Number 211 • March 24, 1992

Advance Data

From Vital and Health Statistics of the National Center for Health Statistics

Office Visits for Diabetes Mellitus: United States, 1989

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During the 12-month period from March 1989 to March 1990, there were an estimated 13.2 million visits made to nonfederally employed, office-based physicians in the United States, at which the principal, or first-listed diagnosis was diabetes mellitus. An additional 8.7 million visits included diabetes mellitus as the second- or third-listed diagnosis.

This report presents national estimates pertaining to diabetes-related office visits.[1] These estimates are based upon data collected in the National Ambulatory Medical Care Survey (NAMCS), a national probability sample survey conducted by the Division of Health Care Statistics of the National Center for Health Statistics, Centers for Disease Control. Statistics are presented on patient, physician, and visit characteristics for visits with a diagnosis of diabetes mellitus.

A copy of the Patient Record, the survey instrument used by participating physicians to record information about their patients' office visits, is shown in figure 1. In item 10 of the form, physicians are requested to record a principal diagnosis (the diagnosis most closely associated with the patient's most important reason for visit) as well as any other significant current diagnoses. Up to three diagnoses are coded and classified according to the *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD–9–CM) (1) for each visit. This report will focus primarily on the estimated 13.2 million office visits in which the patient's principal diagnosis was recorded as diabetes mellitus.

It is necessary to keep in mind that the estimates presented in this report are based on a sample, rather than on the entire universe of office visits, and, as such, they are subject to sampling variability. The technical notes found at the end of this report discuss briefly the sample design, sampling errors, and guidelines for use in evaluating the precision of NAMCS estimates. Two publications are also available that summarize general findings from the 1989 NAMCS (2,3), and additional publications on selected topics will be forthcoming.

Patient characteristics

More than half (57.5 percent) of the estimated 13.2 million office visits with a principal diagnosis of diabetes mellitus were made by females, and the overwhelming majority (86.3 percent) were made by persons aged 45 years and over (table 1). More than three-quarters (79.3 percent) of the visits were made by white persons.

The overall visit rate for visits with a principal diagnosis of diabetes mellitus was 5.4 visits per 100 persons per year; visit rates were not found to differ significantly for males and females or for white persons and black persons. (Statistical comparisons with other race groups were not possible in this survey due to the very low estimates of visits obtained for these groups.) Furthermore, visit rates by age, sex, and race were not found to differ significantly from those reported for visits with a principal diagnosis of diabetes mellitus since 1975 (4,5).

Visit rates rose with age, however, with significant increases noted for those in the 45–64 years category and the aggregated 65 years and over category. (Rates were not significantly different between those in the age groups 65–74 years and 75 years and over.) Increasing visit rates

[1]It should be noted that the 1989 NAMCS added Alaska and Hawaii to the survey population. Previous years of data excluded these states.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
National Center for Health Statistics
Manning Feinleib, M.D., Dr. P.H., Director

CDC
CENTERS FOR DISEASE CONTROL

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
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A

1. DATE OF VISIT — Month / Day / Year

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

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

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

Figure 1.

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

by age were observed for both females and males (figure 2).

Age-related increases in visits for diabetes mellitus are further evidenced in the distribution of physician diagnoses among older age groups. For all office visits made by persons aged 45–64 years and 65–74 years, diabetes mellitus was the second most frequently reported principal diagnosis, after essential hypertension, accounting for 3.1 percent of the diagnoses among those 45–64 years of age and 4.8 percent of the diagnoses among those 65–74 years of age. For visits made by persons aged 75 years and over, diabetes mellitus was the third most frequently reported principal diagnosis after essential hypertension and cataract and accounted for 4.3 percent of the diagnoses in this age group (3).

Patient characteristics of visits with a principal diagnosis of diabetes mellitus were found to differ in one major respect from those characteristics noted in the aggregate of all other visits. While the distribution of office visits by sex and by race was not found to differ significantly for each of the two groups, differences in the proportions of visits by age category were noted. Specifically, a significantly higher percent of visits with a principal diagnosis of diabetes mellitus was made by persons in each age category after

Table 1. Number, percent distribution, and rate of visits with a principal diagnosis of diabetes mellitus to ambulatory care physicians by patient's age, sex, and race: United States, 1989

