Vital and Health Statistics

Advance Data From Vital and Health Statistics: Numbers 81–90

Series 16: Compilations of Advance Data From Vital and Health Statistics No. 9

Data in this report from health and demographic surveys present statistics by age and other variables on contraceptive use patterns, prior source, and pregnancy history of female family planning patients; drug utilization in office practice, in office visits to primary care physicians, in general and family practice by characteristics of physicians and office visits, and utilization of psychotropic drugs in office-based ambulatory care; deliveries in short-stay hospitals; blood pressure levels and hypertension; and summary data from the national inventory of pharmacists and the National Ambulatory Medical Care Survey. Estimates are based on the civilian noninstitutionalized population of the United States. These reports were originally published in 1983 and 1984.

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From Vital and Health Statistics of the National Center for Health Statistics Number 81 • July 26, 1982

Drug Utilization in Office Practice by Age and Sex of the Patient: National Ambulatory Medical Care Survey, 1980

by Hugo Koch, Division of Health Care Statistics

The relationship between the age and sex of ambulatory patients and the drugs ordered or provided for them by physicians in office-based practice is explored. Data are presented using findings from the 1980 National Ambulatory Medical Care Survey.

The National Center for Health Statistics uses the National Ambulatory Medical Care Survey (NAMCS) to collect descriptive data about the medical care provided in doctors' offices. Each year NAMCS data collectors contact a representative sample of the Nation's doctors of medicine and osteopathy whose primary jobs are office-based, patient-care practice. The sampled physicians in turn complete records (figure 1) for a systematic random sample of their office visits over a weekly reporting period. When the sampled findings were expanded to approximate the entire universe of office-based care, the result was an estimated total of 575,745,000 office visits in calendar 1980.

The year 1980 was the first in the 8-year history of NAMCS that respondents reported the number and names of the specific drugs they used. (See figure 1, item 11.) This resulted in an estimated 679,593,000 mentions of pharmaceutical agents ordered or provided—by any route of administration—for the purpose of prevention, diagnosis, or treatment. Mentions included new or continued medications and nonprescription as well as prescription drugs. The methodology used to collect, classify, and process drug information for the 1980 NAMCS is reported elsewhere.[1]

Actual findings of drug utilization for the year have appeared in two prior publications.[2,3]

Since the estimates presented in this report are based on a sample rather than on the entire universe of office visits, the data are subject to sampling variability. The technical notes at the end of the report provide a brief explanation of sampling errors, and guidelines for judging the precision of estimates.

General patterns of drug utilization

Drug utilization may be viewed from differing perspectives and measured in differing ways, depending on the needs of the data user (table 1). Three evaluative terms require clarification at the outset.

- A *drug visit* is an office visit at which one or more drugs are ordered or provided. In 1980 there were an estimated 363.5 million drug visits, comprising 63 percent of the total 575.7 million office visits.
- The *drug mention rate* is the average number of drugs utilized per office visit, obtained by dividing the number of office visits into the number of drug mentions. For the entire universe of 575.7 million office visits, the overall drug mention rate was 1.18 drugs per average office visit.

[1]National Center for Health Statistics, H. Koch: The collection and processing of drug information, National Ambulatory Medical Care Survey, United States, 1980. *Vital and Health Statistics.* Series 2-No. 90. DHHS Pub. No. (PHS) 82-1364. Public Health Service. Washington. U.S. Government Printing Office. In press.

[2]National Center for Health Statistics, T. McLemore and H. Koch: 1980 Summary, National Ambulatory Medical Care Survey. *Advance Data From Vital and Health Statistics,* No. 77. DHHS Pub. No. (PHS) 82-1250. Public Health Service. Hyattsville, Md. Feb. 22, 1982.

[3]National Center for Health Statistics, H. Koch: Drugs most frequently used in office-based practice, National Ambulatory Medical Care Survey, United States, 1980. *Advance Data From Vital and Health Statistics,* No. 78. DHHS Pub. No. (PHS) 82-1250. Public Health Service. Hyattsville, Md. In preparation.

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, Education, and Welfare
Public Health Service
Office of Health Research, Statistics, and Technology
National Center for Health Statistics

A No. 001736

1. DATE OF VISIT Month / Day / Year

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

2. DATE OF BIRTH Month / Day / Year

3. SEX
1 ☐ FEMALE
2 ☐ MALE

4. COLOR OR RACE
1 ☐ WHITE
2 ☐ BLACK
3 ☐ ASIAN/PACIFIC ISLANDER
4 ☐ AMERICAN INDIAN/ ALASKAN NATIVE

5. ETHNICITY
1 ☐ HISPANIC ORIGIN
2 ☐ NOT HISPANIC

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

7. MAJOR REASON FOR THIS VISIT *[Check one]*
1 ☐ ACUTE PROBLEM
2 ☐ CHRONIC PROBLEM, ROUTINE
3 ☐ CHRONIC PROBLEM, FLAREUP
4 ☐ POST SURGERY/POST INJURY
5 ☐ NON-ILLNESS CARE (ROUTINE PRENATAL, GENERAL EXAM., WELL BABY, ETC.)

8. DIAGNOSTIC SERVICES THIS VISIT *[Check all ordered or provided]*
1 ☐ NONE
2 ☐ LIMITED HISTORY/EXAM
3 ☐ GENERAL HISTORY/EXAM
4 ☐ PAP TEST
5 ☐ CLINICAL LAB TEST
6 ☐ X RAY
7 ☐ BLOOD PRESSURE CHECK
8 ☐ EKG
9 ☐ VISION TEST
10 ☐ ENDOSCOPY
11 ☐ MENTAL STATUS EXAM
12 ☐ OTHER *(Specify)* _____

9. PHYSICIAN'S DIAGNOSES
a. PRINCIPAL DIAGNOSIS/PROBLEM ASSOCIATED WITH ITEM 6a.
b OTHER SIGNIFICANT CURRENT DIAGNOSES

10. HAVE YOU SEEN PATIENT BEFORE?
1 ☐ YES 2 ☐ NO
IF YES, FOR THE CONDITION IN ITEM 9a?
1 ☐ YES 2 ☐ NO

11. MEDICATION THERAPY THIS VISIT ☐ NONE
[Using brand or generic names, record all new and continued medications ordered, injected, administered, or otherwise provided at this visit. Include immunizing and desensitizing agents]

a. FOR PRINCIPAL DIAGNOSES IN ITEM 9a	b. FOR ALL OTHER REASONS.
1.	1.
2.	2.
3.	3.
4.	4.

12. NON-MEDICATION THERAPY *[Check all services ordered or provided this visit]*
1 ☐ NONE
2 ☐ PHYSIOTHERAPY
3 ☐ OFFICE SURGERY
4 ☐ FAMILY PLANNING
5 ☐ PSYCHOTHERAPY/ THERAPEUTIC LISTENING
6 ☐ DIET COUNSELING
7 ☐ FAMILY/SOCIAL COUNSELING
8 ☐ MEDICAL COUNSELING
9 ☐ OTHER *(Specify)* _____

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

14. 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)* _____

15. DURATION OF THIS VISIT *[Time actually spent with physician]*
_____ Minutes

PHS-6105-A (9/79) OMB No. 68-R1498

Figure 1. Patient Record from the National Ambulatory Medical Care Survey

- The *drug intensity rate* is the average number of drugs utilized per drug visit, obtained by dividing the number of drug visits into the number of drug mentions. For the entire 363.5 million drug visits, the rate was 1.87 drugs per average drug visit.

If simple volume of utilization is the desired criterion, then—depending on the degree of precision required—the data user may count the number of drug visits or drug mentions. When this simple enumeration is applied to a study of sex differences, it becomes readily apparent that drug visits or mentions for female patients substantially outnumbered drug visits and mentions for males. The ratio of about 6 to 4 in favor of female patients closely parallels the ratio for office visits in general. However, when drug utilization by the sexes is explored from other perspectives, especially those of average usage, a different picture emerges. Examine, for example, the respective proportions of all office visits represented by the drug visits. For female patients it was 63.3 percent, for males 62.8 percent. The difference between the two proportions is not statistically significant, since it could be due to sampling error or variability. In addition, there is no significant difference between the average female and male patient in terms of their respective drug mention rates or drug intensity rates.

Table 1. Number and percent distribution of office visits and drug mentions, number of drug visits and their percent of office visits, drug mention rate, and drug intensity rate, by age and sex of the office patient: United States, 1980

Age and sex of patient	Office visits		Drug visits[1]		Drug mentions		Drug mention rate[2]	Drug intensity rate[3]
	Number in thousands	Percent distribution	Number in thousands	Percent of office visits	Number in thousands	Percent distribution		
All patients	575,745	100.0	363,489	63.1	679,593	100.0	1.18	1.87
Sex								
Female	346,106	60.1	219,216	63.3	413,570	60.9	1.19	1.89
Male	229,639	39.1	144,274	62.8	266,023	39.1	1.16	1.84
Age								
Under 15 years	109,356	19.0	71,763	65.6	115,643	17.0	1.06	1.61
15-24 years	81,561	14.2	46,353	56.8	75,213	11.1	0.92	1.62
25-44 years	154,695	26.9	87,343	56.5	148,126	21.8	0.96	1.70
45-64 years	129,645	22.5	86,327	66.6	175,572	25.8	1.35	2.03
65 years and over	100,488	17.5	71,704	71.4	165,038	24.3	1.64	2.30
Sex and age								
Female								
Under 15 years	50,503	8.8	33,395	66.1	54,723	8.1	1.08	1.64
15-24 years	54,879	9.5	31,350	57.1	49,823	7.3	0.91	1.59
25-44 years	103,562	18.0	58,025	56.0	97,947	14.4	0.95	1.69
45-64 years	76,385	13.3	52,223	68.4	106,333	15.6	1.39	2.04
65 years and over	60,777	10.6	44,222	72.8	104,745	15.4	1.72	2.37
Male								
Under 15 years	58,852	10.2	38,368	65.2	60,920	9.0	1.04	1.59
15-24 years	26,682	4.6	15,003	56.2	25,391	3.7	0.95	1.69
25-44 years	51,134	8.9	29,318	57.3	50,179	7.4	0.98	1.71
45-64 years	53,260	9.3	34,105	64.0	69,239	10.2	1.30	2.03
65 years and over	39,712	6.9	27,481	69.2	60,294	8.9	1.52	2.19

[1]An office visit at which one or more drugs were ordered or provided.
[2]The average number of drugs ordered or provided per office visit.
[3]The average number of drugs ordered or provided per drug visit.

The same measurements may be applied to drug utilization by age groups. When the criterion is a simple number of drug visits or mentions, the volume of utilization is greatest in the middle years, diminishing in the age interval over 64 years. However, applying the drug mention rate produces a different pattern, one showing that average utilization steadily increases after the 14th year, reaching its highest point in the age group 65 years and over (figure 2). For the sex-age groups (figure 3) the drug mention rates for female and male patients follow the general pattern shown in figure 2, pursuing closely parallel paths until they diverge for the age group 65 years and over where, at a rate of 1.72 drug mentions per office visit, drug utilization by female patients significantly exceeds that for males (1.52).

Drug utilization: therapeutic categories

Table 2 measures drug utilization from another perspective. Here the differences between the sexes and the age groups are described in terms of the therapeutic effects that the drugs were intended to produce. For example, an examination of total usage (by all patients) shows the clear preeminence of mention enjoyed by three therapeutic categories: anti-infective agents, cardiovascular drugs, and central nervous system drugs. Together they accounted for 41 percent of the total 679.6 million drug mentions.

