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Advance Data

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

# Office Visits to Otolaryngologists 1989–90, National Ambulatory Medical Care Survey

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This report describes visits made to otolaryngologists during the period from March 1989 to December 1990. The information was collected by means of the National Ambulatory Medical Care Survey (NAMCS), an ongoing probability sample survey of the private office-based, non-Federal physicians practicing in the United States. NAMCS excludes physicians who specialize in anesthesiology, pathology, or radiology and physicians who are principally engaged in teaching, research, or administration. This survey excludes those visits made to hospital emergency or outpatient departments. NAMCS was conducted annually from 1973 through 1981, again in 1985, and annually beginning in 1989 by the Division of Health Care Statistics, National Center for Health Statistics, Centers for Disease Control and Prevention.

Data in this report are from the 1989 and 1990 NAMCS, which were conducted in identical fashion using the same survey instrument, definitions, and procedures. The two data sets were combined to obtain more reliable estimates. The figures presented in this report are estimated from a sample, not the entire universe of visits to ambulatory care physicians, and are therefore subject to sampling variability. All estimates contained in this report, including the number of visits, the number of drug mentions, and the visit rates, have been adjusted to represent annual statistics. The technical notes at the end of the report provide guidelines for judging the precision of the estimates. Definitions of key terms used in the survey are also provided. A facsimile of the patient record form used for data collection in both 1989 and 1990 is shown in figure 1 and will be useful when reading the survey results.

Survey data show that of the visits made to otolaryngologists, more than four-fifths (83 percent) were to physicians who reported they were board certified in otolaryngology, approximately 16 percent were to physicians who reported no board certification, and the remaining 1 percent were to physicians who were certified in surgery.

## Data highlights

As shown in table 1, an estimated annual average of 16,957,000 visits were made to otolaryngologists in 1989 and 1990. These 16.9 million visits represent about 2 percent of all visits to ambulatory care physicians in the United States and produce a visit rate of 7 visits per 100 persons. In the combined survey years 1975 and 1976, the estimated annual average number of visits to otolaryngologists was 13,596,000, again representing about 2 percent of all visits made to ambulatory care physicians, not significantly different from 1989 and 1990. The visit rate for the combined years 1975 and 1976 was 7 visits per 100 persons, the same as that for 1989 and 1990 (1).

## Patient characteristics

Table 2 shows the percent distribution of visits by age and sex of the patient. Most of the visits to otolaryngologists were made by patients under 15 years of age and by patients 25–64 years of age, who together represented about 70 percent of the visits. This relationship held true for both males and females. There were fewer visits made by young adults and elderly patients. The visit rate dropped from 8 visits per 100 persons for those under 15 years of age to 4 visits per 100 persons for patients 15–24 years of age. The rate then increased by two visits for each age group thereafter.

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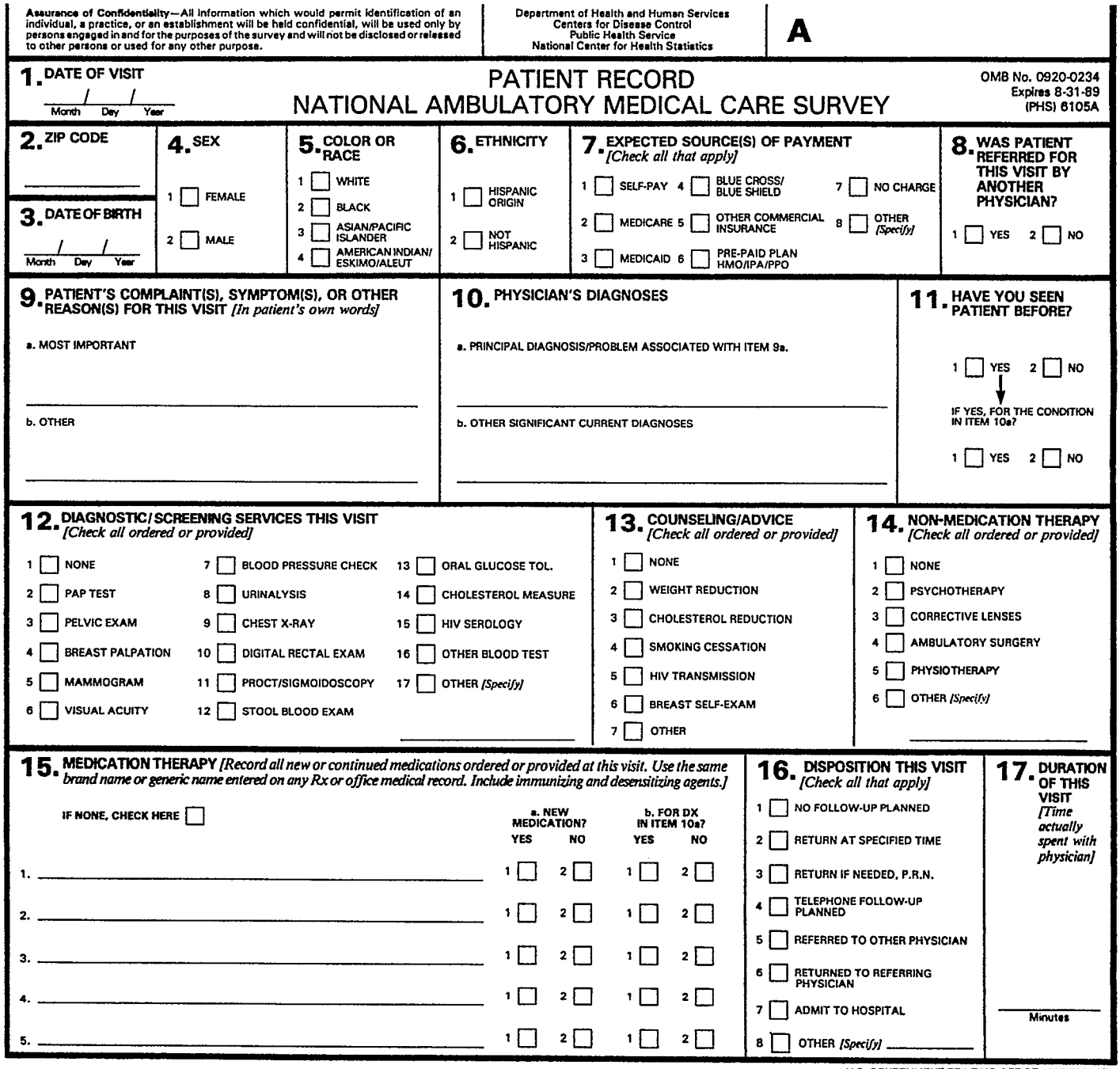