Patient characteristic	Number of visits in thousands	Percent distribution	Visit rate per 100 persons[1]
All visits	13,237	100.0	5.4
Age			
Less than 25 years	*261	*2.0	*0.3
25–34 years	*504	*3.8	*1.2
35–44 years	1,050	7.9	2.9
45–54 years	1,593	12.0	6.5
55–64 years	2,948	22.3	13.8
65–74 years	4,002	30.2	22.4
75 years and over	2,878	21.7	25.3
Sex			
Female	7,617	57.5	6.1
Less than 25 years	*132	*1.0	*0.3
25–34 years	*297	*2.2	*1.4
35–44 years	*447	*3.4	*2.4
45–54 years	942	7.1	7.4
55–64 years	1,606	12.1	14.2
65–74 years	2,377	18.0	24.0
75 years and over	1,817	13.7	25.3
Male	5,619	42.5	4.8
Less than 25 years	*129	*1.0	*0.3
25–34 years	*207	*1.6	*1.0
35–44 years	604	4.6	3.4
45–54 years	652	4.9	5.4
55–64 years	1,342	10.1	13.3
65–74 years	1,625	12.3	20.5
75 years and over	1,060	8.0	25.2
Race			
White	10,497	79.3	5.1
Less than 25 years	*253	*1.9	*0.3
25–34 years	*470	*3.6	*1.3
35–44 years	716	5.4	2.3
45–54 years	1,122	8.5	5.3
55–64 years	2,296	17.3	12.2
65–74 years	3,239	24.5	20.3
75 years and over	2,401	18.1	23.2
Black	1,939	14.7	6.5
Less than 25 years	–	–	–
25–34 years	*8	*0.1	*0.2
35–44 years	*238	*1.8	*6.1
45–54 years	*310	*2.3	*12.0
55–64 years	569	4.3	26.8
65–74 years	*482	*3.6	*31.2
75 years and over	*332	*2.5	*36.6
Asian/Pacific Islander	*380	*2.9	...
American Indian or Alaskan Native	*29	*0.2	...
Unspecified	*391	*3.0	...
Geographic region			
Northeast	2,175	16.4	4.4
Midwest	3,828	28.9	6.4
South	4,425	33.4	5.3
West	2,809	21.2	4.7

[1]Number of visits per 100 persons per year. Based on U.S. Bureau of the Census estimates of the civilian noninstitutionalized population as of July 1, 1989.

the age of 44 years than was true for matching age categories for all other visits. Similarly, significantly lower proportions of visits with a principal diagnosis of diabetes mellitus were made by persons under the age of 45 years than was the case for all other visits (figure 3).

Physician characteristics

Of the estimated 13.2 million office visits with a principal diagnosis of diabetes mellitus, 44.0 percent (about 5.8 million visits) were made to general and family practice physicians. Internal medicine specialists received 28.7 percent of the visits, while ophthalmologists accounted for 6.8 percent (table 2).

Diabetes mellitus was the fourth most frequently reported principal diagnosis rendered by general and family practice physicians, accounting for 2.8 percent of all visits to this physician group. For internal medicine specialists, diabetes was second only to essential hypertension as a principal diagnosis and represented 4.8 percent of all visits to this specialty. Among ophthalmologists, diabetes was found to be the tenth most frequently rendered principal diagnosis, accounting for 2.3 percent of all ophthalmology visits.

Visit characteristics

The vast majority (92.2 percent) of office visits with a principal diagnosis of diabetes mellitus were made by patients who were making return visits to the physician for care of their condition. Only 5 percent of the visits were made by new patients (table 3).

The chronic nature of diabetes mellitus is highlighted by the fact that among all return visits for the care of old (previously treated) problems, diabetes was the third most frequently recorded principal diagnosis (table 4). (It should be noted that the ranked order presented in this and other tables in this report may not be entirely reliable since some estimates may not be statistically different from other

