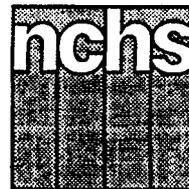


# Advance Data



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

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

by David A. Woodwell, Division of Health Care Statistics

This report describes visits made to general surgeons from March 1989 through December 1990. The information was collected by means of the National Ambulatory Medical Care Survey (NAMCS), a continuing 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. The survey also excludes those visits made to hospital emergency or outpatient departments. NAMCS was conducted annually from 1973 through 1981, again in 1985, and resumed as an annual survey in 1989, by the Division of Health Care Statistics, National Center for Health Statistics, Centers for Disease Control and Prevention. Participation in the NAMCS is voluntary.

Data in this report are from the 1989 and 1990 NAMCS, which were conducted in identical fashion using the same survey instruments, definitions, and procedures. The data were combined in order to obtain more reliable estimates. The figures in this report are estimated from a sample, not the entire universe, of

visits to general surgeons, and are therefore subject to sampling variability. All estimates in this report, including the number of visits, the number of drug mentions, and the visit rates, have been adjusted to represent average annual statistics and do not represent 2-year totals. 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. The patient record form used for data collection in both 1989 and 1990 is shown in figure 1.

### Data highlights

During 1989–90, there was an estimated annual average of 23.9 million visits to general surgeons accounting for 3.4 percent of all office visits to ambulatory care physicians in the United States (table 1). This estimated annual average of 23.9 million visits is a significant decrease from the estimated annual average of 30.5 million visits in 1980–81 (1) and a further decrease from the estimated 41.2 million visits in 1975 (2). As a percent of total visits to all physicians, visits to general surgeons also decreased during this period

from 7.3 percent in 1975 to 5.3 percent in 1980–81 to 3.4 percent in 1989–90. Whereas general surgeons had an average annual visit rate of 20 visits per 100 persons in 1975, their average annual visit rate in 1989–90 was only 10 visits per 100 persons, or half the 1975 rate. The declining trend in the visit rate to general surgeons could be attributed in part to the fact that since 1980 the number of general surgeons, as a percentage of all surgeons, has decreased 14.3 percent. As a percent of all physicians, general surgeons have decreased from 8.3 percent in 1980 to 6.8 percent in 1990—a decrease of 18.1 percent (3,4).

### Patient characteristics

As shown in table 2, seven of every eight patients (88 percent) who visited general surgeons were 25 years of age or older. Visits made by patients ages 25–64 years represented over half of all visits to the general surgeon, with those ages 65–74 and 75 years and over accounting for another 30 percent of the visits. The visit rate increased with age from 2 visits per 100 persons for patients under 15 years of age to 27 visits per



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>B</b>		
<b>1. DATE OF VISIT</b> ____/____/____ <small>Month Day Year</small>			<b>PATIENT RECORD NATIONAL AMBULATORY MEDICAL CARE SURVEY</b>			OMB No. 0920-0234 Expires 8-31-89 (PHS) 61058
<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/IPA/PPO		<b>8. WAS PATIENT REFERRED FOR THIS VISIT BY ANOTHER PHYSICIAN?</b> 1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO
<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>11. HAVE YOU SEEN PATIENT BEFORE?</b>  1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO ↓ IF YES, FOR THE CONDITION IN ITEM 10a?  1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO
<b>12. DIAGNOSTIC/SCREENING SERVICES</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"/>		

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Figure 1. Patient record form

100 persons for patients 75 years of age and over.

General surgeons had significantly more visits by females than visits by males in 1989-90. About 62 percent of the visits were made by females, which was similar to the distribution in 1975 (2). For both males and females, the percent of visits for patients 25-44 years old increased significantly from the percent of visits for patients 15-24 years old. In addition, females

represented a significantly higher percent of visits in the two age groups 25-44 and 45-64, about 37 percent for females compared with about 21 percent for males. The visit rates were not significantly different by consecutive age groups, within or between male and female groups, but was significant from the under 15 age group to the 75 years and older age group.