Assurance of Confidentiality—All information which would permit identification of an individual, a practice, or an establishment will be held confidential, will be used only by persons engaged in and for the purposes of the survey and will not be disclosed or released to other persons or used for any other purpose.

Department of Health and Human Services
Centers for Disease Control
Public Health Service
National Center for Health Statistics

A

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

OMB No. 0920-0234
Expires 8-31-89
(PHS) 6105A

1. DATE OF VISIT — Month / Day / Year

2. ZIP CODE

3. DATE OF BIRTH — Month / Day / Year

4. SEX
1 FEMALE
2 MALE

5. COLOR OR RACE
1 WHITE
2 BLACK
3 ASIAN/PACIFIC ISLANDER
4 AMERICAN INDIAN/ ESKIMO/ALEUT

6. ETHNICITY
1 HISPANIC ORIGIN
2 NOT HISPANIC

7. EXPECTED SOURCE(S) OF PAYMENT [Check all that apply]
1 SELF-PAY
2 MEDICARE
3 MEDICAID
4 BLUE CROSS/ BLUE SHIELD
5 OTHER COMMERCIAL INSURANCE
6 PRE-PAID PLAN HMO/IPA/PPO
7 NO CHARGE
8 OTHER [Specify]

8. WAS PATIENT REFERRED FOR THIS VISIT BY ANOTHER PHYSICIAN?
1 YES 2 NO

9. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT [In patient's own words]
a. MOST IMPORTANT
b. OTHER

10. PHYSICIAN'S DIAGNOSES
a. PRINCIPAL DIAGNOSIS/PROBLEM ASSOCIATED WITH ITEM 9a.
b. OTHER SIGNIFICANT CURRENT DIAGNOSES

11. HAVE YOU SEEN PATIENT BEFORE?
1 YES 2 NO
IF YES, FOR THE CONDITION IN ITEM 10a?
1 YES 2 NO

12. DIAGNOSTIC/SCREENING SERVICES THIS VISIT [Check all ordered or provided]
1 NONE
2 PAP TEST
3 PELVIC EXAM
4 BREAST PALPATION
5 MAMMOGRAM
6 VISUAL ACUITY
7 BLOOD PRESSURE CHECK
8 URINALYSIS
9 CHEST X-RAY
10 DIGITAL RECTAL EXAM
11 PROCT/SIGMOIDOSCOPY
12 STOOL BLOOD EXAM
13 ORAL GLUCOSE TOL.
14 CHOLESTEROL MEASURE
15 HIV SEROLOGY
16 OTHER BLOOD TEST
17 OTHER [Specify]

13. COUNSELING/ADVICE [Check all ordered or provided]
1 NONE
2 WEIGHT REDUCTION
3 CHOLESTEROL REDUCTION
4 SMOKING CESSATION
5 HIV TRANSMISSION
6 BREAST SELF-EXAM
7 OTHER

14. NON-MEDICATION THERAPY [Check all ordered or provided]
1 NONE
2 PSYCHOTHERAPY
3 CORRECTIVE LENSES
4 AMBULATORY SURGERY
5 PHYSIOTHERAPY
6 OTHER [Specify]

15. MEDICATION THERAPY [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.]
IF NONE, CHECK HERE

| | a. NEW MEDICATION? YES | a. NEW MEDICATION? NO | b. FOR DX IN ITEM 10a? YES | b. FOR DX IN ITEM 10a? NO |
|---|---|---|---|---|
| 1. | 1 | 2 | 1 | 2 |
| 2. | 1 | 2 | 1 | 2 |
| 3. | 1 | 2 | 1 | 2 |
| 4. | 1 | 2 | 1 | 2 |
| 5. | 1 | 2 | 1 | 2 |

16. DISPOSITION THIS VISIT [Check all that apply]
1 NO FOLLOW-UP PLANNED
2 RETURN AT SPECIFIED TIME
3 RETURN IF NEEDED, P.R.N.
4 TELEPHONE FOLLOW-UP PLANNED
5 REFERRED TO OTHER PHYSICIAN
6 RETURNED TO REFERRING PHYSICIAN
7 ADMIT TO HOSPITAL
8 OTHER [Specify]

17. DURATION OF THIS VISIT [Time actually spent with physician]
Minutes

* U.S. GOVERNMENT PRINTING OFFICE:1988-226-197

**Figure 1. Patient record form**

There were more female visits to otolaryngologists than male visits—55 percent as compared with 45 percent, respectively. Females under 15 years of age were the only age group to have a smaller percent of visits than their male counterparts. The pattern of patients under 15 years of age and of patients 25–64 years making most of the visits was also evident for both males and females. Male and female visit rates are similar for all age groups and are not statistically different. The higher frequency and percent of female visits to otolaryngologists are due to the fact that there are more females in the general population, explaining the similarity in the visit rates.

As shown in table 3, more visits were made to otolaryngologists by white persons (90 percent) than by black persons (about 6 percent), figures that are not statistically different from the corresponding percents for visits made to all physician specialties. However, there was a significant difference in the visit rate between white and black patients. White males had visit rates that were 2.3 times higher than those for black males, and white females had rates that were 3 times higher than those for black females.