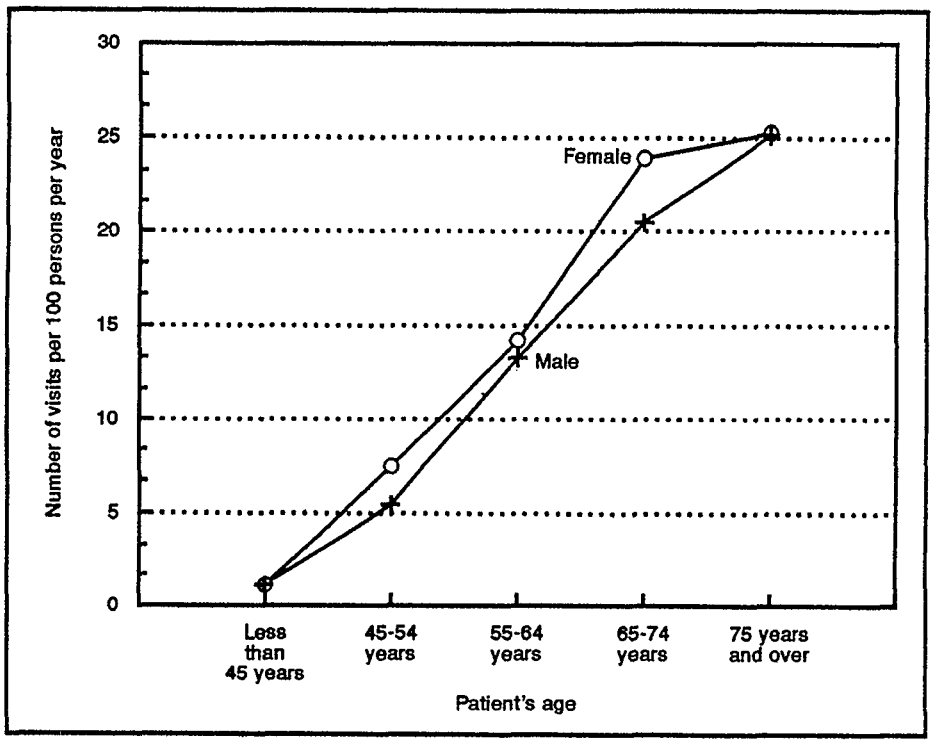

Figure 2. Annual office visit rate by patient's age and sex for visits with a principal diagnosis of diabetes mellitus: United States, 1989

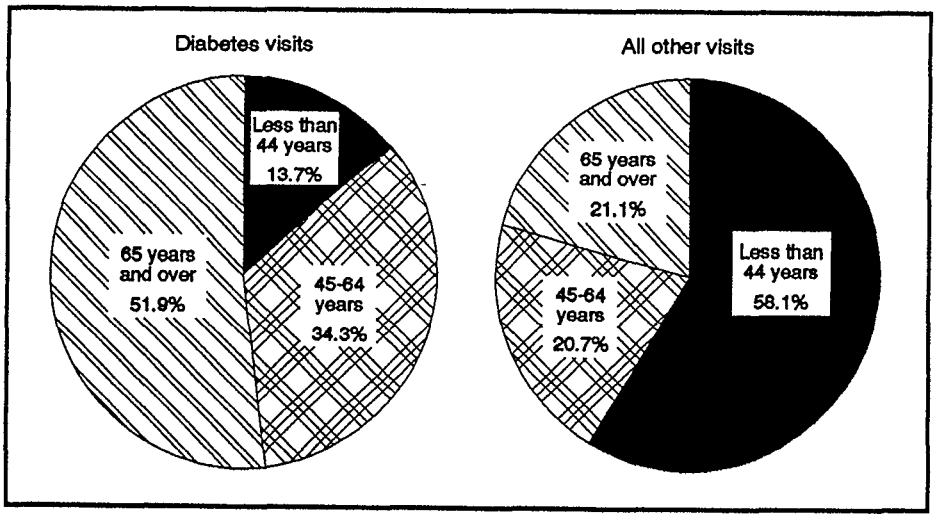

Figure 3. Percent distribution of office visits for diabetes mellitus and for all other diagnoses by patient's age: United States, 1989

near estimates due to sampling variability.)

The ratio of return visits to new problem visits was nearly 12:1, meaning that nearly 12 return visits for continuing care of this problem were recorded during the year for every visit that was recorded as a "new problem" encounter (3). New problem encounters include those made by new patients as well as those made by "old" patients for the care of new problems.

Item 7 of the Patient Record asks the physician to list the expected source of payment for the visit being recorded; more than one source may be listed by the physician. Medicare was the expected source of payment at 44.4 percent of visits, followed by self-pay (33.5 percent), commercial insurance (21.2 percent), and HMO/prepaid plan (13.9 percent) (table 5).

Item 9a of the Patient Record asks the physician to record the patient's most important complaint, symptom, or other reason for this visit using the patient's (or patient surrogate's) own words. These responses have been classified and coded using *A Reason for Visit Classification for Ambulatory Care* (RVC) (6). This classification is divided into the eight modules, or groups of reasons, shown in table 6. The disease module accounted for the highest percentage of visits with a first-listed diagnosis of diabetes mellitus (40.6 percent); this was followed by the diagnostic, screening, and preventive module (23.6 percent); the symptom module (17.3 percent); and the treatment module (12.8 percent).