A comparison of the sexes reveals that:

Female patients exceeded male patients in the proportion of their drug mentions represented by the following therapeutic categories:

- Antineoplastic agents.
- Central nervous system drugs (here, the difference between the sexes was very slight).
- Electrolytic, caloric, and water balance substances, e.g., diuretics (again, the sex difference was slight).
- Hormones and synthetic substances.
- Vitamins.

Male patients exceeded female patients in the proportion of their drug mentions represented by the following therapeutic categories:

- Antihistamine drugs.
- Anti-infective agents.
- Cardiovascular drugs.

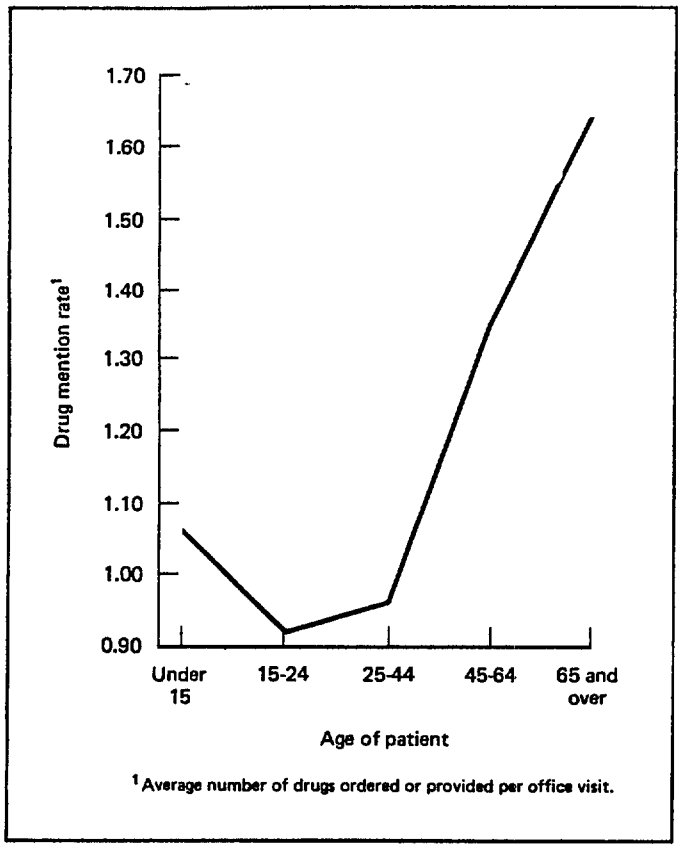

Figure 2. Drug mention rate by age of patient: United States, 1980

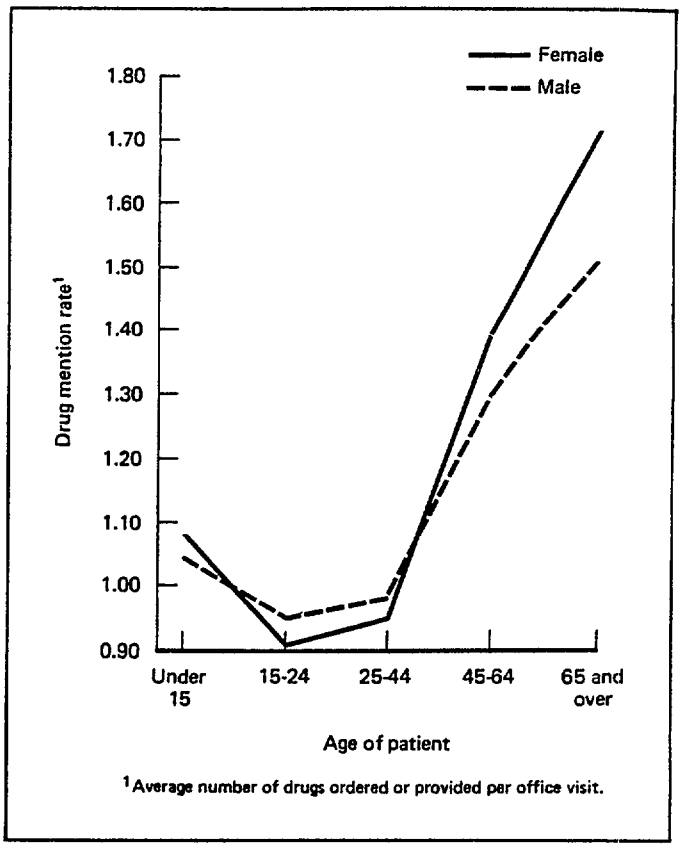

Figure 3. Drug mention rate by sex and age of patient: United States, 1980

Table 2. Percent distribution of drug mentions by therapeutic category, according to sex and age of the patient: United States, 1980

Therapeutic category[1]	Drug mentions							
	All patients	Sex of patient		Age of patient				
		Female	Male	Under 15 years	15-24 years	25-44 years	45-64 years	65 years and over
	Number in thousands							
All categories	679,593	413,570	266,023	115,643	75,213	148,126	175,572	165,038
	Percent distribution							
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Antihistamine drugs	6.47	5.94	7.28	14.60	7.75	7.16	3.90	2.29
Anti-infective agents	15.44	14.36	17.11	29.49	26.10	17.17	8.73	6.30
Antibiotics	13.26	11.99	15.22	27.03	23.68	14.41	7.01	4.46
Antineoplastic agents	0.79	0.99	0.47	*0.07	*0.18	*0.45	1.48	1.14
Autonomic drugs	3.71	3.70	3.73	2.78	3.09	4.91	4.14	3.12
Blood formation and coagulation	1.22	1.38	0.97	*0.46	1.42	1.19	1.18	1.75
Cardiovascular drugs	9.49	8.55	10.94	*0.34	*0.53	2.90	13.66	21.44
Cardiac drugs	3.87	3.23	4.87	*0.15	*0.36	1.09	5.28	9.08
Hypotensive agents	3.33	3.42	3.19	*0.11	*0.12	1.32	5.46	6.59
Vasodilating agents	2.16	1.79	2.72	*0.06	*0.05	*0.38	2.78	5.52
Central nervous system drugs	16.29	17.06	15.09	5.84	11.55	21.75	20.72	16.16
Analgesics and antipyretics	8.51	8.35	8.74	4.47	6.42	9.89	10.33	9.10
Psychotherapeutic agents	2.41	2.62	2.10	*0.29	1.44	3.39	3.58	2.22
Sedatives and hypnotics	3.68	4.05	3.12	0.70	2.25	4.76	4.98	4.09
Electrolytic, caloric, and water balance	7.65	8.05	7.02	*0.56	1.59	4.62	11.67	13.81
Diuretics	6.30	6.70	5.69	*0.21	*0.93	3.85	9.63	11.69
Expectorants and cough preparations	2.78	2.53	3.17	6.49	3.30	2.69	1.80	1.07
Eye, ear, nose, and throat preparations	3.84	3.58	4.24	4.01	3.10	3.46	3.28	4.98
Gastrointestinal drugs	3.55	3.47	3.67	2.13	2.41	3.42	4.14	4.56
Hormones and synthetic substances	8.22	9.98	5.48	1.93	9.76	9.37	10.44	8.52
Adrenals	2.69	2.67	2.74	1.45	2.42	3.03	3.48	2.56
Serums, toxoids, and vaccines	3.49	2.94	4.34	14.50	2.52	0.81	0.99	1.28
Skin and mucous membrane preparations	8.12	7.86	8.53	8.43	15.77	10.75	5.72	4.61
Spasmolytic agents	1.70	1.40	2.15	1.77	*0.53	1.03	1.84	2.64
Vitamins	3.57	4.67	1.86	0.75	6.57	4.87	2.95	3.66
Other therapeutic categories	2.22	2.04	0.97	4.82	2.37	1.82	1.52	1.42
Unknown	1.47	1.49	1.45	1.03	1.47	1.64	1.84	1.25

[1]Based on the pharmacologic-therapeutic classification of the American Society of Hospital Pharmacists. Selected categories reproduced with the Society's permission.

- Serums, toxoids, and vaccines.
- Spasmolytic agents.

There was no significant difference between the sexes in their respective utilization of drugs in the following therapeutic categories:

- Autonomic drugs.
- Blood formation and coagulation agents.
- Expectorants and cough preparations.
- Eye, ear, nose, and throat preparations.
- Gastrointestinal drugs.
- Skin and mucous membrane preparations.

Table 2 also shows the effect of advancing age on the utilization of the therapeutic categories. Figure 4 graphically pictures this effect by tracing an age curve for the three, most mentioned, therapeutic categories. All three are age sensitive. The utilization curve for the anti-infective agents shows a steady descent with advancing years while the curve for cardiovascular drugs rises gradually till the 45th year, then steeply to a peak in the age group over 64. The utilization curve for central nervous system drugs shows its steepest ascent at ages 15-44 years, levels off for the rest of the middle years, and finally begins a gradual descent in the older years of life.

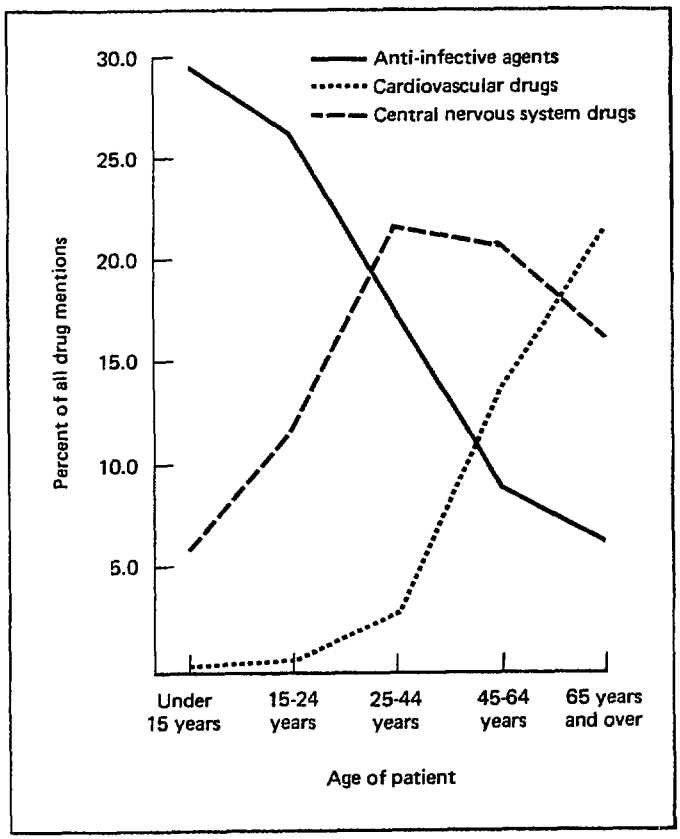

Figure 4. Utilization of three therapeutic categories of drugs by age of patient, based on percent of drug mentions within respective age groups: United States, 1980

Drug utilization: specific drugs

The data user will note that—in its attempt to explore differences related to sex and age of the patient—this report has moved progressively in the direction of increasing specificity. The exploration ends with the descriptive data in table 3, which list in rank order the 10 drugs most frequently mentioned for each of the sex-age groups. (Inclusion of trade names is for identification only and does not imply endorsement by the Public Health Service or the United States Department of Health and Human Services.)

The drugs are listed by *entry name*, that is, by the trade or generic name that the doctor recorded on the NAMCS visit record (figure 1). (Note: NAMCS respondents were instructed to use the same entry name on the NAMCS visit record that they used on the patient's medical record and/or on any prescription written.)

A superscript[f] following a listed drug indicates a *drug family*; a grouping of drugs whose members have the same core name and the same or a closely similar therapeutic effect. For example, the drug family Aristocort[f] includes the following members: Aristocort, Aristocort A, Aristocort Forte, Aristocort HP, Aristocort Intralesional, and Aristocort R.