## Expected sources of payment

Patients paid for all or part of the visit (including deductibles and

copayments) in an estimated 28 percent of the visits. Fee-for-service insurance, other than Blue Cross/Blue Shield, was a source of payment in about 24 percent of the visits to otolaryngologists compared with Blue Cross/Blue Shield, which was used in about 18 percent of the visits. Prepaid plans such as health maintenance organizations (HMO's), individual practice associations (IPA's), and preferred provider organizations (PPO's) were used in about 13 percent of the visits. Government insurance, Medicare and Medicaid, represented approximately 16 and 7 percent of the visits, respectively. Except for Blue Cross/Blue Shield, all expected sources of payment to otolaryngologists were similar to the corresponding percents for all physicians. Blue Cross/Blue Shield was an expected source of payment for about 18 percent of the visits to otolaryngologists as compared with almost 12 percent of visits to all physicians (figure 2).

## Patient status

As shown in table 4, about 17 percent of patients visiting otolaryngologists in 1989 and 1990 were referred by another physician. This is significantly greater than the referral rate for all physicians (about 6 percent of their visits were referred by another physician).

New patients to otolaryngologists represented nearly 33 percent of the visits, twice the 16 percent of new patient visits to all physicians. Most visits to otolaryngologists, nearly 60 percent, were made by "old patients" (patients who had seen the physician on a prior occasion) with an "old problem" (a problem that had been treated previously by the physician). Old patients with new problems represented about 8 percent of the visits, which is considerably less than the approximately 23 percent for all physicians. No differences were found in these percents for otolaryngologists between 1989–90 and 1975–76.

## Patient's reason for visit

Tables 5 and 6 display the principal reason for visit as expressed by the patient. The principal reason for visit is the problem, complaint, or cause listed first on item 9 of the patient record form. These data have been classified and coded according to the *Reason for Visit Classification for Ambulatory Care* (RVC) (2).

The RVC is divided into eight modules (or groups of reasons), as detailed in table 5. For otolaryngologist visits, the symptom module was most often cited, accounting for about 73 percent of the visits. Within this module, symptoms referable to the eyes and ears and symptoms referable to the respiratory system accounted for almost 34 percent and 24 percent of the visits, respectively. The treatment module, disease module, and the injury and adverse

**Table 1. Average annual number, percent distribution, and rate of office visits, by physician specialty: United States, 1989–90**

| Physician specialty | Average annual number of visits in thousands | Percent distribution | Average annual number of visits per 100 persons |
|---|---|---|---|
| All visits | 698,653 | 100.0 | 285 |
| General and family practice | 208,045 | 29.8 | 85 |
| Internal medicine | 87,719 | 12.6 | 36 |
| Pediatricians | 84,280 | 12.1 | 34 |
| Obstertrics and gynecology | 59,812 | 8.6 | 24 |
| Opthalmology | 41,302 | 5.9 | 17 |
| Orthopedic surgery | 34,033 | 4.9 | 14 |
| Dermatology | 25,164 | 3.6 | 10 |
| General surgery | 23,891 | 3.4 | 10 |
| Psychiatry | 18,790 | 2.7 | 8 |
| Otolaryngology | 16,957 | 2.4 | 7 |
| Cardiovascular disease | 11,040 | 1.6 | 5 |
| Urological surgery | 9,852 | 1.4 | 4 |
| Neurology | 6,167 | 0.9 | 3 |
| All others specialties | 71,603 | 10.2 | 29 |

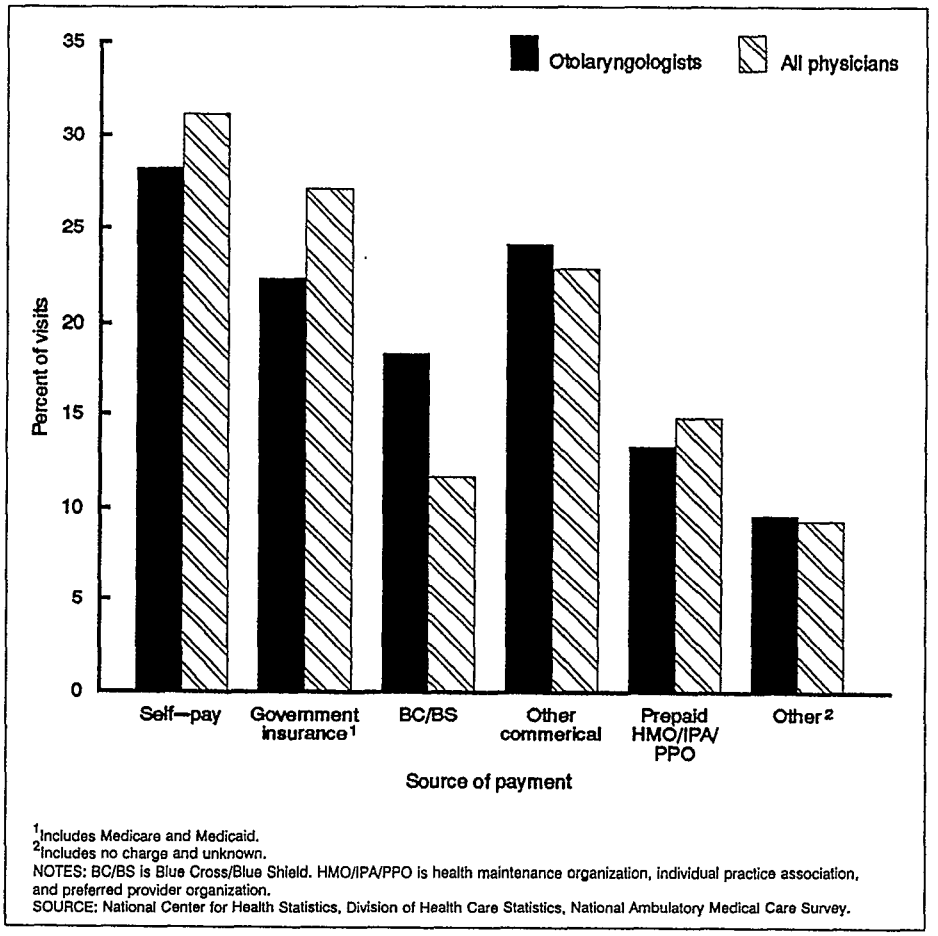
**Table 2. Average annual number and percent distribution and average annual rate of office visits to otolaryngologists, by sex and age: United States, 1989–90**