Most of the visits to the general surgeon were made by white persons, nearly 82 percent, as compared with

black persons, 15 percent (table 3). For both white and black persons, females visited more often than males. There was no significant difference in the visit rate between white and black persons. White persons had an average annual visit rate of 10 visits per 100 persons as compared with black persons who had a visit rate of 12 visits per 100 persons. This similarity in the visit rate indicates that general surgeons had approximately the same

**Table 1. Average annual number, percent distribution, and average annual 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
Pediatrics . . . . .	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 diseases . . . . .	11,040	1.6	5
Urological surgery . . . . .	9,852	1.4	4
Neurology . . . . .	6,167	0.9	3
All other specialties . . . . .	71,603	10.2	29

**Table 2. Average annual number and percent distribution and average annual rate of office visits to general surgeons, 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 . . . . .	23,891	100.0	10
Under 15 years . . . . .	1,028	4.3	2
15–24 years . . . . .	1,815	7.6	5
25–44 years . . . . .	6,580	27.5	8
45–64 years . . . . .	7,201	30.1	16
65–74 years . . . . .	4,207	17.6	23
75 years and over . . . . .	3,059	12.8	27
Male . . . . .	9,168	38.4	8
Under 15 years . . . . .	546	2.3	2
15–24 years . . . . .	843	3.5	5
25–44 years . . . . .	2,541	10.6	7
45–64 years . . . . .	2,530	10.6	11
65–74 years . . . . .	1,532	6.4	19
75 years and over . . . . .	1,177	4.9	28
Female . . . . .	14,722	61.6	12
Under 15 years . . . . .	482	2.0	2
15–24 years . . . . .	972	4.1	5
25–44 years . . . . .	4,039	16.9	10
45–64 years . . . . .	4,672	19.6	19
65–74 years . . . . .	2,674	11.2	27
75 years and over . . . . .	1,882	7.9	26

proportion of visits by race as the proportion in the general population.

### Expected sources of payment

As shown in table 4, Medicare (almost 26 percent) and "other commercial" insurance (almost 25 percent) were the most frequent sources of payment for visits made to general surgeons. For all physicians,

Medicare was used as a source of payment in 19 percent of the visits, a significant difference of approximately 7 percent reflecting the high rate of older patients that visit general surgeons. Patients paid all or part of the visit cost in an estimated 16 percent of the visits to general surgeons, which is significantly lower than the estimated 31 percent for all physicians. The visits in which the

patient was not charged (almost 8 percent) was higher for general surgeons as compared with all physicians (about 2 percent). Medicaid, Blue Cross/Blue Shield, and pre-paid plans (HMO's, IPA's, and PPO's) were a payment source for about 9 percent, 15 percent, and 13 percent of the visits respectively. If a patient used more than one source of payment, all sources were recorded in item 17 of the patient record form.

### Patient status

As illustrated in table 5, of the visits made to general surgeons in 1989–90, about 14 percent were referred, as compared with about 6 percent of the visits for all physicians. Unpublished data from the 1977 and 1980 NAMCS (1977 was the first year referral data were collected) showed that approximately 11 percent of the visits to general surgeons were referred. In 1985, the percent of visits referred was about 14 percent, which is not significantly different than the estimates from 1977, 1980, or 1989–90.

The visit status of the patient (item 11 on the patient record form) shows that most of the visits were made by patients the physician had previously seen for the same condition (about 65 percent). About 15 percent of the visits were made by patients seen before who were presenting a new problem, and about 20 percent of the visits were made by new patients.

### Patient's reason for visit

The principal reason for visit to the general surgeon, as expressed by the patient, is shown in tables 6 and 7. 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)* (5).

The RVC is divided into eight modules (or groups of reasons) as detailed in table 6. For visits to general surgeons, the symptom module was most often cited,

**Table 3. Average annual number, percent distribution, and average annual rate of office visits to general surgeons, by race and sex: United States, 1989-90**

<i>Race and sex</i>	<i>Average annual number of visits in thousands</i>	<i>Percent distribution</i>	<i>Average annual number of visits per 100 persons</i>
Total visits . . . . .	23,891	100.0	10
Black . . . . .	3,572	15.0	12
Male . . . . .	1,265	5.3	9
Female . . . . .	2,306	9.7	14
White . . . . .	19,570	81.9	10
Male . . . . .	7,571	31.7	8
Female . . . . .	11,999	50.2	13
Other <sup>1</sup> . . . . .	510	2.1	6
Male . . . . .	215	0.9	5
Female . . . . .	296	1.2	7
Unspecified . . . . .	239	1.0	...