Among visits with a principal diagnosis of diabetes mellitus, patients most often expressed their reason for visit as, simply, diabetes mellitus (38.5 percent of visits); next was glucose level determination (13.8 percent of visits); and general medical examination (7.8 percent of visits). Reasons for visit are shown in table 7.

Of all office visits in 1989, diabetes mellitus was the seventh most frequently reported principal diagnosis, and the fourth most frequently reported morbidity-related principal diagnosis after essential hypertension, otitis media, and acute upper respiratory infections (table 8). (Morbidity-related diagnoses are defined here as those that are classifiable to disease or injury, in contrast to nonillness or noninjury-related visits. Examples of visits with diagnoses that are not morbidity-related would include visits for routine pregnancy examination, general medical examination, etc.)

The majority of visits (68.2 percent) with a principal diagnosis of diabetes mellitus had a second diagnosis listed on the Patient Record, and 25.2 percent included a third diagnosis. Concomitant diagnoses are shown in table 9. Essential hypertension was the most frequently reported second- or

Table 2. Number and percent distribution of office visits with a principal diagnosis of diabetes mellitus by physician specialty: United States, 1989

Physician specialty	Number of visits in thousands	Percent distribution
All visits	13,237	100.0
General and family practice	5,818	44.0
Internal medicine	3,797	28.7
Ophthalmology	898	6.8
General surgery	*417	*3.2
Cardiovascular disease	*137	*1.0
Other specialties	2,170	16.4

Table 3. Number and percent distribution of office visits with a principal diagnosis of diabetes mellitus by referral status and prior-visit status: United States, 1989

Visit characteristic	Number of visits in thousands	Percent distribution
All visits	13,237	100.0
Referral status		
Patient was referred by another physician	*453	*3.4
Patient was not referred by another physician	12,784	96.6
Prior-visit status		
New patient	658	5.0
Old patient	12,578	95.1
New problem	*379	*2.9
Old problem	12,199	92.2

Table 4. Number and percent distribution of office visits for the 10 most frequent principal diagnoses for return visits for the care of old problems: United States, 1989

Rank	Principal diagnosis and ICD-9-CM code [1]	Number of visits in thousands	Percent distribution
	All return visits	422,207	100.0
1	Essential hypertension .401	24,267	5.7
2	Normal pregnancy .V22	20,201	4.8
3	**Diabetes mellitus** .250	12,199	2.9
4	Suppurative and unspecified otitis media .382	10,726	2.5
5	Health supervision of infant or child .V20	10,059	2.4
6	General medical examination .V70	9,558	2.3
7	Allergic rhinitis .477	9,455	2.2
8	Neurotic disorders .300	7,143	1.7
9	Other postsurgical states .V45	6,517	1.5
10	Asthma .493	5,338	1.3

[1] Based on the *International Classification of Diseases, 9th Revision, Clinical Modification*, ICD-9-CM.

Table 5. Number and percent distribution of office visits with a principal diagnosis of diabetes mellitus by expected source of payment: United States, 1989

Expected source of payment [1]	Number of visits in thousands	Percent distribution
All visits	13,237	100.0
Self pay	4,438	33.5
Medicare	5,871	44.4
Medicaid	1,184	8.9
Commercial insurance	2,802	21.2
Blue Cross/Blue Shield	851	6.4
HMO/Prepaid plan	1,842	13.9
No charge	*178	*1.3
Other	*351	*2.7
Unknown	*162	*1.2

[1] Total may exceed total number of visits because more than one category may be reported per visit.

third-listed diagnosis, showing up at about 3.5 million visits, or 26.5 percent of all visits with a principal diagnosis of diabetes mellitus.

About 72.2 percent of visits with a principal diagnosis of diabetes mellitus included a blood pressure check (table 10). This is significantly higher than the 34.2 percent of all other office visits (that is, those visits which did not list diabetes mellitus as a principal diagnosis) that included a blood pressure check in 1989.

Other frequently performed diagnostic services included "other" blood test (54.8 percent), urinalysis (17.4 percent), cholesterol measure (9.8 percent), and visual acuity examination (8.0 percent). All of these, with the exception of the visual acuity examination, were performed at a significantly higher rate at visits with a principal diagnosis of diabetes mellitus than at all other visits. The number of diagnostic services performed per visit is displayed in table 11.