| Sex and age | Average annual number of visits in thousands | Percent distribution | Average annual number of visits per 100 persons |
|---|---|---|---|
| Total visits | 16,957 | 100.0 | 7 |
| Under 15 years | 4,186 | 24.7 | 8 |
| 15–24 years | 1,464 | 8.6 | 4 |
| 25–44 years | 4,574 | 27.0 | 6 |
| 45–64 years | 3,470 | 20.5 | 8 |
| 65–74 years | 1,865 | 11.0 | 10 |
| 75 years and over | 1,399 | 8.2 | 12 |
| Male | 7,652 | 45.1 | 6 |
| Under 15 years | 2,378 | 14.0 | 9 |
| 15–24 years | 641 | 3.8 | 4 |
| 25–44 years | 1,818 | 10.7 | 5 |
| 45–64 years | 1,465 | 8.6 | 7 |
| 65–74 years | 845 | 5.0 | 11 |
| 75 years and over | 506 | 3.0 | 12 |
| Female | 9,305 | 54.9 | 7 |
| Under 15 years | 1,809 | 10.7 | 7 |
| 15–24 years | 823 | 4.9 | 5 |
| 25–44 years | 2,756 | 16.3 | 7 |
| 45–64 years | 2,004 | 11.8 | 8 |
| 65–74 years | 1,020 | 6.0 | 10 |
| 75 years and over | 893 | 5.3 | 12 |

**Table 3. Average annual number, percent distribution, and rate of visits to otolaryngologists, by race and sex: United States, 1989–90**

| Race and sex | Average annual number of visits in thousands | Percent distribution | Average annual number of visits per 100 persons |
|---|---|---|---|
| Total visits | 16,957 | 100.0 | 7 |
| Black | 962 | 5.7 | 3 |
| Male | 400 | *2.4 | 3 |
| Female | 562 | 3.3 | 3 |
| White | 15,254 | 90.0 | 8 |
| Male | 6,857 | 40.4 | 7 |
| Female | 8,397 | 49.5 | 9 |
| Other[1] | 455 | 2.7 | 5 |
| Male | 230 | *1.4 | 6 |
| Female | 225 | *1.3 | 5 |

[1]Includes Asian and Pacific Islander and American Indian, Eskimo, and Aleut.
NOTES: Detail will not equal total because the unspecified category, 286,000 visits, is included in total.




[1]Includes Medicare and Medicaid.
[2]Includes no charge and unknown.
NOTES: BC/BS is Blue Cross/Blue Shield. HMO/IPA/PPO is health maintenance organization, individual practice association, and preferred provider organization.
SOURCE: National Center for Health Statistics, Division of Health Care Statistics, National Ambulatory Medical Care Survey.

**Figure 2. Expected source of payment to otolaryngologists: United States, 1989–90**

effects module accounted for around 14, 7, and 3 percent of the visits, respectively.

Table 6 lists the top 20 reasons for visit to otolaryngologists in 1989–90, which accounted for more than three-quarters of all visits. The most frequent reason for visit to otolaryngologists in 1989–90 was for an earache or an ear infection, accounting for 11.3 percent of the visits. Patients with hearing dysfunction accounted for 8.1 percent of the 16,957,000 average annual visits, the second most frequent reason for visit. Symptoms referable to throat and other symptoms referable to ears represented 6.3 percent and 5.8 percent of the visits, respectively. The 20 most frequent diagnoses are quite similar to the 20 most frequent reasons for visit to otolaryngologists found in the 1975–76 NAMCS.

## Physician's diagnosis

Data on the principal diagnosis rendered by otolaryngologists are shown in tables 7 and 8. The principal diagnosis is the first-recorded diagnosis in item 10a of the patient record form and is associated with the principal reason for visit as recorded in item 9a. The principal diagnosis was coded and classified according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (3).

As shown on table 7, the ICD–9–CM is organized into broad categories relating to the major systems of the body. Diseases of the nervous system and sense organs represented the largest percent of diagnosis by the otolaryngologist, about 38 percent, which was followed by diseases of the respiratory system, approximately 30 percent. The three ICD–9–CM classes—supplementary classifications; symptoms, signs, and ill-defined conditions; and injury and poisoning—represented almost 9, 6, and 4 percent, respectively, of the principal diagnoses. As would be expected, the percent of visits with diagnoses of diseases of the nervous system and sense organs (mostly ear and nose) and diseases of the respiratory system (mostly throat) is more than double the percent for all physicians—approximately 38 percent and 30 percent, respectively, for otolaryngologists as compared with 11.1 percent and 13.9 percent, respectively, for all physicians. The percent of visits for supplementary classifications (including general medical exam and normal pregnancy exams) for otolaryngologists was about half that for

all physicians, nearly 9 percent compared with 15 percent, respectively.

The top 20 principal diagnoses made by otolaryngologists are shown in table 8. The first three diagnoses, accounting for about one-quarter of the visits (26.1 percent), are related to problems of the ear: suppurative and unspecified otitis media (9.4 percent), disorders of external ear (8.5 percent), and nonsuppurative otitis media and eustachian tube disorders (8.2 percent). Following the first three diagnoses are two diagnoses involving the respiratory system: allergic rhinitis (7.1 percent) and chronic sinusitis (5.2 percent). The 20 most frequent diagnoses are quite similar to the 20 most frequent diagnoses found in the 1975–76 NAMCS.