<sup>1</sup>Includes Asian and Pacific Islander and American Indian, Eskimo, and Aleut.

**Table 4. Average annual number and percent distribution of office visits to general surgeons and percent distribution of office visits for all physicians by the expected source of payment: United States, 1989-90**

<i>Source of payment</i>	<i>Visits to general surgeons</i>		<i>Visits to all physicians</i>
	<i>Average annual number of visits in thousands</i>	<i>Percent distribution</i>	<i>Percent distribution</i>
Total visits . . . . .	23,891	100.0	100.0
Self pay . . . . .	3,766	15.8	31.2
Medicare . . . . .	6,145	25.7	19.0
Medicaid . . . . .	2,237	9.4	8.1
Blue Cross/Blue Shield . . . . .	3,567	14.9	11.7
Other commercial . . . . .	5,848	24.5	22.8
Pre-paid plan, HMO/IPA/PPO <sup>1</sup> . . . . .	3,046	12.7	14.8
No charge . . . . .	1,814	7.6	1.8
Other . . . . .	1,620	6.8	5.5
Unknown . . . . .	409	1.7	2.0

<sup>1</sup>HMO is health maintenance organization, IPA is individual practice association, and PPO is preferred provider organization.

NOTE: Numbers may not add to totals because more than one source was possible.

**Table 5. Average annual number and percent distribution of office visits to general surgeons, by patient's referral status and visit status: United States, 1989-90**

<i>Referral and visit status</i>	<i>Average annual number of visits in thousands</i>	<i>Percent distribution</i>
All visits . . . . .	23,891	100.0
<i>Patient referred</i>		
Yes . . . . .	3,430	14.4
No . . . . .	20,460	85.6
<i>Visit status</i>		
New patient . . . . .	4,735	19.8
Old patient, new problem . . . . .	3,606	15.1
Old patient, old problem . . . . .	15,549	65.1

containing about 51 percent of all the reasons for visit. Within the symptom module, symptoms of the musculoskeletal system and the genitourinary systems were the reason for visit in approximately 11 percent and 10 percent of the visits respectively. The treatment module accounted for about one-fifth or about 21 percent of the reasons for visit, more than double the corresponding percent for all physicians. This high percentage for the treatment module reflects the type of practice the general surgeon has and the procedures performed as compared with the other specialties. The disease module, the diagnostic, screening, and preventive module, and the injury and adverse effects module, accounted for around 15, 6, and 4 percent of the visits respectively.

The 20 most common principal reasons for visit to general surgeons, as expressed by the patient, are listed in table 7. These reasons account for approximately half of all visits to general surgeons. The first listed principal reason for visit was for lump or mass of breast, which accounted for about 4 percent of the average annual 23.9 million visits to general surgeons. Lump or mass of breast represented 4.3 percent of visits in 1989-90, which is not significantly different than the 1980-81 estimate of 3.1 percent (1). An additional 3.8 percent of the principal reasons for visit were related to the breast, including breast examination, other symptoms referable to breast, and pain or soreness of breast resulting in a total of 8.1 percent. The lump or mass of breast was followed by stomach pain, cramps or spasms and hernia of abdominal cavity with about 4 percent and 3 percent respectively. Overall, of the top 20 principal reasons for visit in 1989-90, few have changed significantly since 1980-81.

