1.5	2.2	3.0
Otolaryngology . . . . .	1.0	1.2	1.0	1.5
All other specialties . . . . .	0.4	0.4	0.5	0.8

<sup>1</sup>Based on U.S. Bureau of the Census estimates of the civilian, noninstitutionalized U.S. population as of July 1 for each survey year. Survey years 1975-85 did not include Alaska and Hawaii, and population estimates for these years have been modified accordingly.

**Table 5. Number and percent distribution of office visits with a principal diagnosis of otitis media by patient's principal reason for visit: United States, 1990**

<i>Reason for visit<sup>1</sup></i>	<i>Number of visits in thousands</i>	<i>Percent distribution</i>
All visits with a principal diagnosis of otitis media . . . . .	24,458	100.0
Earache or ear infection . . . . .S355	9,005	36.8
Other symptoms referable to ears, not elsewhere classified . . .S365	3,161	12.9
Fever . . . . .S010	2,151	8.6
Otitis media . . . . .D450	1,350	5.4
Cough . . . . .S440	1,279	5.1
Discharge from ear . . . . .S350	828	3.3
Head cold, upper respiratory infection (coryza) . . . . .S445	788	3.2
Hearing dysfunctions . . . . .S345	781	3.2
Nasal congestion . . . . .S400	767	3.1
Plugged feeling in ear . . . . .S360	624	2.5
All other reasons . . . . .	3,724	15.9

<sup>1</sup>Based on "A Reason for Visit Classification for Ambulatory Care" (RVC), Vital Health Stat (2)78 1979.

**Table 6. Number and percent distribution of office visits with a principal diagnosis of otitis media by the 10 most frequently used generic substances: United States, 1990**

<i>Generic substance<sup>1</sup></i>	<i>Number of drug mentions in thousands</i>	<i>Percent distribution</i>
All drug mentions for visits with a principal diagnosis of otitis media . . . . .	29,006	100.0
Amoxicillin . . . . .	9,845	33.9
Cefaclor . . . . .	3,496	12.1
Trimethoprim . . . . .	1,754	6.0
Sulfamethoxazole . . . . .	1,754	6.0
Pentoxifylline . . . . .	1,624	5.6
Phenylephrine . . . . .	1,524	5.3
Erythromycin . . . . .	1,498	5.2
Phenylpropanolamine . . . . .	1,292	4.5
Sulfisoxazole . . . . .	1,036	3.6
Hydrocortisone . . . . .	1,012	3.5

<sup>1</sup>Frequency of mention combines single-ingredient agents with mentions of the agent in a combination drug.

**Table 7. Number and percent distribution of office visits with a principal diagnosis of otitis media by disposition of visit according to patient's age: United States, 1975 and 1990**

<i>Disposition of visit<sup>1</sup></i>	<i>Number of visits in thousands</i>	<i>Patient's age</i>		
		<i>0-5 years</i>	<i>6-14 years</i>	<i>15 years and over</i>
1975		Percent distribution		
All visits . . . . .	9,899	100.0	100.0	100.0
Return visit scheduled . . . . .	5,813	60.2	56.4	58.3
Return if needed . . . . .	2,478	24.7	21.8	28.2
No follow-up . . . . .	1,204	11.6	*16.1	*9.8
Other <sup>2</sup> . . . . .	670	*7.2	*7.4	*5.7
1990				
All visits . . . . .	24,458	100.0	100.0	100.0
Return visit scheduled . . . . .	15,918	73.2	56.9	46.6
Return if needed . . . . .	5,405	17.4	24.3	35.2
No follow-up . . . . .	2,227	6.9	12.1	13.4
Other <sup>2</sup> . . . . .	1,893	7.2	*8.3	*9.1

<sup>1</sup>Total may exceed total number of visits because more than one disposition is possible per visit.

<sup>2</sup>Includes telephone followup, return to referring physician, admit to hospital, and "other".

**Table 8. Number and percent distribution of office visits by the 10 most frequently mentioned principal diagnoses: United States, 1975 and 1990**

<i>Principal diagnosis and code</i>	<i>Number of visits in thousands</i>	<i>Percent distribution</i>
<b>1975<sup>1</sup></b>		
All visits . . . . .	567,600	100.0
Medical or special examination . . . . .Y00	40,863	7.2
Medical or surgical aftercare . . . . .Y10	26,782	4.7
Essential benign hypertension . . . . .401	22,824	4.0
Prenatal care . . . . .Y06	20,851	3.7
Acute respiratory infection, site unspecified . . . .465	14,607	2.6
Neuroses . . . . .300	13,641	2.4
Chronic ischemic heart disease . . . . .412	12,513	2.2
Otitis media . . . . .381	9,899	1.7
Diabetes mellitus . . . . .250	9,671	1.7
Other eczema and dermatitis . . . . .692	9,667	1.7
<b>1990<sup>2</sup></b>		
All visits . . . . .	704,604	100.0
Essential hypertension . . . . .401	27,310	3.9
Otitis media <sup>3</sup> . . . . .	24,458	3.5
Normal pregnancy . . . . .V22	23,561	3.3
General medical examination . . . . .V70	21,043	3.0
Acute upper respiratory infections . . . . .465	20,555	2.9
Health supervision of infant or child . . . . .V20	18,676	2.7
Diabetes mellitus . . . . .250	15,303	2.2
Allergic rhinitis . . . . .477	12,123	1.7
Bronchitis, not specified as acute or chronic. . . .490	12,098	1.7
Acute pharyngitis . . . . .462	11,536	1.6

<sup>1</sup>Diagnostic codes based on the *Eighth Revision International Classification of Diseases*, adapted for use in the United States (ICD-8).