Therapeutic services ordered or provided by the physician are shown in table 12. Weight reduction was the most frequently reported type of counseling/advice either ordered or provided (32.7 percent of visits). In contrast, only 5.8 percent of visits with a principal diagnosis other than diabetes mellitus included counseling or advice on weight reduction. Similarly, 9.9 percent of visits with a principal diagnosis of diabetes mellitus included counseling/advice ordered or provided for reduction of cholesterol, compared with about 3 percent of all other visits.

More than three-quarters of visits with a principal diagnosis of diabetes mellitus (77.9 percent) included a new or continuing medication ordered or provided by the physician, a significantly higher percentage than the corresponding 59.8 percent of all other visits. As used in the NAMCS, the term "drug" is interchangeable with the term "medication" and includes prescription as well as nonprescription preparations. The term "drug mention" refers to each mention of medication on the Patient Record. Because doctors can record

Table 6. Number and percent distribution of office visits with a principal diagnosis of diabetes mellitus by patient's principal reason for visit: United States, 1989

Principal reason for visit and RVC code [1]	*Number of visits in thousands*	*Percent distribution*
All visits	13,237	100.0
Symptom module S001–S999	2,287	17.3
Disease module D001–D999	5,376	40.6
Diagnostic, screening, and preventive module X100–X599	3,122	23.6
Treatment module T100–T899	1,692	12.8
Injuries and adverse effects module J001–J999	*11	*0.1
Test results module R100–R700	*343	*2.6
Administrative module A100–A140	*40	*0.3
Other[2] U990–U999	*366	*2.8

[1]Based on "A Reason for Visit Classification for Ambulatory Care" (RVC), *Vital and Health Statistics*, Series 2, No. 78, Feb. 1979.
[2]Includes problems and complaints not elsewhere classified, entries of "none," blanks, and illegible entries.

Table 7. Number and percent distribution of office visits with a principal diagnosis of diabetes mellitus by the most frequent principal reasons for visit: United States, 1989

Principal reason for visit and RVC code [1]	*Number of visits in thousands*	*Percent distribution*
All visits	13,237	100.0
Diabetes mellitus D205	5,092	38.5
Glucose level determination X310	1,833	13.8
General medical examination X100	1,034	7.8
Vision dysfunctions; tiredness, exhaustion; vertigo, dizziness S305,S015,S225	670	5.1
Symptoms of fluid abnormalities; foot and toe symptoms; skin lesion; back symptoms; general weakness S035,S935,S865,S905,S020	597	4.5

[1]Based on "A Reason for Visit Classification for Ambulatory Care" (RVC), *Vital and Health Statistics*, Series 2, No. 78, Feb. 1979.

Table 8. Number, percent, and cumulative percent of office visits by the 10 principal diagnoses most frequently rendered by physicians: United States, 1989

Rank	*Principal diagnosis and ICD–9–CM code* [1]	*Number of visits in thousands*	*Percent distribution*	*Cumulative percent*
	All visits	692,702	100.0	
1	Essential hypertension 401	27,708	4.0	4.0
2	Normal pregnancy V22	23,578	3.4	7.4
3	General medical examination V70	20,166	2.9	10.3
4	Suppurative and unspecified otitis media 382	20,033	2.9	13.2
5	Acute upper respiratory infections 465	15,765	2.3	15.5
6	Health supervision of infant or child V20	15,669	2.3	17.8
7	**Diabetes mellitus** 250	13,237	1.9	19.7
8	Allergic rhinitis 477	11,631	1.7	21.4
9	Bronchitis, not specified as acute or chronic 490	11,160	1.6	23.0
10	Acute pharyngitis 462	10,958	1.6	24.6

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

Table 9. Number and percent distribution of office visits by diagnoses most frequently associated with a principal diagnosis of diabetes mellitus: United States, 1989

Second- or third- listed diagnosis and ICD–9–CM code [1]	*Number of visits in thousands*	*Percent distribution*
All visits	13,237	100.0
Essential hypertension 401	3,510	26.5
Other retinal disorders 362	808	6.1
Other forms of chronic ischemic heart disease 414	*501	*3.7
Disorders of lipoid metabolism 272	*480	*3.6
Obesity and other hyperalimentation 278	*278	*3.4

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

more than one drug per visit, the total number of drug mentions will generally be higher than the number of visits. The term "drug visit" refers to any visit in which at least one drug is ordered or provided by the physician.

There were about 10.3 million drug visits among the 13.2 million visits with a principal diagnosis of diabetes mellitus (78.0 percent). The number of drugs ordered or provided per visit is listed in table 13. Approximately 30.3 percent of visits included three or more medications, compared with just 10.9 percent of all visits with a principal diagnosis other than diabetes mellitus.