### Physician's diagnosis

Data on the principal diagnosis rendered by the general surgeon are shown in tables 8 and 9. The principal diagnosis is listed on item

**Table 6. Average annual number and percent distribution of office visits to general surgeons 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 . . . . .	23,891	100.0
Symptom module . . . . .S100–S999	12,211	51.1
Symptoms referable to digestive system . . . . .S500–S639	2,130	8.9
Symptoms referable to the genitourinary system . . . . .S640–S829	2,274	9.5
Symptoms referable to skin, hair, and nails . . . . .S830–S899	2,175	9.1
Symptoms referable to the musculoskeletal system . . . . .S900–S999	2,601	10.9
Disease module . . . . .D001–D999	3,474	14.5
Diagnostic, screening, and preventive module . . . . .X100–X599	1,360	5.7
Treatment module . . . . .T100–T899	4,920	20.6
Injury and adverse effects module . . . . .J001–J999	998	4.2
All other modules <sup>2</sup> . . . . .	927	4.0

<sup>1</sup>Based on *A Reason for Visit Classification for Ambulatory Care (RVC) (5)*.

<sup>2</sup>Includes test results and administrative modules, uncodable and blank entries.

**Table 7. Average annual number, percent distribution, and cumulative percent of office visits by the 20 principal reasons for visit most frequently mentioned by patients: 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 . . . . .	23,891	100.0	---
1	Lump or mass of breast . . . . .S805	1,034	4.3	4.3
2	Stomach pain, cramps or spasms . . . . .S545	871	3.6	7.9
3	Hernia of abdominal cavity . . . . .D660	766	3.2	11.1
4	Skin lesion . . . . .X100–X599	729	3.1	14.2
5	Suture-insertion, removal . . . . .T555	590	2.5	16.7
6	Neck symptoms . . . . .S900	514	2.2	18.9
7	Symptoms referable to anus-rectum . . . . .S605	480	2.0	20.9
8	Leg symptoms . . . . .S920	430	1.8	22.7
9	Back symptoms . . . . .S905	364	1.5	24.2
10	Breast examination . . . . .X220	355	1.5	25.7
11	Pain, site not specified . . . . .S055	350	1.5	27.2
12	Other symptoms referable to breast . . . . .S810	321	1.3	28.5
13	Other growth of skin . . . . .S855	317	1.3	29.8
14	General medical examination . . . . .X100	317	1.3	31.1
15	For other and unspecified test results . . . . .R700	292	1.2	32.3
16	Foot and toe symptoms . . . . .S935	268	1.1	33.4
17	Pain or soreness of breast . . . . .S800	248	1.0	34.4
18	Other diseases of skin . . . . .D825	247	1.0	35.4
19	Skin rash . . . . .S860	227	1.0	36.4
20	Chest pain & related symptoms . . . . .S050	209	0.9	37.3

<sup>1</sup>Based on *A Reason for Visit Classification for Ambulatory Care (RVC) (5)*.

10a of the patient record form and corresponds with the principal reason for visit (item 9a). This information was coded and classified according to the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD–9–CM) (6)*.

The categories in table 8 are divided among the major systems of the body as defined by the ICD–9–CM. Diseases of the digestive system was the largest category with nearly 16 percent of the diagnoses. The supplemental classification, neoplasms, and diseases of the

genitourinary system followed with approximately 13, 13, and 11 percent of the visits respectively. The distribution of visits to general surgeons, as compared with all physicians, differ greatly in their diagnoses. For example, diseases of the digestive system accounted for almost 16 percent of the visits to general surgeons compared with around 4 percent of the visits to all physicians. Diseases of the respiratory system accounted for about 4 percent of the principal diagnoses made by general surgeons, which is much

smaller than the 14 percent made by all physicians. Neoplasms accounted for almost 13 percent of the primary diagnoses by general surgeons, which was significantly larger than the about 3 percent for all physicians.

The 20 most frequently diagnosed conditions made by general surgeons in 1989–90 is listed in table 9. Benign mammary dysplasias accounted for about 4 percent of the principal diagnoses; when combined with other disorders of the breast and malignant neoplasms of the female breast, diagnoses related to the breast accounted for almost 11 percent of the diagnoses by general surgeons in 1989–90 as compared with about 7 percent in 1980–81 (1). This is an increase equal to about 47 percent. Inguinal hernia accounted for an estimated 3.9 percent of the diagnoses. A few of the other principal diagnoses have noteworthy changes since 1980–81 – acute upper respiratory infection of multiple or unspecified sites in 1980–81 were an estimated 2.4 percent of the visits (1), but in 1989–90 fell to 0.8 percent of the visits; sprains and strains of other and unspecified parts of the back increased from 0.7 percent in 1980–81 (1) to 2.2 percent in 1989–90.