Table 3. Number of drug mentions and drug mention rate per 1,000 visits for the 10 drugs most frequently ordered or provided to patients in selected sex-age groups: United States, 1980

Rank	Entry name and generic name(s) of drug	Number of mentions in thousands	Drug mention rate per 1,000 visits
	Female patients under 15 years		
1	Polio vaccine	3,114	61.7
2	Diphtheria tetanus toxoid pertussis	3,028	60.0
3	Amoxicillin	1,906	37.7
4	Tuberculin tine test	1,752	34.7
5	Ampicillin	1,648	32.6
6	Penicillin[f]	1,646	32.6
7	Dimetapp (brompheniramine, phenylephrine, phenylpropanolamine)	1,471	29.1
8	Allergy relief, unspecified	1,325	26.2
9	Aspirin	1,096	21.7
10	E.E.S.	1,041	20.6
	Female patients 15-24 years		
1	Tetracycline[f]	1,642	29.9
2	Ampicillin	1,291	23.5
3	Penicillin[f]	1,183	21.6
4	Ortho-Novum (norethindrone, mestranol)	1,000	18.2
5	Prenatal vitamins	972	17.7
6	Cleocin[f] (clindamycin)	969	17.7
7	Lo/Ovral (norgestrel, ethinyl, estradiol)	796	14.5
8	Allergy relief, unspecified	725	13.2
9	Materna (multivitamins prenatal)	692	12.6
10	Monistat[f] (miconazole)	682	12.4
	Female patients 25-44 years		
1	Tetracycline[f]	1,961	18.9
2	Allergy relief, unspecified	1,579	15.2
3	Ampicillin	1,565	15.1
4	Penicillin[f]	1,370	13.2
5	Lasix (furosemide)	1,209	11.7
6	Prenatal vitamins	1,109	10.7
7	Vitamin B-12	1,095	10.6
8	Valium (diazepam)	1,091	10.5
9	Monistat[f] (miconazole)	1,069	10.3
10	Chorionic gonadotropin	1,001	9.7
	Female patients 45-64 years		
1	Inderal (propranolol)	1,904	24.9
2	Lasix (furosemide)	1,804	23.6
3	Premarin (conjugated estrogens)	1,704	22.3
4	Dyazide (triamterene)	1,675	21.9
5	Motrin (ibuprofen)	1,652	21.6
6	Valium (diazepam)	1,594	20.9
7	Hydrochlorothiazide	1,548	20.3
8	Vitamin B-12	1,348	17.6
9	Aldomet (methyldopa)	1,295	17.0
10	Thyroid	1,246	16.3
	Female patients 65 years and over		
1	Lanoxin (digoxin)	3,089	50.8
2	Lasix (furosemide)	2,931	48.2
3	Dyazide (triamterene)	2,613	43.0
4	Inderal (propranolol)	2,576	42.4
5	Aldomet (methyldopa)	2,067	34.0
6	Vitamin B-12	1,987	32.7
7	Digoxin	1,793	29.5
8	Motrin (ibuprofen)	1,467	24.1
9	Insulin	1,382	22.7
10	Hydrochlorothiazide	1,340	22.0
	Male patients under 15 years		
1	Polio vaccine	3,067	52.1
2	Diphtheria tetanus toxoid pertussis	2,835	48.2
3	Allergy relief, unspecified	2,511	42.7
4	Amoxicillin	2,462	41.8
5	Dimetapp (brompheniramine, phenylephrine, phenylpropanolamine)	2,212	37.6
6	Penicillin[f]	1,720	29.2
7	Tuberculin tine test	1,696	28.8
8	Ampicillin	1,635	27.8
9	Aspirin	1,324	22.5
10	Amoxil (amoxicillin)	1,230	20.9
	Male patients 15-24 years		
1	Tetracycline[f]	1,394	52.2
2	Penicillin[f]	828	31.0
3	Allergy relief, unspecified	801	30.0
4	Cleocin[f] (clindamycin)	773	29.0
5	Ampicillin	664	24.9
6	Aspirin	473	17.7
7	Minocin (minocycline)	*376	*14.1
8	Tetanus toxoid	*326	*12.2
9	Erythromycin	*313	*11.7
10	Desquam-X[f] (benzoyl peroxide, disodium edetate, etc.)	*299	*11.2
	Male patients 25-44 years		
1	Allergy relief, unspecified	1,062	20.8
2	Penicillin[f]	1,022	20.0
3	Tetracycline[f]	987	19.3
4	Ampicillin	971	19.0
5	Valium (diazepam)	644	12.6
6	Aspirin	607	11.9
7	Erythromycin	585	11.4
8	Keflex (cephalexin)	571	11.2
9	Actifed (tripolidine, pseudoephedrine)	552	10.8
10	Darvocet-N (acetaminophen, propoxyphene napsylate)	549	10.7
	Male patients 45-64 years		
1	Inderal (propranolol)	2,295	43.1
2	Dyazide (triamterene)	1,258	23.6
3	Lasix (furosemide)	1,157	21.7
4	Valium (diazepam)	1,105	20.7
5	Hydrochlorothiazide	1,000	18.8
6	Insulin	950	17.8
7	Lanoxin (digoxin)	947	17.8
8	Tagamet (cimetidine)	936	17.6
9	Lopressor (metoprolol)	877	16.5
10	Hydrodiuril (hydrochlorothiazide)	871	16.4
	Male patients 65 years and over		
1	Lasix (furosemide)	2,247	56.6
2	Lanoxin (digoxin)	2,078	52.3
3	Inderal (propranolol)	1,609	40.5
4	Digoxin	1,512	38.1
5	Isordil (isosorbide)	1,143	28.8
6	Dyazide (triamterene)	956	24.1
7	Aspirin	765	19.3
8	Hydrochlorothiazide	761	19.2
9	Hydrodiuril (hydrochlorothiazide)	742	18.7
10	Prednisone	715	18.0

Superscript[f] denotes drug family.

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 standards of reliability or precision (more than 30 percent relative standard error)
#	Figure suppressed to comply with confidentiality requirements

Technical notes

Source of data and sample design

The estimates presented in this report are based on data collected during 1980 by the National Center for Health Statistics by means of the National Ambulatory Medical Care Survey. The target universe of NAMCS comprises office visits made by ambulatory patients to non-Federal physicians who are principally engaged in office-based, patient care practice. Visits to physicians practicing in Alaska and Hawaii are excluded from the range of NAMCS, as are visits to physicians who specialize in anesthesiology, pathology, and radiology.

NAMCS uses a multistage probability sample design that involves a step-wise sampling of: primary sampling units (PSU's), physicians' practices within PSU's, and patient visits within physicians' practices. For 1980 a sample of 2,959 physicians was selected from master files maintained by the American Medical Association and the American Osteopathic Association. The physician response rate was 77.2 percent. Sampled physicians were asked to complete Patient Records (figure 1) for a systematic random sample of office visits made during a randomly assigned weekly reporting period. Telephone contacts were excluded. During 1980, responding physicians completed 46,081 Patient Records, on which they recorded 51,372 drug mentions. Characteristics of the physician's practice, such as primary specialty and type of practice, were obtained during an induction interview. The National Opinion Research Center, under contract to the National Center for Health Statistics, was responsible for the survey's field operations.

For a more detailed discussion of the limitations, qualifications, and definitions of the data collected by NAMCS, see Vital and Health Statistics, Series 13, Number 44.

Sampling errors and rounding of numbers

The standard error is a measure of the sampling variability that occurs by chance because only a sample, rather than an entire universe, is surveyed. The relative standard error of the estimate is obtained by dividing the standard error by the estimate itself and is expressed as a percent of the estimate. Tables I and II apply these measurements to office visits; Tables III and IV apply them to drug mentions.

Estimates have been rounded to the nearest thousand. For this reason detailed figures within tables do not always add to totals. Rates and percents were calculated from original, unrounded figures and will not necessarily agree precisely with rates or percents calculated from rounded data.

Table I. Approximate relative standard errors of estimated number of office visits based on all physician specialties: NAMCS, 1980

Estimated number of office visits in thousands	*Relative standard error in percent*
500	27.3
1,000	19.5
2,000	14.1
5,000	9.4
10,000	7.3
20,000	5.9
50,000	4.9
100,000	4.5
550,000	4.1

Example of use of table: An aggregate of 75,000,000 visits has a relative standard error of 4.7 percent, or a standard error of 3,525,000 visits (4.7 percent of 75,000,000).

Table II. Approximate standard errors of percents of estimated number of office visits based on all physician specialties: NAMCS, 1980

Base of percent (number of office visits in thousands)	Estimated percent					
	1 or 99	5 or 95	10 or 90	20 or 80	30 or 70	50
	Standard error in percent					
500	2.7	5.9	8.1	10.8	12.4	13.5
1,000	1.9	4.2	5.7	7.6	8.7	9.5
2,000	1.3	2.9	4.0	5.4	6.2	6.7
5,000	0.8	1.9	2.6	3.4	3.9	4.3
10,000	0.6	1.3	1.8	2.4	2.8	3.0
20,000	0.4	0.9	1.3	1.7	2.0	2.1
50,000	0.3	0.6	0.8	1.1	1.2	1.3
100,000	0.2	0.4	0.6	0.8	0.9	1.0
500,000	0.1	0.2	0.3	0.3	0.4	0.4

Example of use of table: An estimate of 30 percent based on an aggregate of 15,000,000 visits has a standard error of 2.4 percent, or a relative standard error of 8 percent (2.4 percent ÷ 30 percent).

Table III. Approximate relative standard errors of estimated number of drug mentions based on all physician specialties: NAMCS, 1980

Estimated number of drug mentions in thousands	Relative standard error in percent
1,000	27.3
2,000	19.7
5,000	13.2
10,000	10.1
20,000	8.2
50,000	6.8
100,000	6.2
300,000	5.8
650,000	5.7

Example of use of table: An aggregate estimate of 75,000,000 drug mentions has a relative standard error of 6.5 percent or a standard error of 4,875,000 mentions (6.5 percent of 75,000,000).

Definitions

An *ambulatory patient* is an individual seeking personal health service who is neither bedridden nor currently admitted to any health care institution on the premises.

A *physician eligible for NAMCS* is a duly licensed doctor of medicine or osteopathy currently in office-based practice whose primary job is caring for ambulatory patients. Excluded from NAMCS are: physicians who are hospital based; physicians who specialize in anesthesiology, pathology, or radiology; physicians who are Federally employed; physicians who treat only institutionalized patients; physicians employed full time by an institution; and physicians who spend no time seeing ambulatory patients.

An *office* is a place that the physician identifies as a location for his ambulatory practice. Responsibility over time for patient care and professional services rendered there generally resides with the individual physician rather than an institution.

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 or rendering health services.

A *drug mention* is the physician's entry of a pharmaceutical agent ordered or provided—by any route of administration—for prevention, diagnosis, or treatment. Generic as well as brand-name drugs are included, as are nonprescription as well as 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.

Table IV. Approximate standard errors of percents of estimated numbers of drug mentions based on all physician specialties: NAMCS, 1980

Base of percent (number of drug mentions 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					
1,000	2.7	5.8	8.0	10.7	12.2	13.3
2,000	1.9	4.1	5.7	7.6	8.7	9.4
5,000	1.2	2.6	3.6	4.8	5.5	6.0
20,000	0.6	1.3	1.8	2.4	2.7	3.0
100,000	0.3	0.6	0.8	1.1	1.2	1.3
600,000	0.1	0.2	0.3	0.4	0.5	0.5

Example of use of table: An estimate of 30 percent based on an aggregate of 12,500,000 drug mentions has a standard error of 4.1 percent or a relative standard error of 13.7 percent (4.1 percent ÷ 30 percent).