## Medication therapy

As shown in table 9, otolaryngologists prescribed or administered medication in nearly 47 percent of the office visits in 1989–90, significantly less often than most other physicians specialties. All physicians prescribed or administered medication in 60.2 percent of the visits.

A visit in which the patient was administered or prescribed any type of medication by the physician is called a "drug visit." Of the drug visits to otolaryngologists, about 63 percent were visits when one drug was prescribed or administered, 24 percent were visits when two drugs were prescribed or administered, and 13 percent were visits when three drugs or more were prescribed or administered. Of all the drugs prescribed or administered by office-based ambulatory care physicians, otolaryngologists prescribed or administered only 1.9 percent.

Table 10 classifies the drug mentions into therapeutic categories as defined by the 1985 edition of the National Drug Code Directory (4). Antimicrobial agents accounted for approximately one-third of the otolaryngologists' drug mentions, in addition to respiratory tract drugs, which accounted for about 18 percent. Antimicrobial agents included such

**Table 4. Average annual number and percent distribution of office visits to otolaryngologists, by patients' referral status and visit status: United States, 1989–90**

| Referral and visit status | Average annual number of visits in thousands | Percent distribution |
|---|---|---|
| All visits | 16,957 | 100.0 |
| Patient referred | | |
| Yes | 2,950 | 17.4 |
| No | 14,007 | 82.6 |
| Visit status | | |
| New patient | 5,542 | 32.7 |
| Old patient, new problem | 1,284 | 7.6 |
| Old patient, old problem | 10,132 | 59.7 |

**Table 5. Average annual number and percent distribution of office visits to otolaryngologists, by principal reason for visit module: United States, 1989–90**

| Principal reason for visit module and RVC code[1] | | Average annual number of visits in thousands | Percent distribution |
|---|---|---|---|
| All principal reasons for visit | | 16,957 | 100.0 |
| Symptom module | S100–S999 | 12,346 | 72.8 |
| Symptoms referable to the eyes and ears | S300–S399 | 5,710 | 33.7 |
| Symptoms referable to the respiratory system | S400–S499 | 4,019 | 23.7 |
| Disease module | D001–D999 | 1,129 | 6.7 |
| Diagnostic, screening, and preventive module | X100–X599 | 253 | 1.5 |
| Treatment module | T100–T899 | 2,388 | 14.1 |
| Injury and adverse effects module | J001–J999 | 520 | 3.1 |
| All other modules[2] | | 321 | 1.9 |

[1]Based on "A Reason for Visit Classification for Ambulatory Care" (RVC) (2).
[2]Includes test results and administrative modules, and uncodable and blank entries.

**Table 6. Average annual number, percent distribution, and cumulative percent of the 20 most common reasons for visit to otolaryngologists: United States, 1989–90**

| Rank | Principal reason for visit and RVC code[1] | | Average annual number of visits in thousands | Percent distribution | Cumulative percent |
|---|---|---|---|---|---|
| | All reasons for visit | | 16,957 | 100.0 | --- |
| 1 | Earache or ear infection | S355 | 1,908 | 11.3 | 11.3 |
| 2 | Hearing dysfunction | S345 | 1,370 | 8.1 | 19.4 |
| 3 | Symptoms referable to throat | S455 | 1,071 | 6.3 | 25.7 |
| 4 | Other symptoms referable to ears | S365 | 981 | 5.8 | 31.5 |
| 5 | Nasal congestion | S400 | 896 | 5.3 | 36.8 |
| 6 | Plugged feeling in ear | S360 | 895 | 5.3 | 42.1 |
| 7 | Other symptoms of nose | S405 | 477 | 2.8 | 44.9 |
| 8 | Vertigo, dizziness | S225 | 459 | 2.7 | 47.6 |
| 9 | Sinus problems | S410 | 427 | 2.5 | 50.1 |
| 10 | Discharge from ear | S350 | 387 | 2.3 | 52.4 |
| 11 | Allergy | S090 | 370 | 2.2 | 54.6 |
| 12 | Headache, pain in head | S210 | 348 | 2.1 | 56.7 |
| 13 | Allergy medication | T100 | 326 | 1.9 | 58.6 |
| 14 | Cough | S440 | 311 | 1.8 | 60.4 |
| 15 | Disorders of voice | S480 | 292 | 1.7 | 62.1 |
| 16 | Upper respiratory infections except tonsillitis | D600 | 268 | 1.6 | 63.7 |
| 17 | Preoperative visit for specified and unspecified types of surgery | T200 | 252 | 1.5 | 65.2 |
| 18 | Otitis media | D450 | 208 | 1.2 | 66.4 |
| 19 | Symptoms referable to mouth | S510 | 159 | 0.9 | 67.3 |
| 20 | Head and face | J005 | 144 | 0.9 | 68.2 |

[1]Based on "A Reason for Visit Classification for Ambulatory Care" (RVC) (2).

drugs as penicillin (11.0 percent), cephalosporin (9.3 percent), and erythromycin and lincosamide (4.1 percent). Respiratory tract drugs included such drugs as nasal decongestants (7.0 percent); antitussives, expectorants, and mucolytics (4.0 percent); and antihistamines (6.9 percent). The therapeutic category skin and mucous membrane represented 9.4 percent of the drug mentions and consisted almost completely of dermatologics, 8.8 percent. The top 20 generic substances prescribed by otolaryngologists are shown in table 11, with amoxicillin being the most utilized, 9.3 percent. The generic substances beclomethasone, neomycin, hydrocortisone, and phenylephrine followed, accounting for 7.7, 6.7, 6.6, and 5.7 percent of the drug mentions, respectively.