### Diagnostic services and counseling

Most visits made to general surgeons included at least one diagnostic or screening service. As shown in table 10, patients had their blood pressure taken in about 23 percent of the office visits to general surgeons, which is significantly lower than almost 37 percent for all physicians. In addition, the “other blood test” category accounted for about 8 percent of the visits and “urinalysis” accounted for 6 percent of the visits, which are also lower than the approximately 13 percent for both diagnostic services for all physicians. On the other hand, more office visits to general surgeons included a breast palpation and mammogram as compared with all

**Table 8. Average annual number and percent distribution of office visits to general surgeons by principal diagnoses: United States, 1989-90**

Principal diagnoses and ICD-9-CM codes <sup>1</sup>	Average annual number of visits in thousands	Percent distribution
Total	23,891	100.0
Infectious & parasitic diseases . . . . .001-139	518	2.2
Neoplasms . . . . .140-239	2,980	12.5
Endocrine, nutritional, and metabolic diseases and immunity disorders . . . . .240-279	691	2.9
Mental disorders . . . . .290-319	121	*0.5
Nervous system and sense organs . . . . .320-389	324	1.4
Diseases of the circulatory system . . . . .390-459	1,991	8.3
Diseases of the respiratory system . . . . .460-519	889	3.7
Diseases of the digestive system . . . . .520-579	3,741	15.5
Diseases of the genitourinary system . . . . .580-629	2,640	11.0
Diseases of the skin and subcutaneous tissue . . . . .680-709	2,271	9.5
Diseases of the musculoskeletal system and connective tissue . . . . .710-739	1,032	4.3
Symptoms, signs and ill-defined systems . . . . .780-799	1,100	4.6
Injury and poisoning . . . . .800-999	2,189	9.2
Supplementary classifications . . . . .V001-V082	3,042	12.7
All other diagnoses <sup>2</sup>	162	0.7
Unknown diagnoses <sup>3</sup>	228	1.0

<sup>1</sup>Based on *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) (6)*.  
<sup>2</sup>Includes diseases of the blood-forming organs (280-289); complications of pregnancy, childbirth, and the puerperium (630-676); 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 9. Average annual number, percent distribution, and cumulative percent of office visits by the 20 principal diagnoses most frequently rendered by general surgeons: United States, 1989-90**

Rank	Principal diagnosis and ICD-9-CM code <sup>1</sup>	Average annual number of visits in thousands	Percent distribution	Cummulative percent
All principal diagnoses		23,891	100.0	...
1	Benign mammary dysplasias . . . . .610	982	4.1	4.1
2	Inguinal hernia . . . . .550	930	3.9	8.0
3	Other disorders of breast . . . . .611	865	3.6	11.6
4	Malignant neoplasm of female breast . . . . .174	771	3.2	14.8
5	Diseases of sebaceous gland . . . . .706	632	2.6	17.4
6	Other hernia of abdominal cavity without mention of obstruction or gangrene . . . . .553	573	2.4	19.8
7	Sprains and strains of other and unspecified parts of back . . . . .847	526	2.2	22.0
8	Essential hypertension . . . . .401	447	1.9	23.9
9	Cholelithiasis . . . . .574	431	1.8	25.7
10	Hemorrhoids . . . . .455	383	1.6	27.3
11	Diabetes Mellitus . . . . .250	358	1.5	28.8
12	Other disorders of skin and subcutaneous tissue . . . . .709	310	1.3	30.1
13	Other malignant neoplasm of skin . . . . .173	307	1.3	31.4
14	Benign neoplasm of skin . . . . .216	284	1.2	32.6
15	Observation and evaluation for suspected condition . . . . .V71	274	1.1	33.7
16	Varicose veins of lower extremities . . . . .454	271	1.1	34.8
17	Lipoma . . . . .214	257	1.1	35.9
18	Other disorders of gallbladder . . . . .575	227	0.9	36.8
19	Other symptoms involving abdomen and pelvis . . . . .789	214	0.9	37.7
20	Other cellulitis abscess . . . . .682	208	0.9	38.6