<sup>2</sup>Diagnostic codes based on the *International Classification of Diseases, 9th Revision, Clinical Modification*, (ICD-9-CM).

<sup>3</sup>Defined here to include ICD-9-CM codes 381.0-381.4 (nonsuppurative otitis media) and 382.0-382.9 (suppurative and unspecified otitis media).

**Technical notes**

**Source of data and sample design**

The information presented in this report is based on data collected by means of the National Ambulatory Medical Care Survey (NAMCS) from January 1990 through December 1990. The target universe of NAMCS includes office visits made in the United States by ambulatory patients to nonfederally employed physicians who are principally engaged in office practice, but not in the specialties of anesthesiology, pathology, or radiology. Telephone contacts and nonoffice visits are excluded.

A multistage probability sample design is used in NAMCS, involving samples of primary sampling units (PSU's), physician practices within PSU's, and patient visits within physician practices. For 1990, a sample of 3,063 nonfederal, office-based physicians was selected from master files maintained by the American Medical Association and American Osteopathic Association. The physician response rate for the 1990 NAMCS was 74 percent. Sample physicians were asked to complete Patient Records (see figure 2) for a systematic random sample of office visits occurring during a randomly assigned 1-week reporting period. Responding physicians completed 43,469 patient records.

Characteristics of the physician's practice, such as primary specialty and type of practice, were obtained from the physicians during an induction interview. The U.S. Bureau of the Census, Housing Surveys Branch, was responsible for the survey's data collection. Processing operations and medical coding were performed by the National Center for Health Statistics, Hospital Discharge and Ambulatory Care Survey Section, Research Triangle Park, North Carolina.

Previous NAMCS surveys employed a statistical design that is

similar to that used for the 1990 NAMCS. Additional information pertaining to technical aspects of the other data years included in this report (1975, 1980, and 1985) is available upon request.

**Sampling errors**

The standard error is primarily a measure of the sampling variability that occurs by chance when only a sample, rather than an entire universe, is surveyed. The relative standard error of an estimate is obtained by dividing the standard error by the estimate itself; the result is then expressed as a percent of the estimate. Table I shows relative standard errors for estimated numbers of office visits in 1990, and table II presents relative standard errors for estimated numbers of drug mentions. Standard errors for estimated percents of visits are shown in table III.

Alternatively, relative standard errors for aggregate estimates may be calculated using the following general formula, where  $x$  is the aggregate of interest in thousands, and  $A$  and  $B$  are the appropriate coefficients from table IV.

$$RSE(x) = \sqrt{A + \frac{B}{x}} \cdot 100.0$$

**Table I. Relative standard errors for estimated number of office visits: National Ambulatory Medical Care Survey, 1990**

<i>Estimated number of office visits in thousands</i>	<i>Relative standard error in percent</i>
200	48.2
400	34.2
522	30.0
600	28.0
800	24.3
1,000	21.8
2,000	15.6
5,000	10.3
10,000	7.7
15,000	6.1
20,000	6.7
50,000	4.8
100,000	4.3
500,000	3.8

Example of use of table: An aggregate estimate of 10 million visits has a relative standard error of 7.7 percent or a standard error of 770,000 visits (7.7 percent of 10 million).

**Table II. Relative standard errors for estimated number of drug mentions: National Ambulatory Medical Care Survey, 1990**

<i>Estimated number of drug mentions in thousands</i>	<i>Relative standard error in percent</i>
200	58.5
400	41.5
500	37.2
600	34.0
778	30.0
800	29.6
1,000	26.6
2,000	19.1
5,000	12.7
10,000	9.7
20,000	7.7
50,000	6.3
100,000	5.7
500,000	5.2

Example of use of table: An aggregate estimate of 10 million drug mentions has a relative standard error of 9.7 percent or a standard error of 970,000 visits (9.7 percent of 10 million).

Similarly, relative standard errors for percents may be calculated using the following general formula, where  $p$  is the percent of interest and  $x$  is the denominator of the percent in thousands, using the appropriate coefficient from table IV.

$$RSE(p) = \sqrt{\frac{B(1-p)}{px}} \cdot 100.0$$

**Adjustments for nonresponse**

Estimates from NAMCS data were adjusted to account for sample physicians who were in scope but did not participate in the study. This adjustment was calculated to minimize the impact of response on final estimates by imputing to nonresponding physicians data from visits to similar physicians. For this purpose, physicians were judged similar if they had the same specialty designation and practiced in the same PSU.