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From Vital and Health Statistics of the National Center for Health Statistics Number 82 • June 16, 1982

Contraceptive Use Patterns, Prior Source, and Pregnancy History of Female Family Planning Patients: United States, 1980

by Eugenia Eckard, Division of Health Care Statistics

According to data from the 1980 National Reporting System for Family Planning Services, an estimated 4,977,000 women visited an organized family planning clinic in the United States at least once during the survey year. This represents almost a 15 percent increase over the number of women who received medical services from family planning clinics in the previous year.[1] Using data from this survey, the report looks at the contraceptive use patterns and pregnancy status of women during the time they visited an organized family planning clinic in 1980.

The National Reporting System for Family Planning Services (NRSFPS) is a sample survey conducted by the Division of Health Care Statistics of the National Center for Health Statistics. It was begun in 1972 for the purpose of collecting information on visits to clinics for medical family planning services in the United States and its territories. These services are set up under a variety of administrative auspices, which include local health departments, public and private hospitals, and voluntary organizations such as Planned Parenthood Federation of America, Inc., community groups, and neighborhood health centers. Medical family planning visits to private physicians' offices are excluded from the survey.

In the survey, a family planning patient is defined as a woman who made a visit for medical family planning services related to contraception, infertility treatment, or sterilization. The overwhelming majority of patients are patients seeking methods of contraception. Persons seeking only pregnancy or venereal disease tests are not counted as family planning patients, nor are persons interested only in obtaining contraceptive supplies (that is, diaphragm, foam, jelly, cream, or condom) or counseling.

The Clinic Visit Record (CVR) is the basic form used to collect data from the family planning patients in the National Reporting System for Family Planning Services. The 14 items on the Clinic Visit Record cover basic sociodemographic information about the patient and other questions pertaining to family planning. Other data in this report are based on information obtained either by observation, from medical records, or, in those clinics that collect data through participation in a computerized record system, from locally developed forms that contain the CVR items.

Although the primary sampling unit in NRSFPS is the family planning visit, an unduplicated count of patients is obtained by identifying each new patient at her first visit and each continuation and readmission patient at her first visit in the survey year. (Continuation and readmission patients are referred to as "return" patients in this report.) Data based on patients rather than on visits are inherently limited because patients' responses to NRSFPS data items may change from one visit to another.

Other data sources from the National Center for Health Statistics provide related statistics on utilization of family planning services. For example, data from the National Ambulatory Medical Care Survey, which is also conducted by the Division of Health Care Statistics, cover visits to office-based physicians' practices that include family planning services.[2] The National Survey of Family Growth, conducted by the Division of Vital Statistics in 1973 and 1976, provides more detailed statistics on women who made family planning visits to their physicians or to organized family planning clinics in the 3 years prior to each survey. Unlike those for the other two surveys, data for the National Survey of Family Growth were collected by means of personal interviews with a national sample of women 15-44 years of age who were ever married or never married with offspring living in the household. More details about the National Survey of Family Growth and its data pertaining to family planning visits are provided in the latest report based on the 1976 survey.[3]

Further discussion of NRSFPS survey methodology, the sampling variation associated with the statistics, and definitions of certain terms used in this report are included in the technical notes and can be found in earlier reports.[4,5]

Highlights

This report examines the contraceptive use patterns and pregnancy history of women who visited organized family planning clinics in 1980, analyzing the data according to age, race, and patient status (new patient or return patient). The 1980 patient population was relatively young—88.3 percent were under 30 years of age (figure 1). More than 54 percent had never had a live birth; only 23.6 percent had two or more children. Figure 2 shows that the majority of women who visited a family planning clinic were white women (71.4 percent); 26.1 percent were black, and 2.5 percent were of other races. More than one-third (35.7 percent) of the women who visited clinics in 1980 were new patients; 64.2 percent of the women were returning to a family planning clinic (figure 3). A more detailed presentation of the patients' characteristics is provided in a report soon to follow.[6]

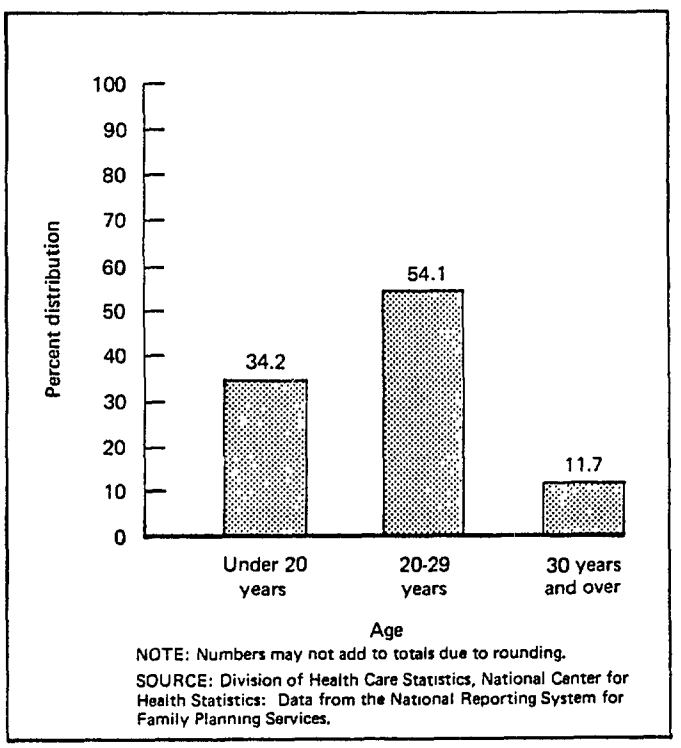

Figure 1. Percent distribution of female family planning patients by age: United States, 1980

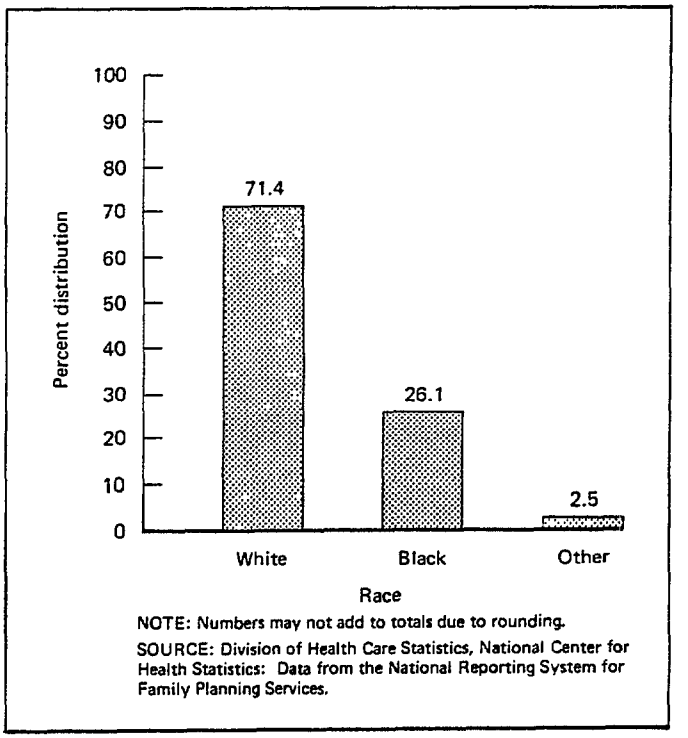

Figure 2. Percent distribution of female family planning patients by race: United States, 1980

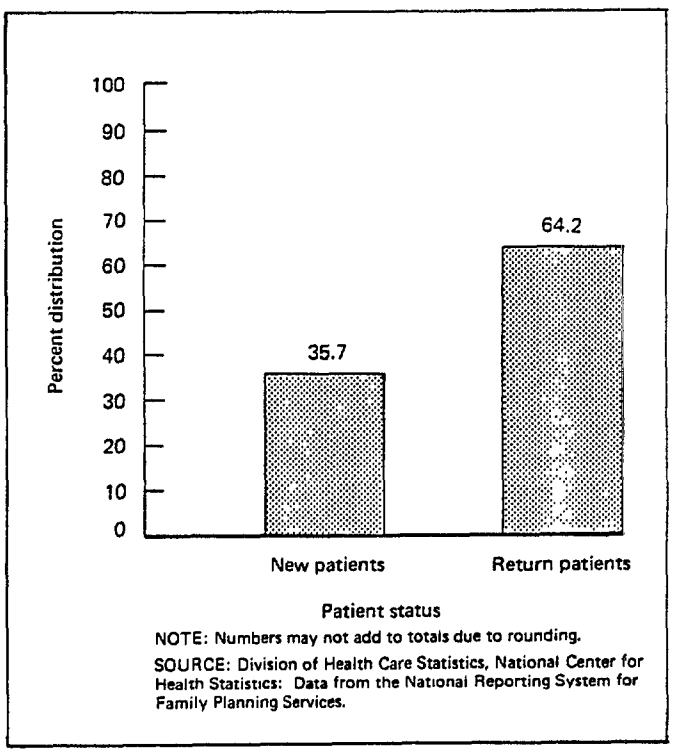

Figure 3. Percent distribution of female family planning patients by patient status: United States, 1980

Contraceptive use and prior source

Table 1 shows that more than half of the women who visited a family planning clinic (55.9 percent) in 1980 had used the pill prior to their visit. Women aged 20-29 were more likely than women of any other age group to have used the pill before their visit (63.1 percent). The IUD had been used by 7.1 percent of all the women and was more likely to have been used by women 30 years of age and over (18.9 percent) than by women under the age of 30. Other methods that had been used by the women prior to their first visit included the diaphragm (4.3 percent); foam, jelly, or cream (3.8 percent); and other or unknown methods (3.7 percent). About 1 out of 4 of the women had never used a method regularly prior to their visit to a family planning clinic. More than twice as many teenage women as women aged 20 or over had not used a method regularly before visiting a clinic (41.9 percent).

More women had received their prior method of contraception at the clinic they visited during the survey year than at any other source (39.3 percent). Almost 9 percent of the women had received their prior method from another family planning clinic, thereby making the clinic a source of prior method for about 48 percent of the women enrolled in the clinics in 1980. The remainder of the women received their prior method either from a hospital (2.0 percent), a private physician (18.4 percent), a drugstore (2.7 percent), or other (including unknown) sources (3.6 percent).

A larger proportion of women aged 20-29 (43.8 percent) and of women 30 years of age and over (43.7 percent) had obtained their prior method from the clinic in which they were enrolled at the time of the survey than had teenage women (30.6 percent). Another family planning clinic was the source of the prior method for 5.9 percent of the women under 20 years of age, for 10.7 percent of the women aged 20-29, and for 8.8 percent of the women 30 years of age and over. Women in their twenties were about as

Table 1. Number of female family planning patients and percent distribution by contraceptive use, according to age: United States, 1980

Contraceptive use	Age			
	All ages	Under 20 years	20-29 years	30 years and over
	Number in thousands			
All female patients	4,977	1,703	2,691	583
	Percent distribution			
Total	100.0	100.0	100.0	100.0
Prior contraceptive method				
Pill	55.9	49.0	63.1	42.5
IUD	7.1	1.8	7.9	18.9
Diaphragm	4.3	1.2	5.7	7.1
Foam, jelly, or cream	3.8	3.1	3.7	6.6
Other[1]	3.7	2.9	3.1	9.1
No method used regularly	25.1	41.9	16.5	15.7
Source of prior method				
Same service site	39.3	30.6	43.8	43.7
Other service site	8.8	5.9	10.7	8.8
Hospital	2.1	1.1	2.2	4.1
Private physician	18.4	14.2	20.7	20.2
Drugstore	2.7	3.1	2.4	3.1
Other[2]	3.6	3.3	3.6	4.5
No method used regularly	25.1	41.9	16.5	15.7
Contraceptive method adopted or continued				
Pill	63.7	74.1	63.1	35.7
IUD	7.1	2.2	7.9	18.2
Diaphragm	7.2	3.8	8.7	9.8
Foam, jelly, or cream	5.6	5.0	5.1	9.5
Other	2.9	1.3	2.6	8.8
None	13.6	13.5	12.6	18.1

[1] Includes natural methods and sterilization.
[2] Includes unknowns.