<sup>1</sup>Based on *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) (6)*.

physicians. A breast palpation occurred in 9 percent of the office visits to general surgeons with a mammogram occurring in 4 percent of the visits, compared with approxi-

mately 6 percent and 2 percent, respectively, for all physicians.

Counseling or advice was provided or ordered by the general surgeon as shown in table 11. Patients

were counseled, advised, or educated on breast self examinations in almost 7 percent of the visits, which is three times higher than the 2.3 percent for all physicians. They counseled, advised, or educated patients on weight reduction during almost 4 percent of the visits, on cholesterol reduction in about 1 percent of the visits, and on smoking cessation around 2 percent of the visits.

**Medication therapy**

As shown in table 12, most of the visits made to general surgeons resulted in no drugs being administered or prescribed. Only about one-third (32 percent) of the visits were "drug" visits, that is, visits in which one or more medications were administered or prescribed. The corresponding percentages for all physicians are much higher, with 60 percent of the visits being "drug" visits. Medication prescribed by general surgeons represent only about 2 percent of all the medications administered or prescribed by office-based ambulatory care physicians in the United States. Of the drug visits, about 58 percent were for visits in which one drug was administered or prescribed, almost 20 percent were for two drugs, and about 22 percent were for three or more drugs administered or prescribed (table 12).

There was an estimated annual average of 13,923,000 medications ordered or prescribed during visits to general surgeons in 1989-90. The "drug mentions" are categorized into therapeutic categories as defined by the 1985 edition of the *National Drug Code Directory (7)* and are shown in table 13. Cardiovascular-renal drugs accounted for almost 21 percent of the drug mentions and included antihypertensive agents (about 6 percent) and diuretics (around 7 percent). Drugs used for the relief of pain accounted for about 15 percent of the drug mentions and included general analgesics (about 8 percent) and antiarthritic agents (almost 7 percent).

**Table 10. Average annual number and percent distribution of office visits to general surgeons and percent distribution of office visits for all physicians by diagnostic service ordered or provided: United States, 1989-90**

Diagnostic service ordered or provided	Visits to general surgeons		Visits to all physicians
	Average annual number of visits in thousands	Percent distribution	Percent distribution
Total visits . . . . .	23,891	100.0	100.0
Blood pressure . . . . .	5,514	23.1	36.7
Breast palpation . . . . .	2,149	9.0	5.5
Other blood test . . . . .	1,986	8.3	13.0
Urinalysis . . . . .	1,441	6.0	12.7
Digital-rectal exam . . . . .	1,070	4.5	3.6
Mammogram . . . . .	952	4.0	1.6
Chest X-ray . . . . .	672	2.8	2.8
Other . . . . .	4,274	17.9	25.2

Note: Numbers may not add to totals because more than one diagnostic service was possible during the patient visit.

**Table 11. Average annual number and percent distribution of office visits to general surgeons by type of counseling and/or advice given: United States, 1989-90**

Type of counseling and/or advice	Average annual number of visits in thousands	Percent distribution
Total visits . . . . .	23,891	100.0
None . . . . .	15,538	65.0
Weight reduction . . . . .	899	3.8
Cholesterol reduction . . . . .	306	1.3
Smoking cessation . . . . .	360	1.5
HIV transmission . . . . .	*8	*0.0
Breast self-exam . . . . .	1,639	6.9
Other . . . . .	5,953	24.9

Note: Numbers may not add to totals because more than one type of counseling or advice may have been given.

The 20 medications most frequently ordered or prescribed by general surgeons according to their generic ingredients are shown in table 14. Of the first five generic ingredients listed, three are for the relief of pain. These are acetaminophen (approximately 6 percent), codeine (almost 4 percent), and ibuprofen (3 percent). The other two drugs among the top five are the diuretics hydrochlorothiazide and furosemide, both approximately 4 percent of medications ordered or prescribed.