In all, there were approximately 23.8 million drug mentions, or 2.3 drugs ordered or provided per drug visit. Table 14 presents data on the number and percent of diabetes-related drug mentions for the most frequently used generic substances. Table 15 displays drug mentions according to therapeutic classification, based on the *National Drug Code Directory* (7).

The mean duration of physician-patient contact for visits with a principal diagnosis of diabetes mellitus was 17.3 minutes (with a standard error of .73 minutes) and does not include visits in which no face-to-face contact with the physician occurred. Physician-patient contact only includes the time spent in actual face-to-face contact between physician and patient. Data on duration of visits with a principal diagnosis of diabetes mellitus are shown in table 16.

The great majority (89.2 percent) of visits with a principal diagnosis of diabetes mellitus resulted in a scheduled return visit. Data on disposition of visit are also shown in Table 16.

Visits with a second or third diagnosis of diabetes mellitus

In addition to the 13.2 million office visits with a first-listed diagnosis of diabetes mellitus, approximately 8.7 million office visits were made during 1989 at which a second or third diagnosis was listed as diabetes

mellitus, yielding a total of about 22 million diabetes-related diagnoses overall. Visits in which the second or third diagnosis was diabetes mellitus were not found to differ significantly from visits in which the principal diagnosis was diabetes mellitus in terms of the age, sex, or race distribution of patients.

In 18.7 percent of the visits in which diabetes was the second- or third-listed diagnosis, the principal diagnosis was listed as essential hypertension (1.6 million visits). Table 17 displays the major ICD–9–CM coding classes associated with principal diagnoses for visits in which the second- or third-listed diagnosis was diabetes mellitus.

Table 18 presents data on the diagnoses reported most frequently in conjunction with all of the approximately 22 million diagnoses of diabetes mellitus, whether first-, second-, or third-listed on the Patient Record. Essential hypertension was reported most often in addition to a diagnosis of diabetes mellitus, at 6.3 million visits, or 28.7 percent of all such visits. Other common diagnoses reported in conjunction with diabetes mellitus included other forms of chronic ischemic heart disease, other retinal disorders, obesity and hyperalimentation, disorders of lipoid metabolism, and other and unspecified arthropathies.

References

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2. DeLozier JE, Gagnon RO. 1989 Summary: National Ambulatory Medical Care Survey. Advance data from vital and health statistics; no 203. Hyattsville, Maryland: National Center for Health Statistics. 1991.
3. Schappert SM. National Ambulatory Medical Care Survey: 1989 Summary. National Center for Health Statistics. Vital Health Stat 13(110). 1992.
4. Nelson C, McLemore T. The National Ambulatory Medical Care Survey, United States,

Table 10. Number and percent distribution of office visits with a principal diagnosis of diabetes mellitus by selected diagnostic services: United States, 1989

Selected diagnostic services[2]	Diabetes visits[1]		All other visits	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All visits	13,237	100.0	679,465	100.0
None	914	6.9	264,920	39.0
Visual acuity	1,058	8.0	44,134	6.5
Blood pressure check	9,552	72.2	232,347	34.2
Urinalysis	2,300	17.4	85,416	12.6
Oral glucose tolerance[3]	562	4.2	2,494	0.4
Cholesterol measure[3]	1,302	9.8	23,526	3.5
Other blood test	7,253	54.8	80,957	11.9

[1]Visits with a principal diagnosis of diabetes mellitus.
[2]Total may exceed total number of visits because more than one category may be reported per visit.
[3]Category is new in the 1989 NAMCS.

Table 11. Number and percent distribution of office visits with a principal diagnosis of diabetes mellitus by number of diagnostic services ordered or provided per visit: United States, 1989

Number of diagnositc services ordered or provided per visit	Diabetes visits[1]		All other visits	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All visits	13,237	100.0	679,465	100.0
None	914	6.9	264,920	39.0
One	3,307	25.0	215,664	31.7
Two	5,703	43.1	105,062	15.5
Three	1,906	14.4	42,633	6.3
Four or more	1,407	10.6	51,186	7.5

[1]Visits with a principal diagnosis of diabetes mellitus.