NOTE: Numbers may not add to totals due to rounding.

likely as women over 20 years of age to have seen a private physician for their prior method (each about 20 percent), while 14.2 percent of the teenage women had visited a physician's office for a method prior to visiting a clinic. The smallest proportion of all women, regardless of age, had obtained their prior method from a hospital, a drugstore, or other sources.

The majority of women who visited a family planning clinic (63.7 percent) adopted or continued to use the pill as a method of contraception. Women under 20 years of age were more likely than other women to adopt or continue with the pill (74.1 percent). Sixty-three percent of the women in their twenties adopted or continued with the pill, while only 35.7 percent of the women 30 years of age and over chose this method. The IUD, chosen by 7.1 percent of all of the women, was more popular among the older women (18.2 percent) than for women under 30. The diaphragm was adopted or continued by 7.2 percent of the women enrolled in family planning clinics. The teenage women were not as likely as the women 20 years of age or over to choose the diaphragm. A little fewer than 6 percent of the women adopted foam, jelly, or cream as a contraceptive method and another 3 percent of the women chose other methods. As many as 13.6 percent of all women who visited the clinics did not choose a method after the visit. The reasons for not doing so included being pregnant, trying to become pregnant, or relying on a partner for a contraceptive method. More of the women over 29 than women in their twenties or younger were in this category.

Table 2 shows the pattern of contraceptive use for white and black women separately. It can be seen that the proportion of white women using the various methods differed only slightly from the overall pattern because most patients at the clinics were white. A larger proportion of black women used the pill prior to visiting a clinic in 1980 than did the white women who visited a clinic (58.9 percent compared with 55.0 percent). The proportion of black women who used the IUD prior to their visit was slightly more than 8 percent, compared with 6.5 percent of white women having used this method. A larger proportion of white women (4.9 percent) than of black women (2.9 percent) used the diaphragm prior to their visit. There was no significant difference in the proportions of black or white women whose

Table 2. Number of female family planning patients and percent distribution by contraceptive use, according to race: United States, 1980

Contraceptive use	*Race*		
	All races	*White*	*Black*
	Number in thousands		
All female patients	4,977	3,552	1,301
	Percent distribution		
Total	100.0	100.0	100.0
Prior contraceptive method			
Pill	55.9	55.0	58.9
IUD	7.1	6.5	8.3
Diaphragm	4.3	4.9	2.9
Foam, jelly, or cream	3.8	3.9	3.5
Other[1]	3.7	3.9	3.2
No method used regularly	25.1	25.7	23.2
Source of prior method			
Same service site	39.3	37.0	46.1
Other service site	8.8	8.7	9.3
Hospital	2.1	1.5	3.5
Private physician	18.4	19.9	14.0
Drugstore	2.7	3.2	1.5
Other[2]	3.6	4.0	2.5
No method used regularly	25.1	25.7	23.2
Contraceptive method adopted or continued			
Pill	63.7	63.5	65.0
IUD	7.1	6.6	8.0
Diaphragm	7.2	8.1	4.9
Foam, jelly, or cream	5.6	4.8	7.7
Other	2.9	2.7	3.0
None	13.6	14.3	11.4

[1] Includes natural methods and sterilization.
[2] Includes unknowns.

NOTE: Numbers may not add to totals due to rounding.

prior method was foam, jelly, or cream or in the proportions who used other methods. A slightly larger proportion (although not statistically significant) of white women than of black women had never used a method regularly prior to their clinic visit (25.7 percent compared with 23.2 percent).

Table 2 also shows that the clinic, either the one of current enrollment or some other clinic, was the source of prior method for a larger proportion of black women than for white women. About 46 percent of the black women had obtained their prior method from the same clinic, and another 9.3 percent of them had obtained the method from another clinic. Thirty-seven percent of white women obtained their prior method from the same clinic, and 8.7 percent from another clinic. While only 1.5 percent of the white women visited hospitals for their prior method, 3.5 percent of black women did so. It is clear that black women who were enrolled in a family planning clinic were more likely than white women to have previously sought services of a family planning clinic. On the other hand, a larger proportion of white women (19.9 percent) than of black women (14.0 percent) had visited a private physician for their prior method. Black women also were less likely than white women to have obtained a prior method from a drugstore or from other sources.

Table 2 also shows the type of method adopted or continued according to race. The pill was the method adopted by most women, regardless of race. More than 3 out of 5 white women and black women adopted or continued to use the pill over any other method. Looking at the two other effective methods (the IUD and diaphragm), there is no significant difference between the proportion of white and black women who chose the IUD; a larger proportion of white women than of black women chose the diaphragm. On the other hand, black women were more likely than white women to choose foam, jelly, or cream after the visit. A larger proportion of white women than black women (14.3 percent compared with 11.4 percent) chose no method after their visit, suggesting that they may already have been pregnant, were trying to become pregnant, or were relying on their partner for contraception. A small proportion of both racial groups chose other methods (2.7 percent of white women and 3.0 percent of black women).

Data in table 3 reveal strong evidence that the

Table 3. Number of female family planning patients and percent distribution by contraceptive use, according to patient status: United States, 1980

Contraceptive use	*Patient status*		
	All patients	*New patients*	*Return patients*
	Number in thousands		
All female patients	4,977	1,779	3,197
	Percent distribution		
Total	100.0	100.0	100.0
Prior contraceptive method			
Pill	55.9	31.5	69.5
IUD	7.1	2.9	9.4
Diaphragm	4.3	2.4	5.4
Foam, jelly, or cream	3.8	4.3	3.5
Other[1]	3.7	4.2	3.5
No method used regularly	25.1	54.6	8.7
Source of prior method			
Same service site	39.3	...	61.1
Other service site	8.8	...	13.7
Hospital	2.1	...	3.2
Private physician	18.4	32.7	10.5
Drugstore	2.7	5.5	1.2
Other[2]	3.6	7.3	1.6
No method used regularly	25.1	54.6	8.7
Contraceptive method adopted or continued			
Pill	63.7	60.3	65.5
IUD	7.1	4.1	8.8
Diaphragm	7.2	7.5	7.0
Foam, jelly, or cream	5.6	6.8	4.9
Other	2.9	2.6	3.0
None	13.6	18.6	10.8

[1] Includes natural methods and sterilization.
[2] Includes unknowns.

NOTE: Numbers may not add to totals due to rounding.

family planning clinics provide most of their patients with the most effective means of contraception currently available—the pill, the IUD, or the diaphragm. More than twice as many return patients as new patients had used the pill (69.5 percent compared with 31.5 percent). Another 14.8 percent of the return patients had used either the IUD or the diaphragm prior to their visit; only 5.3 percent of the new patients had done so. Before visiting a family planning clinic, more than half of the new patients (54.6 percent) had never used a method regularly. However, after enrolling in an organized family planning clinic, close to 72 percent of the new patients chose the pill, the IUD, or the diaphragm—three of the most effective methods.

The greatest proportion of the new patients who had used a method prior to their visit had obtained it from a private physician (32.7 percent). An overwhelming majority of return patients, as expected, had obtained their prior method from the same site of current visit (61.1 percent) or from another service site (13.7 percent). Only 3.2 percent of the return patients had visited a hospital for their prior method. About 1 out of 10 of the return patients received their prior method from a private physician, despite previous enrollment in an organized family planning clinic. A considerably larger proportion of the new patients than of the return patients had obtained a prior method either from a drugstore or from other sources (12.8 percent compared with 2.8 percent).

Unlike the new patients, the proportion of return patients adopting or continuing to use the pill or the IUD decreased after their visit. A higher proportion of new patients adopted or continued with foam, jelly, or cream as a method than had used it before the clinic visit (6.8 percent compared with 4.3 percent). The proportion of return patients who chose this method also increased after the visit, but still was a smaller proportion than that of new patients who adopted foam, jelly, or cream. Further, a larger proportion of new patients than of return patients chose no method at the end of the visit (18.6 percent compared with 10.8 percent).

Pregnancy history

Tables 4, 5, and 6 show the number of pregnancies, live births, and fetal deaths for women according to age, race, and patient status. Table 4 shows that a larger proportion of women under 20 years of age than of older women had had no pregnancies, no live births, and no fetal deaths. This suggests the importance of the family planning services for preventing a first pregnancy among teenage women. However, close to one-third (31.7 percent) of the teenage patients had been pregnant at least once before visiting a clinic. More than half of all the women (56.5 percent) had been pregnant at least once, but fewer than half had had a live birth. As many as 22.7 percent of the women had had at least one fetal death.

As expected, a larger proportion of women 30 years of age or over had had two or more pregnancies or two or more live births than had younger women. About three-quarters of the women over 29 years of age had had two or more pregnancies, compared with 35.6 percent of the women 20-29 years of age and 7.4 percent of the women under 20. About 70 percent of the women aged 30 years or over had had two or more live births, compared with 26.2 percent of the women in their twenties and 3.6 percent of women under 20 years of age.

The majority of women in every age group had not experienced a fetal death. The proportion of women who had had at least one fetal death, however, increased with age, probably because the proportion of women who had one or more pregnancies also increased with age. Thus for the women 30 years of age or over, who had had more pregnancies, there had also been more fetal deaths than among women under 30 years of age.

In table 5 the number of pregnancies, live births, and fetal deaths are distributed according to race. A larger proportion of white women than of black women had never had a pregnancy (46.8 percent compared with 34.0 percent) or a live birth (58.7 percent compared with 42.1 percent). Conversely, a larger proportion of black women than of white women had had two or more pregnancies and two or more live births. However, there is no significant difference in the proportions of white and black women who have had at least one fetal death (22.3 percent and 24.0 percent, respectively).

Table 6 shows the number of pregnancies, live births, and fetal deaths for women according to whether the woman was a new or a return patient. More than half of the new patients (55.7 percent) had not had a pregnancy, compared with 36.7 percent of return patients. This means that a higher proportion of the return patients (63.3 percent) than of the new patients (44.3 percent) had had at least one pregnancy. This is also the case with number of live births. The majority of new patients (55.7 percent) had not had a live birth at the time of their visit, and fewer than half of return patients had not had one (48.5 percent). Because return patients were more likely to have been pregnant than were new patients, it is understandable that return patients were also more likely to have experienced at least one fetal death (25.4 percent compared with 17.9 percent).

Table 4. Number of female family planning patients and percent distribution by pregnancy history, according to age: United States, 1980

Pregnancy history	*Age*			
	All ages	*Under 20 years*	*20-29 years*	*30 years and over*
	Number in thousands			
All female patients	4,977	1,703	2,691	583
	Percent distribution			
Total	100.0	100.0	100.0	100.0
Number of pregnancies				
0	43.5	68.3	34.9	10.9
1	25.8	24.3	29.5	13.0
2 or more	30.7	7.4	35.6	76.1
Number of live births				
0	54.3	79.4	47.0	15.0
1	22.1	17.0	26.8	15.1
2 or more	23.6	3.6	26.2	69.9
Number of fetal deaths				
0	77.3	85.9	74.0	67.1
1	16.9	12.2	19.1	20.6
2 or more	5.8	1 9	6.9	12.2

NOTE: Numbers may not add to totals due to rounding.