## Duration and disposition of visits

Visits to otolaryngologists had a mean duration of roughly 14 minutes, excluding those visits of zero minutes. More than three-quarters (77.7 percent) of the visits lasted no longer than 15 minutes, significantly higher than the 68.1 percent of visits to all physicians. The duration of visit does not include time waiting for the physician or time receiving care from someone else on the physician's staff. Visits of zero minutes, in which the patient had no face-to-face contact with the physician, represented almost 3 percent of the visits (table 12).

In addition, table 12 shows that 57 percent of most visits to otolaryngologists resulted in the physician instructing the patient to return at a specific time, and about 27 percent were instructed to return if needed, compared with approximately 50 percent and 27 percent, respectively, in 1975–76.

**Table 7. Average annual number and percent distribution of office visits to otolaryngologists, by major ICD–9–CM class: United States, 1989–90**

| *Principal diagnoses and ICD–9–CM codes*[1] | | *Average annual number of visits in thousands* | *Percent distribution* |
|---|---|---|---|
| Total | | 16,957 | 100.0 |
| Infectious and parasitic diseases | 001–139 | 137 | *0.8 |
| Neoplasms | 140–239 | 529 | 3.1 |
| Diseases of the nervous system and sense organs | 320–389 | 6,467 | 38.1 |
| Diseases of the respiratory system | 460–519 | 5,135 | 30.3 |
| Diseases of the digestive system | 520–579 | 588 | 3.5 |
| Diseases of the skin and subcutaneous tissue | 680–709 | 274 | 1.6 |
| Symptoms, signs, and ill-defined conditions | 780–799 | 1,002 | 5.9 |
| Injury and poisoning | 800–999 | 615 | 3.6 |
| Supplementary classifications | V001–V082 | 1,475 | 8.7 |
| All other diagnoses[2] | | 365 | 2.2 |
| Unknown diagnoses[3] | | 370 | 2.2 |

[1]Based on *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (3).
[2]Includes endocrine, nutritional, and metabolic diseases and immunity disorders (240–279); diseases of the blood-forming organs (280–289); mental disorders (290–319); diseases of the circulatory system (390–459); diseases of the genitourinary system (580–629); complications of pregnancy, childbirth, and the puerperium (630–676); diseases of musculoskeletal system and connective tissue (710–739); congenital anomalies (740–759); and certain conditions originating in the perinatal period (760–779).
[3]Includes blank diagnoses, noncodable diagnoses, and illegible diagnoses.

**Table 8. Average annual number, percent distribution, and cumulative percent of office visits to otolaryngologists by principal diagnoses most frequently rendered by the physician: United States, 1989–90**

| *Rank* | *Most common principal diagnoses and ICD–9–CM code*[1] | *Average annual number of visits in thousands* | *Percent distribution* | *Cumulative precent* |
|---|---|---|---|---|
| | All principal diagnoses | 16,957 | 100.0 | --- |
| 1 | Suppurative and unspecified otitis media.382 | 1,602 | 9.4 | 9.4 |
| 2 | Disorders of external ear.380 | 1,435 | 8.5 | 17.9 |
| 3 | Nonsuppurative otitis media and eustachian tube disorders.381 | 1,394 | 8.2 | 26.1 |
| 4 | Allergic rhinitis.477 | 1,203 | 7.1 | 33.2 |
| 5 | Chronic sinusitis.473 | 881 | 5.2 | 38.4 |
| 6 | Other postsurgical states.045 | 741 | 4.4 | 42.8 |
| 7 | Hearing loss.389 | 682 | 4.0 | 46.8 |
| 8 | Chronic pharyngitis and nasopharyngitis.472 | 560 | 3.3 | 50.1 |
| 9 | Chronic disease of tonsils and adenoids.474 | 514 | 3.0 | 53.1 |
| 10 | Symptoms involving head and neck.784 | 484 | 2.9 | 56.0 |
| 11 | Deviated nasal septum.470 | 343 | 2.0 | 58.0 |
| 12 | Other diseases of upper respiratory tract.478 | 341 | 2.0 | 60.0 |
| 13 | Other disorders of ear.388 | 339 | 2.0 | 62.0 |
| 14 | Acute tonsillitis.463 | 261 | 1.5 | 63.5 |
| 15 | General symptoms.780 | 256 | 1.5 | 65.0 |
| 16 | Other disorders of tympanic membrane.384 | 240 | 1.4 | 66.4 |
| 17 | Vertiginous syndromes and other disorders.386 | 237 | 1.4 | 67.8 |
| 18 | Fracture of face bones.802 | 233 | 1.4 | 69.2 |
| 19 | Acute pharyngitis.462 | 229 | 1.4 | 70.6 |
| 20 | Other disorders of middle ear and mastoid.385 | 192 | 1.1 | 71.7 |

[1]Based on *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (3).

**Table 9. Average annual number and percent distribution of office visits to otolaryngologists, by type of visit and number of medications prescribed or ordered: United States, 1989–90**

| *Type of visit and number of medications* | *Average annual number of visits in thousands* | *Percent distribution* |
|---|---|---|
| All visits | 16,957 | 100.0 |
| Type of visit | | |
| Nondrug visit (0 medications) | 9,018 | 53.2 |
| Drug visit | 7,939 | 46.8 |
| Number of medications | | |
| 1 | 4,991 | 62.9 |
| 2 | 1,896 | 23.9 |
| 3 | 694 | 8.7 |
| 4 | 187 | 2.4 |
| 5 | 172 | 2.2 |