Table 12. Number and percent distribution of office visits by selected therapeutic services: United States, 1989

Selected therapeutic services	Diabetes visits[1]		All other visits	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All visits	13,237	100.0	679,465	100.0
Counseling/advice ordered or provided[2,3]				
None	5,856	44.2	429,936	63.3
Weight reduction	4,324	32.7	39,529	5.8
Cholesterol reduction	1,313	9.9	20,220	3.0
Smoking cessation	*409	*3.1	14,700	2.2
HIV transmission	*24	*0.2	1,020	0.2
Breast self-exam	*237	*1.8	15,542	2.3
Other counseling/advice	3,989	30.1	189,283	27.9

[1]Visits with a principal diagnosis of diabetes mellitus.
[2]Category is new in the 1989 NAMCS.
[3]Total may exceed total number of visits because more than one category may be reported per visit.

Table 13. Number and percent distribution of office visits with a principal diagnosis of diabetes mellitus by number of medications ordered or provided by physician: United States, 1989

Number of new or continued medications ordered or provided by the physician	Diabetes visits[1]		All other visits	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All visits	13,237	100.0	679,465	100.0
None	2,931	22.1	272,982	40.2
One	3,897	29.4	226,180	33.3
Two	2,411	18.2	106,309	15.6
Three–five	3,998	30.3	73,994	10.9

[1]Visits with a principal diagnosis of diabetes mellitus.

Table 14. Number and percent distribution of drug mentions for the five most frequently used generic substances for visits with a principal diagnosis of diabetes mellitus: United States, 1989

Generic substance	*Number of mentions in thousands*	*Percent distribution*
Total drug mentions for visits with a principal diagnosis of diabetes mellitus	23,768	100.0
Insulin	4,223	17.8
Glyburide	2,345	9.9
Hydrochlorothiazide	1,137	4.8
Furosemide	989	4.2
Glipizide	*833	*3.5

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

Table 15. Number and percent distribution of drug mentions by therapeutic classification for visits with a principal diagnosis of diabetes mellitus: United States, 1989

Therapeutic classification[1]	*Number of mentions in thousands*	*Percent distribution*
Total drug mentions for visits with a principal diagnosis of diabetes mellitus	23,768	100.0
Hormones and agents affecting hormonal mechanisms	9,375	39.4
Cardiovascular-renal	7,334	30.9
Pain relief	1,508	6.3
Metabolic and nutrient	1,102	4.6
Psychopharmacologic	*893	*3.2
Gastrointestinal	*766	*3.2
Antimicrobial	*596	*2.5
Other[2]	1,225	5.2
Unclassified/miscellaneous	968	4.1

[1]Therapeutic class is based on the standard drug classification used in the *National Drug Code Directory, 1982 Edition.*
[2]Includes the following classifications: anesthetic, hematologic, radiopharmaceuticals/contrast media, immunologic agents, skin/mucous membrane, neurologic, ophthalmic, otologic, and respiratory tract drugs.

Table 16. Number and percent distribution of office visits with a principal diagnosis of diabetes mellitus by duration and disposition of visit: United States, 1989

Visit characteristic	*Number of visits in thousands*	*Percent distribution*
All visits	13,237	100.0
Duration of visit		
Zero minutes[1]	*212	*1.6
1–5 minutes	854	6.5
6–10 minutes	3,079	23.3
11–15 minutes	4,503	34.0
16–30 minutes	3,801	28.7
More than 30 minutes	787	5.9
Disposition of visit[2]		
No followup planned	*298	*2.2
Return at specified time	11,809	89.2
Return if needed	1,045	7.9
Telephone followup planned	*445	*3.4
Referred to other physician	*254	*1.9
Returned to referring physician	*179	*1.4
Admit to hospital	*103	*0.8
Other	*127	*1.0

[1]Visits of zero minutes duration are those in which there was no face-to-face contact between the patient and the physician.
[2]Total may exceed total number of visits because more than one category may be reported per visit.

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Table 17. Number and percent distribution of office visits with a second- or third-listed diagnosis of diabetes mellitus by selected diagnostic classes: United States, 1989

Principal diagnosis (major ICD–9–CM coding class [1])	*Number of visits in thousands*	*Percent distribution*
All second- and third-listed diagnoses of diabetes mellitus	8,718	100.0
Diseases of circulatory system . 390–459	3,174	36.4
Diseases of respiratory system . 460–519	1,184	13.6
Diseases of musculoskeletal system and connective tissue. 710–739	919	10.5
Symptoms, signs, and ill-defined conditions 780–799	*489	*5.6

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

Table 18. Number and percent distribution of office visits by diagnoses most frequently associated with a first-, second-, or third-listed diagnosis of diabetes mellitus: United States, 1989