Table 5. Number of female family planning patients and percent distribution by pregnancy history, according to race: United States, 1980

Pregnancy history	Race		
	All races	White	Black
	Number in thousands		
All female patients	4,977	3,552	1,301
	Percent distribution		
Total	100.0	100.0	100.0
Number of pregnancies			
0	43.5	46.8	34.0
1	25.8	25.0	28.5
2 or more	30.7	28.2	37.5
Number of live births			
0	54.3	58.7	42.1
1	22.1	19.8	28.8
2 or more	23.6	21.5	29.1
Number of fetal deaths			
0	77.3	77.7	76.0
1	16.9	16.8	17.5
2 or more	5.8	5.5	6.5

NOTE: Numbers may not add to totals due to rounding.

Table 6. Number of female family planning patients and percent distribution by pregnancy history, according to patient status: United States, 1980

Pregnancy history	Patient status		
	All patients	New patients	Return patients
	Number in thousands		
All female patients	4,977	1,779	3,197
	Percent distribution		
Total	100.0	100.0	100.0
Number of pregnancies			
0	43.5	55.7	36.7
1	25.8	22.6	27.6
2 or more	30.7	21.7	35.7
Number of live births			
0	54.3	64.8	48.5
1	22.1	18.9	23.8
2 or more	23.6	16.3	27.7
Number of fetal deaths			
0	77.3	82.0	74.6
1	16.9	13.4	18.8
2 or more	5.8	4.5	6.6

NOTE: Numbers may not add to totals due to rounding.

References

[1]National Center for Health Statistics, E. Eckard: Women who use organized family planning services: United States, 1979 *Vital and Health Statistics.* Series 13-No. 62. DHHS Pub. No. (PHS) 82-1723. Public Health Service. Washington. U.S. Government Printing Office, Jan. 1982.

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[5]National Center for Health Statistics, E. Eckard: Teenagers who use organized family planning services: United States, 1978. *Vital and Health Statistics.* Series 13-No. 57. DHHS Pub. No. (PHS) 81-1718. Public Health Service. Washington. U.S. Government Printing Office, Aug. 1981.

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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 standards of reliability or precision
#	Figure suppressed to comply with confidentiality requirements

Technical notes

Sampling design

The 1980 National Reporting System for Family Planning Services (NRSFPS) estimates are based on a stratified two-stage sampling design. In the first stage, a probability sample of 1,381 (about 1 in 4, nationally) family planning service sites was selected from a stratified sampling frame developed in 1976 and updated for 1980.

In the second stage of the sampling plan, family planning visits occurring at each sample site were systematically selected. The sampling rate assigned by the National Center for Health Statistics to each sample site depended on the site's reported visit volume and the State in which the site was located. Overall, there were 14 visit sampling rates used to determine the proportion of each site's family planning visits needed for the survey; the visit sampling rates ranged from 1/1 to 1/30. The 1980 NRSFPS sample for the United States encompassed 220,303 female patient records. A report delineating the NRSFPS background, development, and evolution has been published.[4]

Estimation

The statistics provided by NRSFPS for 1980 are derived by a complex-estimation procedure. The estimation procedure used to produce essentially unbiased national estimates for the NRSFPS has two principal components—inflation by the reciprocal of the probability of sample selection and adjustment for nonresponse.

Sampling error

The statistics presented in this report are based on a sample survey and therefore differ from those that would be obtained from a full-count (100 percent) survey using the same data collection procedures and definitions.

The standard error is primarily a measure of the variability that occurs by chance because a sample rather than the entire universe is surveyed. While the standard error, as calculated for this report, reflects some of the random variation inherent in the measurement process, it does not measure any systematic error that is present in the NRSFPS data. The relative standard error of an estimate is obtained by dividing the standard error of the estimate by the estimate itself and is sometimes expressed as a percent of the estimate. The chances are about 0.68 that the interval specified by the estimate plus or minus one standard error of the estimate contains the figure that would be obtained through a full-count survey of the sampling frame. The chances are about 0.95 that the interval specified by the estimate plus or minus two standard errors of the estimate contains the figure that would be obtained through a full-count survey of the sampling frame.

To derive standard errors that would be applicable to a wide variety of statistics and could be derived at moderate costs, several approximations were required. For the basic categories of patients presented in this report, estimates of totals and relative standard errors of totals are shown in table I. The standard error for estimated percents of patients is shown in table II.

Nonsampling error

Nonsampling error is present in most sample surveys and includes errors due to service site nonresponse, item nonresponse, information incompletely or inaccurately recorded, and processing error. Through an unpublished evaluation study conducted in 1980, several problems associated with the collection of data for NRSFPS (for example, adherence to NRSFPS definitions) were identified.

Rounding

Aggregate estimates of family planning patients in the tables are rounded to the nearest thousand. The

Table I. Number of female family planning patients and relative standard error, by age, race, and patient status: United States, 1980

Age, race, and patient status	*Number of patients in thousands*	*Relative standard error in percent*
Age		
All ages	4,977	3.8
Under 20 years	1,703	4.0
20-29 years	2,691	3.9
30 years and over	583	4.8
Race		
White	3,552	4.0
Black	1,301	4.7
Patient status		
New patient	1,779	4.4
Return patient	3,197	4.0

NOTE: A list of references follows the text.

Table II. Approximate standard error of percent of female family planning patients, by age, race, and patient status: United States, 1980

Age, race, and patient status	Estimated percent of patients					
	1 or 99	5 or 95	10 or 90	20 or 80	30 or 70	50
	Standard error in percentage points					
Age						
All ages	0.2	0.4	0.5	0.7	0.8	0.9
Under 20 years	0.2	0.5	0.6	0.9	1.0	1.1
20-29 years	0.2	0.4	0.5	0.7	0.8	0.9
30 years and over	0.3	0.7	1.0	1.3	1.5	1.6
Race						
White	0.2	0.4	0.6	0.8	0.9	1.0
Black	0.4	0.8	1.1	1.4	1.6	1.8
Patient status						
New patient	0.2	0.5	0.6	0.9	1.0	1.1
Return patient	0.2	0.5	0.6	0.8	1.0	1.1

Example of use of table: An estimate of 50 percent based on all teenage patients has a standard error of 1.1 percent, or a relative standard error of 2.2 percent (1.1 percent ÷ 50 percent).

percents were computed based on unrounded estimates, and thus the figures may not sum to the totals.

Definitions

Family planning service site.—A family planning service site is the location where medical family planning services are provided on a regular basis under the supervision of a physician. Private physicians' offices and group medical practices are not considered sites unless they receive support through a Department of Health and Human Services grant for the provision of family planning services. Military service sites are excluded from the survey.

Family planning visit.—A family planning visit is a visit to a family planning service site in which medical services related to contraception, infertility treatment, or sterilization are provided.

Family planning patient.—A family planning patient is an individual who has made one or more family planning visits.

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

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Deliveries in Short-Stay Hospitals: United States, 1980

By Barbara J. Haupt, Division of Health Care Statistics

This report concerns the use of hospitals by women with deliveries during 1980. Characteristics of the women who delivered (age, race, and marital status) and of the hospitals in which they delivered (region, bed size, and ownership) are presented by type of delivery (normal or complicated). Data on the types of obstetrical complications experienced by these women and on the procedures they underwent are also presented. Hospital use measurements shown include frequencies, percents, and average lengths of stay.

The statistics presented in this report are based on data collected through the National Hospital Discharge Survey. This is a sample survey that has been conducted by the National Center for Health Statistics since 1965. In 1980, data were abstracted from the face sheets of medical records of approximately 224,000 patients discharged from 420 short-stay non-Federal hospitals. A brief description of the sample design, data collection procedures, and estimation process, and definitions of terms presented in this report can be found in the section entitled "technical notes." A detailed discussion of these items, as well as the survey form used to collect the data, have been published.[1,2]

Diagnostic and procedure data are coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification.*[3] Up to seven diagnoses and four procedures are coded for each discharge; however, the only diagnoses considered in this report were obstetrical diagnoses (codes 640–676) and sterilization (code V25.2). Obstetrical diagnoses are those diagnoses that refer to conditions arising from or affecting the management of pregnancy, childbirth, and the puerperium (the period following delivery). Other diagnoses were not used because they were felt to be repetitious. For example, a woman with anemia would have two codes for this diagnosis—one showing it as an obstetrical complication and one indicating the specific type of anemia.

In this report, obstetrical diagnoses are categorized into two broad types—normal deliveries and complicated deliveries. A normal delivery refers to a spontaneous delivery without mention of abnormality, complication, or the use of instruments or fetal manipulation. All other deliveries, including multiple births, are referred to as complicated. The rationale for including pregnancies with multiple fetuses as complicated is based on the observation that such pregnancies are associated with increased morbidity and mortality.[4]

Summary

During 1980 3.8 million women with deliveries were discharged from short-stay non-Federal hospitals in the United States. These women made up a sizable portion—9.9 percent—of all the discharges (excluding newborn infants) during that year. Women with deliveries remained hospitalized an average of 3.8 days and used 14.2 million days of inpatient hospital care. This was only 5.2 percent of the total days spent in hospitals by all patients discharged during the year.

Most of the women who had a delivery were in their twenties, were white, and were married. The largest percent of deliveries occurred in the South Region, followed by the North Central, Northeast, and West Regions. The percent of women with deliveries was lowest in the smallest hospitals and highest in the largest hospitals. Most of the women with deliveries were discharged from nonprofit hospitals.

About half of the women had a normal delivery and about half had some sort of complication. Women more likely to have a complicated delivery were older, were races other than white, had an unknown marital status,

and had delivered in the South Region. These women also stayed in the hospital longer, on the average, than did women with a normal delivery.

The most frequently occurring complications were forceps or vacuum extraction without mention of indication and obstetrical trauma. Episiotomy was the most common procedure. Other frequently performed procedures were low forceps or vacuum extraction with or without episiotomy, cesarean section, repair of obstetric laceration, and bilateral destruction or occlusion of fallopian tubes.

Findings

Patient and hospital characteristics

During 1980, 3,762,000 women with deliveries were discharged from short-stay non-Federal hospitals in the United States (table 1). Most of these women (over 60 percent) were in their twenties; 32.5 percent were 20–24 years of age and 31.6 percent were 25–29 years of age. Almost 16 percent were in each of the age groups 10–19 years and 30–34 years, while only 4.5 percent were 35–54 years of age. This age distribution was the same for each type of delivery (normal or complicated).

The majority (70.0 percent) of women with deliveries were white, and 17.6 percent were black and other races. These data should be viewed with some caution, however, because of the large percent of women (12.4 percent) for whom race could not be identified on the face sheet of the medical record. As expected, most of the women with deliveries during 1980 were married (77.0 percent). However, a sizable percent—16.5 percent—had never been married. Over 3 percent of the women were separated, divorced, or widowed, and the marital status of 3.0 percent was unknown.

Table 2 presents data on women with deliveries by type of delivery for the hospital characteristics region, bed size, and ownership. The largest percent of deliveries (34.7 percent) was in the South Region, followed by 27.3 percent in the North Central Region, 19.1 percent in the Northeast Region, and 18.9 percent in the West Region. This distribution reflects that of civilian noninstitutionalized women in the child-bearing ages (10–54 years of age for this report). Unpublished data from the Bureau of the Census show that during 1980, 33.3 percent of these women lived in the South, 25.8 percent in the North Central Region, 21.7 percent in the Northeast Region, and 19.2 percent in the West. The pattern of deliveries was the same for each type of delivery (normal or complicated); that is, the largest percent was in the South and the second largest was in the North Central Region. (For normal deliveries the difference between the South Region and the North Central Region was not statistically significant.) The percent of deliveries was approximately the same in each of the remaining two regions.