**Duration and disposition of visit**

Visits made to general surgeons in 1989-90 had a mean duration of almost 15 minutes, excluding visits of zero minutes. Specifically, 13 percent of the visits lasted 1 to 5 minutes, almost 30 percent of the visits lasted 6 to 10 minutes, about 29 percent of

the visits lasted 11 to 15 minutes, and nearly 23 percent of the visits lasted 16 to 30 minutes. Only about 3 percent of the visits lasted longer than 30 minutes. The duration of visit does not include time waiting for the physician or time receiving care from someone else on the physician's staff; it includes only time spent in face-to-face contact with the physician. Of the visits made to general surgeons, about 3 percent were for zero minutes meaning that the patient had no face-to-face contact with the physician, but instead received treatment from another member of the physician's staff (table 15).

Most of the patient visits (64 percent) made to general surgeons ended with a disposition to return at a specific time while about one-fifth were to return if needed. The patient was admitted to the hospital in about 3 percent of the visits, which is higher than the 1 percent for all physicians (table 15).

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**Table 12. Average annual number and percent distribution of office visits to general surgeons, by type of visit and number of medications prescribed or ordered: United States, 1989–90**

<i>Type of visit and number of medications</i>	<i>Average annual number of visits in thousands</i>	<i>Percent distribution</i>
All visits . . . . .	23,891	100.0
Type of visit		
Nondrug visit (0 medications) . . . . .	16,202	67.8
Drug visit. . . . .	7,688	32.2
Number of medications		
1. . . . .	4,473	58.2
2. . . . .	1,513	19.7
3 or more . . . . .	1,697	22.1

**Table 13. Average annual number and percent distribution of drug mentions to general surgeons by therapeutic category: United States, 1989–90**

<i>Therapeutic category<sup>1</sup></i>	<i>Average annual number of mentions in thousands</i>	<i>Percent distribution</i>
All drug mentions . . . . .	13,923	100.0
Antimicrobial agents . . . . .	1,922	13.8
Penicillins . . . . .	363	2.6
Cephalosporins . . . . .	599	4.3
Hematologic agents . . . . .	259	1.9
Cardiovascular-renal drugs . . . . .	2,856	20.5
Antihypertensive agents . . . . .	793	5.7
Diuretics. . . . .	1,026	7.4
Psychopharmacologic drugs . . . . .	434	3.1
Gastrointestinal agents . . . . .	1,052	7.6
Metabolic & nutrient agents . . . . .	592	4.3
Hormones and agents affecting hormonal mechanisms . . . . .	1,048	7.5
Immunologic agents. . . . .	184	1.3
Skin/mucous membrane . . . . .	646	4.6
Neurologic drugs. . . . .	211	1.5
Oncolytics . . . . .	236	1.7
Drugs used for relief of pain . . . . .	2,151	15.4
General analgesics . . . . .	1,145	8.2
Antiarthritics . . . . .	961	6.9
Respiratory tract drugs . . . . .	1,083	7.8
Unclassified/miscellaneous. . . . .	842	6.0
All others <sup>2</sup> . . . . .	409	2.9

<sup>1</sup>Therapeutic class based on the standard drug classification used in the *National Drug Code Directory*, 1985 edition (7).

<sup>2</sup>Includes: Anesthetic drugs, radiopharmaceutical/contrast media, ophthalmic drugs, otologic drugs, antiparasitic agents.