**Test of significance and rounding**

In this report the determination of statistical inference is based on the



**Table III. Standard errors for percents of estimated numbers of office visits: National Ambulatory Medical Care Survey, 1990**

Base of percent (visits in thousands)	Estimated percent					
	1 or 99	5 or 95	10 or 90	20 or 80	30 or 70	50
	Standard error in percentage points					
200	4.8	10.5	14.4	19.2	22.0	24.0
500	3.0	6.6	9.1	12.2	13.9	15.2
1,000	2.1	4.7	6.5	8.6	9.9	10.8
2,000	1.5	3.3	4.6	6.1	7.0	7.6
5,000	1.0	2.1	2.9	3.8	4.4	4.8
10,000	0.7	1.5	2.0	2.7	3.1	3.4
13,000	0.6	1.3	1.8	2.4	2.7	3.0
20,000	0.5	1.1	1.4	1.9	2.2	2.4
50,000	0.3	0.7	0.9	1.2	1.4	1.5
100,000	0.2	0.5	0.6	0.9	1.0	1.1
600,000	0.1	0.2	0.3	0.4	0.4	0.5

Example of use of table: An estimate of 30 percent based on an aggregate estimate of 13 million visits has a standard error of 2.7 percent or a relative standard error of 9.1 percent (2.7 percent divided by 30 percent).

**Table IV. Coefficients appropriate for determining relative standard errors by type of estimate and physician groups: National Ambulatory Medical Care Survey, 1990**

Type of estimate and physician group	Coefficient	
	A	B
Visits		
Overall totals	0.00138387	46.19541416
Doctors of osteopathy, general surgery, cardiovascular disease, psychiatry, urological surgery, dermatology, neurology, pediatrics, ophthalmology, otolaryngology, obstetrics and gynecology	0.01684812	8.03232318
Orthopedic surgery	0.02504087	15.06497239
"All other" specialties group	0.01820068	33.70580231
General and family practice, internal medicine	0.00669347	30.86108039
Drug mentions		
Overall totals	0.00259409	67.9417652
Doctors of osteopathy, orthopedic surgery, cardiovascular disease, psychiatry, urological surgery, dermatology, pediatrics, ophthalmology, otolaryngology, obstetrics and gynecology	0.02306475	11.46572351
General surgery, neurology	0.07521297	5.08446943
General and family practice, internal medicine	0.00856244	52.12780308
"All other" specialties group	0.03885901	58.83244791

these years were modified to exclude Alaska and Hawaii. For this reason the 1975–85 estimates are not considered to be official and are used solely to provide denominators for rate computation. Because of a recent revision in the modification technique, 1975–85 population estimates used in this report may differ slightly from those found in earlier NAMCS reports.

**Definition of terms**

*Ambulatory patient* — An ambulatory patient is an individual seeking personal health services who is not currently admitted to any health care institution on the premises.

*Physician* — A physician is a duly licensed doctor of medicine (M.D.) or doctor of osteopathy (D.O.) who is currently in office-based practice and who spends some time caring for ambulatory patients. Excluded from the NAMCS are physicians who are hospital based; who specialize in anesthesiology, pathology, or radiology; who are federally employed; who treat only institutionalized patients; or who are employed full time by an institution and spend no time seeing ambulatory patients.

*Office* — Offices are the premises physicians identify as locations for their ambulatory practice. These customarily include consultation,

t-test. The Bonferroni inequality was used to establish the critical value for statistically significant differences (0.05 level of confidence). Terms relating to differences such as "greater than" or "less than" indicate that the difference is statistically significant. A lack of comment regarding the difference between any two estimates does not mean that the difference was tested and found to be not significant.

In the tables estimates of office visits have been rounded to the nearest thousand. Consequently, estimates will not always add to totals. Rates and percents were

calculated from original unrounded figures and do not necessarily agree with percents calculated from rounded data.

**Population figures and rate computation**

Population figures used in computing annual visit rates in this report are based on July 1, 1990, estimates of the civilian, noninstitutionalized population of the United States. For survey years 1975–85, data were collected only for the conterminous United States, and the original population estimates for

examination, or treatment spaces that patients associate with the particular physician.

*Visit*—A visit is a direct personal exchange between an ambulatory patient and a physician (or a staff member working under the physician's supervision), for the purpose of seeking care and rendering personal health services.

*Drug mention*—A drug mention is the physician's entry of a pharmaceutical agent —by any route of administration— for prevention, diagnosis, or treatment. Generic as well as brand-name drugs are included, as are nonprescription and prescription drugs. Along with all new drugs, the physician also records continued medications if the patient was specifically instructed during the visit to continue the medication.

*Drug Visit*—A drug visit is a visit in which medication was prescribed or provided by the physician.

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**Symbols**

- Data not available
  - . . . Category not applicable
  - Quantity zero
  - 0.0 Quantity more than zero but less than 0.05
  - Z Quantity more than zero but less than 500 where numbers are rounded to thousands
  - \* Figure does not meet standard of reliability or precision
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