The percent of women with deliveries generally increased as the bed size of the hospital increased. The smallest hospitals (6–99 beds) had 14.9 percent of the deliveries while the largest hospitals (500 beds or more) had 26.3 percent of the deliveries. When hospital ownership is examined, it can be seen that the vast majority (72.9 percent) of mothers were discharged from nonprofit hospitals, 23.8 percent were discharged from State and local government hospitals, and 3.2

Table 1. Number and percent distribution of women with deliveries discharged from short-stay non-Federal hospitals by age, race, and marital status, according to type of delivery: United States, 1980

Age, race, and marital status	All deliveries	Type of delivery		All deliveries	Type of delivery	
		Normal	Complicated		Normal	Complicated
	Number in thousands			Percent distribution		
Total[1]	3,762	1,841	1,921	100.0	100.0	100.0
Age						
10–19 years	583	291	292	15.5	15.8	15.2
20–24 years	1,222	594	628	32.5	32.3	32.7
25–29 years	1,190	591	599	31.6	32.1	31.2
30–34 years	597	291	305	15.9	15.8	15.9
35–54 years	171	74	97	4.5	4.0	5.1
Race						
White	2,633	1,277	1,356	70.0	69.3	70.6
Black and all other	662	312	351	17.6	16.9	18.2
Marital status						
Married	2,898	1,434	1,464	77.0	77.9	76.2
Never married	620	299	321	16.5	16.3	16.7
Separated, divorced, or widowed	131	64	68	3.5	3.5	3.5
Unknown	112	44	69	3.0	2.4	3.6

[1] Includes data for which race was not stated.

Table 2. Number and percent distribution of women with deliveries discharged from short-stay non-Federal hospitals by region, bed size, and hospital ownership, according to type of delivery: United States, 1980

Region, bed size, and ownership	All deliveries	Type of delivery		All deliveries	Type of delivery	
		Normal	Complicated		Normal	Complicated
	Number in thousands			Percent distribution		
Total	3,762	1,841	1,921	100.0	100.0	100.0
Region						
Northeast	717	357	360	19.1	19.4	18.8
North Central	1,028	528	500	27.3	28.7	26.0
South	1,307	590	718	34.7	32.0	37.4
West	709	367	343	18.9	20.0	17.8
Bed size						
6–99 beds	562	329	233	14.9	17.9	12.1
100–199 beds	679	315	363	18.0	17.1	18.9
200–299 beds	653	339	314	17.4	18.4	16.4
300–499 beds	878	416	462	23.3	22.6	24.1
500 beds or more	990	442	548	26.3	24.0	28.5
Ownership						
Nonprofit	2,744	1,315	1,429	72.9	71.4	74.4
State and local government	897	467	430	23.8	25.4	22.4
Proprietary	122	60	62	3.2	3.2	3.2

percent from proprietary hospitals. This reflects the distribution of all discharges by ownership of hospital; over 70 percent of all discharges during 1980 were from nonprofit hospitals and about 20 percent were from State and local government hospitals.

Table 3 gives the percent distribution of women with deliveries by type of delivery for the patient characteristics age, race, and marital status and the hospital characteristics region, bed size, and ownership. Of the 3,762,000 women who delivered, 48.9 had a normal delivery and 51.1 percent had some complication or other condition associated with the delivery that required special care or management. This distribution is similar for most of the characteristics examined (that is, about half of the deliveries were normal and about half were complicated). However, a significantly larger percent of complicated births occurred to women 35–54 years of age (57.0 percent), women for whom marital status was unknown (61.2 percent), and women who were discharged from hospitals in the South Region (54.9 percent). Some variations also occurred by bed size of hospital. Only in the smallest hospitals was there a significantly larger proportion of normal deliveries than complicated deliveries; in hospitals of every other bed size, except those with 200–299 beds, the proportion of complicated deliveries was larger than the proportion of normal deliveries. Hospitals with 200–299 beds had about the same proportion of normal and complicated deliveries.

The average length of stay for all women with deliveries during 1980 was 3.8 days (table 4). Women with normal deliveries stayed an average of 3.0 days while those with complications were hospitalized, on the average, 4.5 days.

Average lengths of stay were longer for women with complicated deliveries than for women with normal deliveries for every age, race, marital status, region, bed size, and ownership type examined. These differences were statistically significant for every characteristic except marital status unknown.

Obstetrical diagnoses associated with deliveries

Table 5 shows the number of women with deliveries by type of delivery and number of diagnoses. Most of the women (77.2 percent) had only one diagnosis regardless of the type of delivery. A much larger percent of women with normal deliveries had only one diagnosis compared with the percent of women with complicated deliveries (92.5 percent compared with 62.4 percent). This is expected because women with normal deliveries could only have a maximum of two diagnoses: normal delivery and sterilization. Women with complicated deliveries, on the other hand, could have more than one complication as well as sterilization and, therefore, could have several diagnoses.

The average length of stay was longer for women with more than one diagnosis than for women with only one diagnosis; the difference, however, was not statistically significant for women with normal deliveries. Women with complicated deliveries had a longer average length of stay than women with normal deliveries regardless of the number of diagnoses.

Of the 3.8 million women who had a delivery in 1980, 8.3 percent were sterilized during the same hospitalization; specifically, 7.5 percent of the women with normal deliveries and 9.1 percent of the women with complicated deliveries were sterilized. As shown in

Table 3. Percent distribution of women with deliveries discharged from short-stay non-Federal hospitals by type of delivery, according to selected characteristics: United States, 1980

Selected characteristics	All deliveries	Type of delivery	
		Normal	Complicated
Total[1]	100.0	48.9	51.1
Age			
10–19 years	100.0	49.9	50.1
20–24 years	100.0	48.6	51.4
25–29 years	100.0	49.7	50.3
30–34 years	100.0	48.9	51.1
35 years and over	100.0	43.0	57.0
Race			
White	100.0	48.5	51.5
Black and all other	100.0	47.1	52.9
Marital status			
Married	100.0	49.5	50.5
Never married	100.0	48.3	51.7
Separated, divorced, or widowed	100.0	48.5	51.5
Marital status unknown	100.0	38.8	61.2
Region			
Northeast	100.0	49.8	50.2
North Central	100.0	51.3	48.7
South	100.0	45.1	54.9
West	100.0	51.7	48.3
Bed size			
6–99 beds	100.0	58.6	41.4
100–199 beds	100.0	46.5	53.5
200–299 beds	100.0	51.9	48.1
300–499 beds	100.0	47.4	52.6
500 beds or more	100.0	44.6	55.4
Ownership			
Nonprofit	100.0	47.9	52.1
State and local government	100.0	52.1	47.9
Proprietary	100.0	49.0	51.0

[1] Includes data for which race was not stated.

Table 4. Average length of stay for women with deliveries discharged from short-stay non-Federal hospitals by selected characteristics: United States, 1980

Selected characteristics	All deliveries	Type of delivery	
		Normal	Complicated
Total[1]	3.8	3.0	4.5
Age			
10–19 years	3.7	2.9	4.5
20–24 years	3.6	2.9	4.3
25–29 years	3.7	3.0	4.5
30–34 years	4.0	3.2	4.7
35 years and over	4.3	3.5	5.2
Race			
White	3.7	3.0	4.4
Black and all other	3.9	3.0	4.7
Marital status			
Married	3.7	3.0	4.4
Never married	3.9	3.0	4.8
Separated, divorced, or widowed	3.7	2.8	4.5
Marital status unknown	4.5	3.5	5.1
Region			
Northeast	4.5	3.6	5.4
North Central	4.2	3.4	5.1
South	3.5	2.8	4.1
West	2.9	2.2	3.6
Bed size			
6–99 beds	3.0	2.6	3.7
100–199 beds	3.5	3.0	3.9
200–299 beds	3.6	3.0	4.2
300–499 beds	4.0	3.2	4.8
500 beds or more	4.3	3.2	5.1
Ownership			
Nonprofit	3.9	3.1	4.6
State and local government	3.5	2.8	4.3
Proprietary	3.2	2.5	3.9

[1] Includes data for which race was not stated.

table 6, a larger percent of the women who were sterilized had a complicated delivery; the type of delivery did not differ significantly among the women who were not sterilized. Although the average length of stay was longer for women who were sterilized than for those who were not, regardless of the type of delivery, the differences are not statistically significant. Women with a complicated delivery had a longer length of stay, on the average, than women with a normal delivery for both sterilized and nonsterilized women.

The number and percent distribution of first-listed and of all-listed obstetrical diagnoses and the average length of stay by first-listed diagnosis for women with complicated deliveries are shown in table 7. The two most common diagnoses were forceps or vacuum extractor delivery without mention of indication (that is, the reason for the use of these instruments was not stated on the face sheet of the medical record) and obstetrical trauma. About 18 percent of the women with a complicated delivery had a forceps or vacuum extractor delivery without mention of indication. The use of forceps or a vacuum extractor are two alternative methods to assist delivery.[5]

In the field of obstetrics two distinct viewpoints have emerged concerning the use of forceps—those holding one viewpoint advocate their use on a routine basis to assist in guiding the child through the birth canal, whereas the other group feels that the use of forceps is justified only when the delivery cannot proceed spontaneously.[4] Undoubtedly the practice of many obstetricians is between these two extremes. Since the reason for the use of forceps or a vacuum extractor was not stated for these 350,000 deliveries, one can only speculate as to how many of the deliveries could have proceeded spontaneously—or as to how many complications were averted because of their use.

Table 5. Number, percent distribution, and average length of stay for women with deliveries discharged from short-stay non-Federal hospitals by type of delivery, according to number of diagnoses: United States, 1980

Number of diagnoses	All deliveries	Type of delivery	
		Normal	Complicated
	Number in thousands		
All women with deliveries	3,762	1,841	1,921
Women with one diagnosis	2,903	1,703	1,199
Women with more than one diagnosis	860	138	722
	Percent distribution		
All women with deliveries	100.0	100.0	100.0
Women with one diagnosis	77.2	92.5	62.4
Women with more than one diagnosis	22.8	7.5	37.6
	Average length of stay in days		
All women with deliveries	3.8	3.0	4.5
Women with one diagnosis	3.4	2.9	4.0
Women with more than one diagnosis	5.1	3.8	5.3

The average length of stay for these 350,000 women was 3.3 days. This length is not significantly different from the average length of stay of 3.0 days for normal deliveries. However, these women did stay a significantly shorter time, on the average, than did all women with complicated deliveries.