**Table 10. Average annual number and percent distribution of drug mentions to otolaryngologists by theraputic category: United States, 1989–90**

| *Therapeutic category*[1] | *Average annual number of visits in thousands* | *Percent distribution* |
|---|---|---|
| All drug mentions | 12,435 | 100.0 |
| Antimicrobial agents | 3,879 | 31.2 |
| Penicillins | 1,362 | 11.0 |
| Cephalosporins | 1,155 | 9.3 |
| Erythromycins and lincosamides | 504 | 4.1 |
| Cardiovascular-renal drugs | 252 | 2.0 |
| Psychopharmacologic drugs | 128 | 1.0 |
| Radiopharmaceutical or contrast media | 669 | 5.4 |
| Gastrointestinal agents | 204 | 1.6 |
| Hormones and agents affecting hormonal mechanisms | 645 | 5.2 |
| Skin or mucous membrane | 1,169 | 9.4 |
| Dermatologics | 1,097 | 8.8 |
| Ophthalmic drugs | 330 | 2.7 |
| Otologic drugs | 417 | 3.4 |
| Drugs used for relief of pain | 447 | 3.6 |
| Respiratory tract drugs | 2,291 | 18.4 |
| Nasal decongestants | 871 | 7.0 |
| Antitussives, expectorants, mucolytics | 498 | 4.0 |
| Antihistamines | 862 | 6.9 |
| Unclassified or miscellaneous | 1,910 | 15.4 |
| All others[2] | *96 | 0.8 |

[1]Therapeutic class based on the standard drug classification used in the *National Drug Code Directory, 1985 Edition* (4).
[2]Includes: Anesthetic drugs, hematologic agents, metabolic and nutrient agents, and neurologic drugs.

## References


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**Table 11. Average annual number and percent distribution of the top 20 generic ingredients most often utilized by otolaryngologists: United States, 1989–90**

| Rank | Generic ingredient | Average annual number of mentions[1] in thousands | Percent distribution |
|---|---|---|---|
| | All drug mentions | 12,435 | 100.0 |
| 1 | Amoxicillin | 1,157 | 9.3 |
| 2 | Beclomethasone | 963 | 7.7 |
| 3 | Neomycin | 835 | 6.7 |
| 4 | Hydrocortisone | 822 | 6.6 |
| 5 | Phenylephrine | 716 | 5.7 |
| 6 | Polymixin B | 709 | 5.7 |
| 7 | Phenylpropanolamine | 572 | 4.6 |
| 8 | Bacitracin | 540 | 4.3 |
| 9 | Cefaclor | 459 | 3.7 |
| 10 | Guaifenesin | 443 | 3.6 |
| 11 | Chlorpheniramine | 438 | 3.5 |
| 12 | Terfenadine | 391 | 3.1 |
| 13 | Trimethoprim | 293 | 2.4 |
| 14 | Sulfamethoxazole | 293 | 2.4 |
| 15 | Cefonicid sodium | 263 | 2.1 |
| 16 | Methylprednisolone | 252 | 2.0 |
| 17 | Penicillin | 246 | 2.0 |
| 18 | Acetaminophen | 246 | 2.0 |
| 19 | Cephalexin | 237 | 1.9 |
| 20 | Erythromycin | 228 | 1.8 |

[1]Frequency of mention combines single-ingredient agents with mentions of the agents as an ingredient in a combination drug (4).

**Table 12. Average annual number and percent distribution of office visits to otolaryngologists, by duration and disposition: United States, 1989–90**

| Duration and disposition | Average annual number of visits in thousands | Percent distribution |
|---|---|---|
| Total | 16,957 | 100.0 |
| Duration of visit[1] | | |
| Zero minutes | 495 | 2.9 |
| 1–5 minutes | 1,930 | 11.4 |
| 6–10 minutes | 5,732 | 33.8 |
| 11–15 minutes | 5,505 | 32.5 |
| 16–30 minutes | 2,946 | 17.4 |
| 31–60 minutes | 322 | 1.9 |
| 61+ minutes | *27 | *0.2 |
| Disposition of visit | | |
| No followup planned | 1,592 | 9.4 |
| Return at specific time | 9,670 | 57.0 |
| Return if needed | 3,758 | 22.2 |
| Telephone followup planned | 471 | 2.8 |
| Referred to other physician | 322 | 1.9 |
| Referred to referring physician | 283 | 1.7 |
| Admit to hospital | 288 | 1.7 |
| Other | 1,083 | 6.4 |

[1]Mean duration of visit was 13.8 minutes.

# Technical notes

## Sources 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 March 20, 1989, through December 30, 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. A sample of 2,535 non-Federal, office-based physicians was selected in 1989 and 2,528 non-Federal, office-based physicians were selected in 1990 from master files maintained by the American Medical Association and American Osteopathic Association. The sample included 104 otolaryngologists in both 1989 and 1990, of which 89 were eligible in 1989 and 84 were eligible in 1990. The physician response rate for the 1989 NAMCS was 74 percent; in 1990, it was 75 percent. Otolaryngologists had a response rate of 71 percent in 1989 and 70 percent in 1990. Sample physicians were asked to complete patient records (figure 1) for a systematic random sample of office visits occurring during a randomly assigned 1-week reporting period. Responding physicians completed 38,384 patient records in 1989 and 43,469 in 1990. Otolaryngologists completed 1,790 patient record forms in 1989 and 2,185 in 1990. 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.

## 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. Approximate relative standard errors (RSE's) of selected aggregate statistics are shown in table I, and the relative standard errors of the estimated number of drug mentions are shown in table II. All frequencies in this report are average annual figures and must be doubled before a significance test can be performed. Relative standard errors for aggregate visits and drug 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 coefficient from table IV.

$$\mathrm{RSE}\,(x) = \sqrt{A + \frac{B}{x}} \times 100.0$$

Approximate relative standard errors for estimates of the percent of visits are shown in table III. The RSE's for percent 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.