Concomitant diagnosis and ICD–9–CM code [1]	*Number of visits in thousands*	*Percent distribution*
All visits with a first-, second-, or third-listed diagnosis of diabetes mellitus	21,955	100.0
Essential hypertension 401	6,303	28.7
Other forms of chronic ischemic heart disease . . . 414	975	4.4
Other retinal disorders 362	926	4.2
Obesity and other hyperalimentation. 278	746	3.4
Disorders of lipoid metabolism 272	642	2.9
Other and unspecified arthropathies. 716	611	2.8

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

Technical notes

Source of data and sample design

The information presented in this report is based on data collected by means of the National Ambulatory Medical Care Survey (NAMCS) from March 20, 1989–March 18, 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 units (PSU's), physician practices within PSU's, and patient visits within physician practices. For 1989, a sample of 2,535 nonfederal, office-based physicians was selected from master files maintained by the American Medical Association and American Osteopathic Association. The physician response rate for the 1989 NAMCS was 74 percent. Sample physicians were asked to complete Patient Records (see 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.

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 of selected aggregate statistics are shown in tables I–II, and the standard errors for estimated percent of visits are shown in table III.

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 significance is based on the t-test. The Bonferroni inequality was used to establish the critical value for statistically significant differences (0.05 level of confidence). Terms relating to differences such as "greater than" or "less than" indicate that the difference is statistically significant. In the tables, estimates of office visits have been rounded to the nearest thousand. Consequently,

Table I. Relative standard errors for estimated number of office visits: National Ambulatory Medical Care Survey, 1989

Estimated number of office visits (in thousands)	*Relative standard error (in percent)*
200	49.4
400	35.0
547	30.0
600	28.7
800	24.9
1,000	22.4
2,000	16.1
5,000	10.6
10,000	8.0
13,000	7.3
20,000	6.4
50,000	5.1
100,000	4.6
600,000	4.1

Example of use of table: An aggregate estimate of 10 million visits has a relative standard error of 8.0 percent or a standard error of 800,000 visits (8.0 percent of 10 million).

Table II. Relative standard errors for estimated number of drug mentions: National Ambulatory Medical Care Survey, 1989

Estimated number of drug mentions (in thousands)	*Relative standard error (in percent)*
200	63.4
400	45.0
500	40.3
600	36.9
800	32.0
912	30.0
1,000	28.7
2,000	20.6
5,000	13.6
10,000	10.3
20,000	8.1
50,000	6.5
100,000	5.8
600,000	5.2

Example of use of table: An aggregate estimate of 10 million drug mentions has a relative standard error of 10.3 percent or a standard error of 1.03 million mentions (10.3 percent of 10 million).

Table III. Standard errors for percents of estimated numbers of office visits: National Ambulatory Medical Care Survey, 1989

Base of percent (visits in thousands)	*Estimated percent*					
	1 or 99	*5 or 95*	*10 or 90*	*20 or 80*	*30 or 70*	*50*
	Standard error in percentage points					
200	4.9	10.7	14.8	19.7	22.6	24.6
500	3.1	6.8	9.3	12.5	14.3	15.6
1,000	2.2	4.8	6.6	8.8	10.1	11.0
2,000	1.6	3.4	4.7	6.2	7.1	7.8
5,000	1.0	2.2	3.0	3.9	4.5	4.9
10,000	0.7	1.5	2.1	2.8	3.2	3.5
13,000	0.6	1.3	1.8	2.4	2.8	3.1
20,000	0.5	1.1	1.5	2.0	2.3	2.5
50,000	0.3	0.7	0.9	1.3	1.4	1.6
100,000	0.2	0.5	0.7	0.9	1.0	1.1
600,000	0.1	0.2	0.3	0.4	0.4	0.5

Example of use of table: An estimate of 30 percent based on an aggregate estimate of 13 million visits has a standard error of 2.8 percent or a relative standard error of 9.3 percent (2.8 percent divided by 30 percent).

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.

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

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

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

Drug mention—A drug mention is the physician's entry of a pharmaceutical agent—by any route of administration—for prevention, diagnoses, 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.

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

*U.S. Government Printing Office: 1992 — 312-093/40022

Suggested citation

Schappert SM. Office visits for diabetes mellitus: United States, 1989. Advance data from vital and health statistics; no. 211. Hyattsville, Maryland: National Center for Health Statistics. 1992.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
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6525 Belcrest Road
Hyattsville, Maryland 20782

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DHHS Publication No. (PHS) 92-1250

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