**Table 14. Average annual number and percent distribution of the top 20 generic ingredients most often utilized by general surgeons: United States, 1989–90**

Rank	Generic ingredient <sup>1</sup>	Average annual number of mentions in thousands	Percent distribution
All drug mentions		13,923	100.0
1	Acetaminophen	883	6.3
2	Hydrochlorothiazide	510	3.7
3	Furosemide	495	3.6
4	Codeine	483	3.5
5	Ibuprofen	417	3.0
6	Potassium replacement solution	300	2.2
7	Diltiazem	241	1.7
8	Cephalexin	229	1.6
9	Triamterene	219	1.6
10	Erythromycin	213	1.5
11	Phenylpropanolamine	206	1.5
12	Naproxen	196	1.4
13	Glyburide	185	1.3
14	Phenylephrine	173	1.2
15	Aspirin	171	1.2
16	Metronidazole	165	1.2
17	Oxycodone	157	1.1
18	Brompheniramine	148	1.1
19	Theophylline	147	1.1
20	Digoxin	142	1.0

<sup>1</sup>Frequency of mention combines single-ingredient drugs with mentions of ingredients in a combination drug.

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

**Table 15. Average annual number and percent distribution of office visits to general surgeons, by duration and disposition: United States, 1989–90**

Duration and disposition	Average annual number of visits in thousands	Percent distribution
Total	23,891	100.0
Duration of visit <sup>1</sup>		
Zero minutes	672	2.8
1–5 minutes	3,094	13.0
6–10 minutes	7,066	29.6
11–15 minutes	6,870	28.8
16–30 minutes	5,417	22.7
31+ minutes	772	3.2
Disposition of visit <sup>2</sup>		
No followup planned	1,687	7.1
Return at specific time	15,381	64.4
Return if needed	4,477	18.7
Telephone followup planned	498	2.1
Referred to other physician	720	3.0
Referred to referring physician	493	2.1
Admit to hospital	799	3.3
Other	1,320	5.5

<sup>1</sup>Mean duration of visit was 14.7 minutes.

<sup>2</sup>Numbers may not add to totals because more than one disposition may be reported per visit.

**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. The PSU's are counties, groups of counties, county equivalents (such as parishes or independent cities), or towns and townships (for some PSU's in New England). 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 236 general surgeons in 1989 and 230 in 1990 of which 179 were eligible in 1989 and 160 were eligible in 1990 for the survey. The physician response rate for the 1989 NAMCS was 74 percent; in 1990, it was 75 percent. General surgeons had a response rate of 77 percent in 1989 and 75 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. General surgeons completed 2,823 patient record forms in 1989 and 2,897 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.

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

**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	General surgeon	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 general surgeon has a relative standard error of 11.9 percent or a standard error of 595,000 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	General surgeon	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 a general surgeon has a relative standard error 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 . . . . .	2.9	6.3	8.7	11.6	13.3	14.6
200 . . . . .	2.1	4.5	6.2	8.2	9.4	10.3
500 . . . . .	1.3	2.8	3.9	5.2	6.0	6.5
700 . . . . .	1.1	2.4	3.3	4.4	5.0	6.0
1,000 . . . . .	0.9	2.0	2.8	3.7	4.2	4.6
2,000 . . . . .	0.6	1.4	2.0	2.6	3.0	3.3
5,000 . . . . .	0.4	0.9	1.2	1.7	1.9	2.1
7,000 . . . . .	0.4	0.8	1.0	1.4	1.6	1.7
10,000 . . . . .	0.3	0.6	0.9	1.2	1.3	1.5
20,000 . . . . .	0.2	0.5	0.6	0.8	1.0	1.0
30,000 . . . . .	0.2	0.4	0.5	0.7	0.8	0.8
50,000 . . . . .	0.1	0.3	0.4	0.5	0.6	0.7
80,000 . . . . .	0.1	0.2	0.3	0.4	0.5	0.5
100,000 . . . . .	0.1	0.2	0.3	0.4	0.4	0.5
500,000 . . . . .	0.0	0.1	0.1	0.2	0.2	0.2
1,400,000 . . . . .	0.0	0.1	0.1	0.1	0.1	0.1

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).

**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 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.

*General surgeon*—A general surgeon is a physician classified as a specialist in general surgery in the master files of the AMA or AOA.

*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.

**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	52.77952184
General surgeon . . . . .	0.01236777	8.46452955
Drug mentions		
Overall totals . . . . .	0.00157151	81.47054833
General surgeon . . . . .	0.01603845	11.42009384

*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.

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