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

## 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

**Table I. Relative standard errors for estimated numbers of office visits: National Ambulatory Medical Care Survey, 1989–90**

| *Estimated number of office visits in thousands* | *All specialties* | *Otolaryngologist* |
|---|---|---|
| | Relative standard error (RSE) in percent | |
| 100 | 72.7 | 31.1 |
| 200 | 51.5 | 23.4 |
| 300 | 42.1 | 20.1 |
| 400 | 36.5 | 18.3 |
| 500 | 32.6 | 17.1 |
| 700 | 27.6 | 15.6 |
| 1,000 | 23.2 | 14.4 |
| 2,000 | 16.5 | 12.9 |
| 5,000 | 10.7 | 11.9 |
| 7,000 | 9.2 | 11.7 |
| 10,000 | 7.9 | 11.5 |
| 30,000 | 5.2 | 11.2 |
| 50,000 | 4.5 | 11.2 |
| 100,000 | 3.9 | 11.2 |
| 500,000 | 3.3 | 11.1 |
| 700,000 | 3.2 | 11.1 |
| 1,400,000 | 3.2 | ... |

NOTE: Otolaryngologist 30 percent RSE = 110,000; all specialties 30 percent RSE = 593,000.

Example of use of table: An aggregate estimate of 5 million visits to a otolaryngologist has a relative standard estimate of 11.9 percent or a standard error of 595 thousand visits (11.9 percent of 5 million).

**Table II. Relative standard errors for estimated numbers of drug mentions: National Ambulatory Medical Care Survey, 1989–90**

| *Estimated number of drug mentions in thousands* | *All specialties* | *Otolaryngologist* |
|---|---|---|
| | Relative standard error (RSE) in percent | |
| 100 | 90.3 | 36.1 |
| 200 | 63.9 | 27.0 |
| 300 | 52.3 | 23.3 |
| 400 | 45.3 | 21.1 |
| 500 | 40.6 | 19.7 |
| 700 | 34.3 | 18.0 |
| 1,000 | 28.8 | 16.6 |
| 2,000 | 20.6 | 14.7 |
| 5,000 | 13.4 | 13.5 |
| 7,000 | 11.5 | 13.3 |
| 10,000 | 9.9 | 13.1 |
| 30,000 | 6.5 | 12.8 |
| 50,000 | 5.7 | 12.8 |
| 100,000 | 4.9 | 12.7 |
| 500,000 | 4.2 | 12.7 |
| 700,000 | 4.1 | 12.7 |
| 1,400,000 | 4.0 | ... |

NOTE: Otolaryngologist 30 percent RSE = 155,000; all specialties 30 percent RSE = 922,000.

Example of use of table: An aggregate estimate of 2 million drug mentions by an otolaryngologist has a relative standard estimate of 14.7 percent or a standard error of 294 thousand drug mentions (14.7 percent of 2 million).

**Table III. Standard errors for percents of estimated numbers of office visits for the National Ambulatory Medical Care Survey: United States, 1989–90**

| 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 | | | | | |
| 100 | 9.2 | 20.1 | 27.6 | 36.8 | 42.2 | 46.0 |
| 200 | 6.5 | 14.2 | 19.5 | 26.0 | 29.8 | 32.5 |
| 500 | 4.1 | 9.0 | 12.3 | 16.5 | 18.9 | 20.6 |
| 700 | 3.5 | 7.6 | 10.4 | 13.9 | 15.9 | 17.4 |
| 1,000 | 2.9 | 6.3 | 8.7 | 11.6 | 13.3 | 14.6 |
| 2,000 | 2.1 | 4.5 | 6.2 | 8.2 | 9.4 | 10.3 |
| 5,000 | 1.3 | 2.8 | 3.9 | 5.2 | 6.0 | 6.5 |
| 7,000 | 1.1 | 2.4 | 3.3 | 4.4 | 5.0 | 5.5 |
| 10,000 | 0.9 | 2.0 | 2.8 | 3.7 | 4.2 | 4.6 |
| 20,000 | 0.6 | 1.4 | 2.0 | 2.6 | 3.0 | 3.3 |
| 30,000 | 0.5 | 1.2 | 1.6 | 2.1 | 2.4 | 2.7 |
| 50,000 | 0.4 | 0.9 | 1.2 | 1.7 | 1.9 | 2.1 |
| 80,000 | 0.3 | 0.7 | 1.0 | 1.3 | 1.5 | 1.6 |
| 100,000 | 0.3 | 0.6 | 0.9 | 1.2 | 1.3 | 1.5 |
| 500,000 | 0.1 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
| 1,400,000 | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 | 0.4 |

Example of use of table: An estimate of 30 percent based on an aggregate estimate of 10 million visits has a standard error of 4.2 percent or a relative standard error of 14.0 percent (4.2 percent divided by 30 percent).

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 a two-sided *t*-test. The Bonferroni inequality was used to estimate the critical value for statistically significant differences (0.05 level of significance). Terms relating to differences such as "higher," "less," and so forth indicate that the differences are statistically significant. Terms such as "similar" or "no difference" mean that no statistical significance exists between the estimates being compared. 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.

## 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.

*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.

*Office*—Offices are the premises physicians identify as locations for their ambulatory practice; these customarily include consultation, examination, or treatment spaces that patients associate with the particular physician.

*Otolaryngologist*—A physician who specializes in the diseases of the ear, nose, and throat.

*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 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.

*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.

**Table IV. Coefficients appropriate for determining relative standard errors, by type of estimate and physician specialty: National Ambulatory Medical Care Survey, 1989–90**

| Type of estimate and physician specialty | Coefficient | |
|---|---|---|
| | A | B |
| Visits | | |
| Overall totals | 0.00097549 | 52779.52184 |
| Otolaryngologist | 0.01236777 | 84645.29550 |
| Drug mentions | | |
| Overall totals | 0.00157151 | 81470.54833 |
| Otolaryngologist | 0.01603845 | 11420.09384 |

**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 (estimate is based on fewer than 20 births in numerator or denominator) |

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