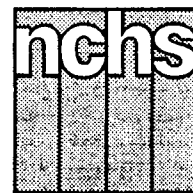


# Advance Data



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

by David A. Woodwell, Division of Health Care Statistics

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.



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Centers for Disease Control and Prevention  
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/FFO								
<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"/>			<table style="width: 100%; border: none;"> <tr> <td></td> <td style="text-align: center;"><b>a. NEW MEDICATION?</b></td> <td style="text-align: center;"><b>b. FOR DX IN ITEM 10a?</b></td> </tr> <tr> <td></td> <td style="text-align: center;">YES    NO</td> <td style="text-align: center;">YES    NO</td> </tr> </table>			<b>a. NEW MEDICATION?</b>	<b>b. FOR DX IN ITEM 10a?</b>		YES    NO	YES    NO	<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>a. NEW MEDICATION?</b>	<b>b. FOR DX IN ITEM 10a?</b>										
	YES    NO	YES    NO										
1. _____			1 <input type="checkbox"/> YES    2 <input type="checkbox"/> NO		<b>17. DURATION OF THIS VISIT</b> <i>[Time actually spent with physician]</i>  _____ Minutes							
2. _____			1 <input type="checkbox"/> YES    2 <input type="checkbox"/> NO									
3. _____			1 <input type="checkbox"/> YES    2 <input type="checkbox"/> NO									
4. _____			1 <input type="checkbox"/> YES    2 <input type="checkbox"/> NO									
5. _____			1 <input type="checkbox"/> YES    2 <input type="checkbox"/> NO									

Figure 1. Patient record form

U.S. GOVERNMENT PRINTING OFFICE:1989-226-197

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

**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
Obstetrics and gynecology	59,812	8.6	24
Ophthalmology	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

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 otolaryn-

gologist 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 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 <sup>1</sup> . . . . .	455	2.7	5
Male . . . . .	230	*1.4	6
Female . . . . .	225	*1.3	5

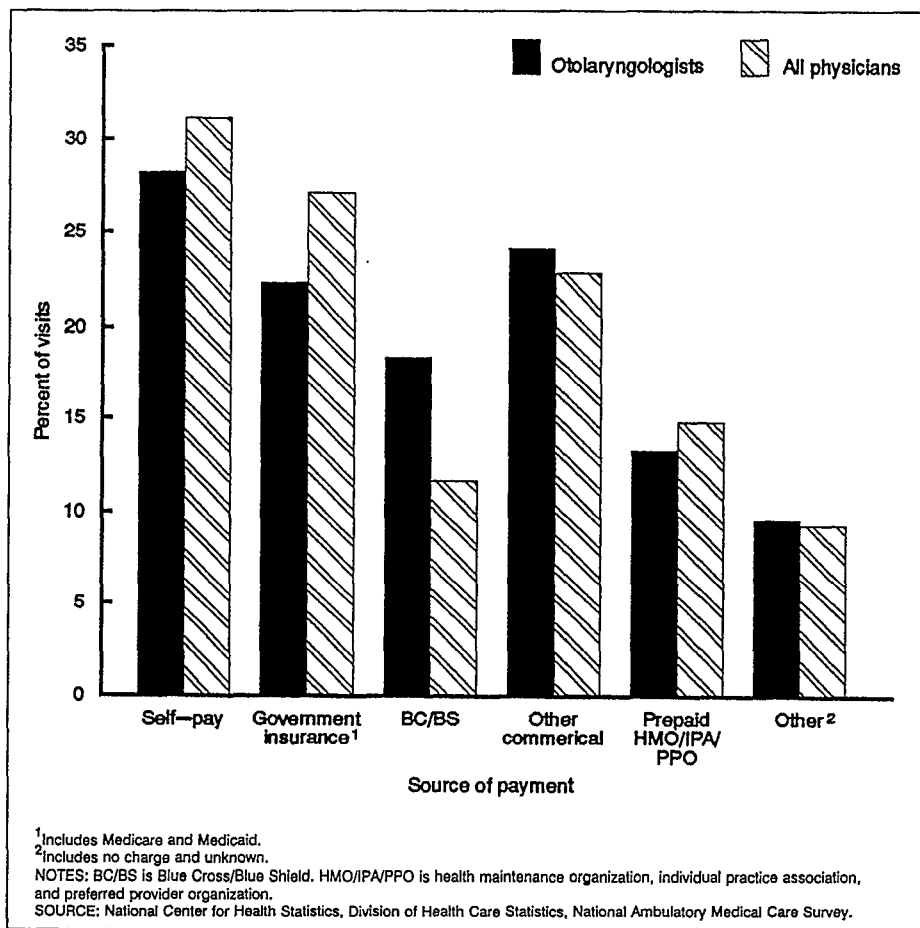
<sup>1</sup>Includes Asian and Pacific Islander and American Indian, Eskimo, and Aleut.  
 NOTES: Detail will not equal total because the unspecified category, 286,000 visits, is included in total.

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



**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

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 <sup>1</sup>	Average annual number of visits in thousands	Percent distribution
All principal reasons for visit	16,957	100.0
Symptom module		
Symptoms referable to the eyes and ears	S100-S999 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 <sup>2</sup>	321	1.9

<sup>1</sup>Based on "A Reason for Visit Classification for Ambulatory Care" (RVC) (2).

<sup>2</sup>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 <sup>1</sup>	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

<sup>1</sup>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**

<i>Principal diagnoses and ICD-9-CM codes<sup>1</sup></i>	<i>Average annual number of visits in thousands</i>	<i>Percent distribution</i>
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 <sup>2</sup> . . . . .	365	2.2
Unknown diagnoses <sup>3</sup> . . . . .	370	2.2

<sup>1</sup>Based on *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) (3)*.

<sup>2</sup>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).

<sup>3</sup>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**

<i>Rank</i>	<i>Most common principal diagnoses and ICD-9-CM code<sup>1</sup></i>	<i>Average annual number of visits in thousands</i>	<i>Percent distribution</i>	<i>Cumulative percent</i>
	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

<sup>1</sup>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 therapeutic category: United States, 1989-90**

Therapeutic category <sup>1</sup>	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 <sup>2</sup> . . . . .	*96	0.8

<sup>1</sup>Therapeutic class based on the standard drug classification used in the *National Drug Code Directory, 1985 Edition (4)*.

<sup>2</sup>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**

<i>Rank</i>	<i>Generic ingredient</i>	<i>Average annual number of mentions<sup>1</sup> in thousands</i>	<i>Percent distribution</i>
	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

<sup>1</sup>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**

<i>Duration and disposition</i>	<i>Average annual number of visits in thousands</i>	<i>Percent distribution</i>
Total . . . . .	16,957	100.0
<i>Duration of visit<sup>1</sup></i>		
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
<i>Disposition of visit</i>		
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

<sup>1</sup>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.

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

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.

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

### 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 an 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

**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

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.

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

Woodwell DA. Office visits to otolaryngologists 1989–90, National Ambulatory Medical Care Survey. Advance data from vital and health statistics; no 222. Hyattsville, Maryland: National Center for Health Statistics. 1992.

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