Table 6. Number, percent distribution, and average length of stay for women with deliveries discharged from short-stay non-Federal hospitals, by type of delivery, according to sterilization status: United States, 1980

Sterilization status	All deliveries	Type of delivery	
		Normal	Complicated
	Number in thousands		
All women with deliveries	3,762	1,841	1,921
Sterilized	312	138	174
Not sterilized	3,450	1,703	1,747
	Percent distribution		
All women with deliveries	100.0	48.9	51.1
Sterilized	100.0	44.2	55.8
Not sterilized	100.0	49.4	50.6
	Average length of stay in days		
All women with deliveries	3.8	3.0	4.5
Sterilized	4.6	3.8	5.2
Not sterilized	3.7	2.9	4.4

Obstetrical trauma accounted for 15.4 percent of the first-listed and 14.8 percent of the all-listed obstetrical diagnoses for women with complications during

Table 7. Number, percent distribution, and average length of stay by first-listed obstetrical diagnosis, and number and percent distribution by all-listed diagnoses for women discharged with complicated deliveries: United States, 1980

[Discharges from short-stay non-Federal hospitals. Diagnostic groupings and code numbers from the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Diagnosis and ICD-9-CM code	Women with complicated deliveries				
	First-listed diagnosis			All-listed diagnoses	
	Number in thousands	Percent distribution	Average length of stay in days	Number in thousands	Percent distribution
All obstetrical diagnoses 640–648, 651–676	1,921	100.0	4.5	2,647	100.0
Forceps or vacuum extractor delivery without mention of indication 669.5	350	18.2	3.3	350	13.2
Obstetrical trauma 664–665	297	15.4	3.1	393	14.8
Trauma to perineum and vulva during delivery 664	241	12.6	3.0	308	11.6
First-degree perineal laceration 664.0	60	3.1	2.9	71	2.7
Second-degree perineal laceration 664.1	50	2.6	2.8	62	2.3
Third-degree perineal laceration 664.2	51	2.7	3.3	68	2.6
Fourth-degree perineal laceration 664.3	46	2.4	3.4	60	2.3
Other and unspecified trauma to perineum and vulva 664.4–664.9	34	1.8	2.7	47	1.8
Laceration of cervix and high vaginal laceration 665.3–665.4	39	2.0	3.1	59	2.2
Other obstetrical trauma 665.0–665.2, 665.5–665.9	17	0.9	3.7	26	1.0
Uterine scar from previous surgery 654.2	169	8.8	5.9	192	7.2
Early onset of delivery 644.2	135	7.0	4.8	154	5.8
Fetopelvic disproportion 653.4	113	5.9	5.9	153	5.8
Hypertension complicating pregnancy, childbirth, and the puerperium 642	105	5.5	6.1	151	5.7
Breech presentation 652.1–652.2, 669.6	88	4.6	4.9	120	4.5
Rupture of membranes 658.1–658.3	87	4.5	4.4	130	4.9
Cesarean delivery, without mention of indication 669.7	50	2.6	6.1	50	1.9
Postpartum hemorrhage 666	36	1.8	3.2	54	2.1
Umbilical cord complications 663	35	1.8	3.6	67	2.5
Anemia 648.2	32	1.7	3.9	71	2.7
Fetal distress 656.3	32	1.7	4.8	64	2.4
Antepartum hemorrhage, abruptio placentae, and placenta previa 641	28	1.5	6.4	53	2.0
Uterine inertia 661.0–661.2	24	1.3	4.5	50	1.9
Infections of genitourinary tract in pregnancy 646.6	20	1.1	4.7	56	2.1
Other obstetrical complications Residual	320	16.7	4.9	539	20.4

1980. Most of the trauma involved lacerations or other injury to the perineum or vulva. No significant differences were found among the various degrees of perineal lacerations (first, second, third, or fourth degree) that occurred.

Significantly longer average lengths of stay were found for the first-listed diagnoses of uterine scar from previous surgery; fetopelvic disproportion; hypertension complicating pregnancy, childbirth, and the puerperium; and cesarean delivery without mention of indication. All of these diagnoses are associated with or indications for cesarean delivery, which, of itself, necessitates a longer hospital stay.[4,6,7] A longer average length of stay is also observed for the diagnosis antepartum hemorrhage, abruptio placenta, and placenta previa; however, the difference is not statistically significant due to the relatively small number of these diagnoses.

When comparing the number of first-listed diagnoses with the number of all-listed diagnoses for specific diagnostic groups, some differences can be seen. For example, the number of all-listed diagnoses of infections of the genitourinary tract is almost three times higher than the number of first-listed diagnoses of this type. The numbers of all-listed diagnoses for the following conditions are twice as high as the numbers of first-listed diagnoses: anemia; uterine inertia; fetal distress; umbilical cord complications; and antepartum hemorrhage, abruptio placenta, and placenta previa. This is not surprising because many of these complications are either the result of or a contributing factor to other complications. For example, abruptio placenta may be caused by, among other things, an abnormality or tumor of the uterus, a short umbilical cord, and hypertension.[4] Uterine inertia causes prolonged labor and could also result in hemorrhage.[8] Anemia may be hereditary or, if not, has many causes such as infection, hemorrhage, and iron deficiency.[4]

Procedures associated with deliveries

The number and percent distribution of all-listed procedures performed on women with deliveries is shown in table 8. About half of the procedures performed were episiotomies, making this by far the most common obstetrical procedure. The majority of these episiotomies (76.7 percent) were performed without forceps or other instruments to assist delivery. Of the women with normal deliveries, 1,146,000, or 62.2 percent, had an episiotomy. Many physicians routinely perform episiotomies because it is felt that this procedure eliminates the risk of perineal lacerations and it spares the baby's head from beating against a possible perineal obstruction. The straight, clean incision of an episiotomy is preferable to a ragged laceration, the procedure shortens labor, and the possibility of a third-degree laceration is reduced. In addition, it is felt that the baby's head hitting against an obstruction for any period of time could result in brain damage.[4]

Table 8. Number and percent distribution of all-listed procedures for women discharged with deliveries by type of procedure: United States, 1980

[Discharges from short-stay non-Federal hospitals. Procedure groupings and code numbers from the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Procedure and ICD-9-CM code	*All-listed procedures*	
	Number in thousands	*Percent distribution*
All procedures	3,972	100.0
All obstetrical procedures[1] 72–75	3,526	88.8
Low forceps operation with and without episiotomy 72.0–72.1	482	12.1
Extraction procedures to assist delivery 72.2–72.5, 72.7–72.9, 73.2	127	3.2
Midforceps operation with and without episiotomy 72.2	38	1.0
Forceps rotation of fetal head 72.4	31	0.8
Breech extraction 72.5	21	0.5
Vacuum extraction 72.7	22	0.6
Other extraction procedures to assist delivery Residual	16	0.4
Episiotomy 72.1, 72.21, 72.31, 72.71, 73.6	2,012	50.7
Episiotomy only 73.6	1,543	38.8
Low forceps operation with episiotomy 72.1	428	10.8
Other instrumental delivery with episiotomy 72.21, 72.31, 72.71	41	1.0
Artificial rupture of membranes 73.0	120	3.0
Other procedures to assist delivery 72.6, 73.1	117	2.9
Cesarean section 74.0–74.2, 74.4–74.9	619	15.6
Diagnostic amniocentesis and fetal monitoring 75.1, 75.34	119	3.0
Manual removal of retained placenta 75.4	29	0.7
Repair of current obstetric laceration 75.5–75.6	350	8.8
Manual exploration of uterine cavity, postpartum 75.7	17	0.4
Other obstetrical procedures Residual	*2	*0.1
Bilateral destruction or occlusion of fallopian tubes 66.2–66.3	313	7.9
Dilation and curettage of uterus 69.02–69.09	17	0.4
Other procedures Residual	117	2.9
Incidental appendectomy 47.1	20	0.5
Insertion of indwelling urinary catheter 57.94	10	0.3

[1] Numbers will not add to total because episiotomies are listed in more than one category.

Others question the routine performance of episiotomies: they feel that if the delivery was allowed to proceed normally and in an unrushed manner, many episiotomies would be unnecessary. Moreover, since the site of the incision can often be bothersome and even painful during healing, they feel that episiotomies should be done only when necessary.[9]

Of all the procedures performed on women with deliveries, 12.1 percent were low forceps or vacuum extraction with or without episiotomy. As stated previously, some physicians feel that this type of procedure should be done routinely to forestall possible complications, while others feel it should be done only to assist a delivery that cannot proceed spontaneously.[4]

The number of cesarean sections performed in 1980 was 619,000, or 15.6 percent of the total number of procedures. This surgery was performed on 16.5 percent of all mothers and 32.2 percent of the women with complicated deliveries.

The incidence of cesarean sections has been increasing since the late sixties, sparking much debate and discussion about the necessity for this procedure. During 1965 only about 5 percent, or 174,000, of the women with deliveries had a cesarean section. In 1980, 619,000 women, about 16 percent of all women who delivered, underwent a cesarean section. Many explanations have been given for this trend—for example, the increased use of fetal monitoring (and the subsequent identification of potential complications that would otherwise be unanticipated); the policy of "once a cesarean always a cesarean" (that is, once a woman has this procedure, all subsequent deliveries should be by cesarean section); and the feeling that a cesarean section is preferable to a vaginal delivery for difficult deliveries, as a response to indications of fetal distress, or for breech presentations.[4,6,7,10]

Repair of current obstetric laceration was one of the more frequently performed obstetrical procedures; the 350,000 performed made up 8.8 percent of all procedures. Other obstetrical procedures of interest that were performed relatively frequently were artificial rupture of membranes (120,000) and diagnostic amniocentesis and fetal monitoring (119,000). Each of these categories made up 3 percent of the total procedures performed.

There were 446,000 nonobstetrical procedures performed on women who delivered in 1980. These nonobstetrical procedures made up 11.2 percent of all the procedures performed. Most of these (313,000) were bilateral destruction or occlusion of fallopian tubes (sterilization).

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Technical notes

Source of data

The National Hospital Discharge Survey (NHDS) encompasses patients discharged from short-stay hospitals, exclusive of military and Veterans Administration hospitals, located in the 50 States and the District of Columbia. Only hospitals with six beds or more and an average length of stay of less than 30 days for all patients are included in the survey. Discharges of newborn infants are excluded from this report.

The universe of the survey consisted of 6,965 short-stay hospitals contained in the 1963 Master Facility Inventory of Hospitals and Institutions. New hospitals were sampled for inclusion in the survey in 1972, 1975, and 1977. In all, 544 hospitals were sampled in 1980. Of these hospitals, 72 refused to participate, and 52 were out of scope. The 420 participating hospitals provided approximately 224,000 abstracts of medical records.

Sample design

All hospitals with 1,000 beds or more in the universe of short-stay hospitals were selected with certainty in the sample. All hospitals with fewer than 1,000 beds were stratified, the primary strata being 24 size-by-region classes. Within each of these 24 primary strata, the allocation of the hospitals was made through a controlled selection technique so that hospitals in the sample would be properly distributed with regard to type of ownership and geographic division. Sample hospitals were drawn with probabilities ranging from certainty for the largest hospitals to 1 in 40 for the smallest hospitals.

Sample discharges were selected within the hospitals using the daily listing sheet of discharges as the sampling frame. These discharges were selected by a random technique, usually on the basis of the terminal digit or digits of the patient's medical record number, a number assigned when the patient was admitted to the hospital. The within-hospital sampling ratio for selecting sample discharges varied inversely with the probability of selection of the hospital.

Data collection and estimation

The sample selection and the transcription of information from the hospital records for abstract forms were performed by the hospital staff or by representatives of the National Center for Health Statistics or by both. The data were abstracted from the face sheets of the medical records. All discharge diagnoses and procedures were listed on the abstract in the order of the principal one, or the first-listed one if the principal one was not identified, followed by the order in which all other diagnoses or procedures were entered on the face sheet of the medical record.

Statistics produced by the NHDS are derived by a complex estimating procedure. The basic unit of estimation is the sample inpatient discharge abstract. The estimating procedure used to produce essentially unbiased national estimates in the NHDS has three principal components: inflation by reciprocals of the probabilities of sample selection, adjustment for nonresponse, and ratio adjustment to fixed totals. These components of estimation are described in appendix I of two earlier publications.[11,12]

Sampling errors and rounding of numbers

The standard error is a measure of the sampling variability that occurs by chance because only a sample, rather than an entire universe, is surveyed. The relative standard error of the estimate is obtained by dividing the standard error by the estimate itself and is expressed as a percent of the estimate. Table I shows relative standard errors for discharges, first-listed diagnosis, and all-listed disgnoses. Relative standard errors for all-listed procedures are as follows:

Size of estimate	*Relative standard error*
1,000	35.5
2,500	26.7
5,000	21.9
10,000	18.3
25,000	14.6
50,000	12.6
100,000	10.9
500,000	8.2
1,000,000	7.4
4,000,000	6.1

The standard errors for average lengths of stay are shown in table II.

Estimates have been rounded to the nearest thousand. For this reason detailed figures within tables do not always add to the totals. Percents and average lengths of stay were calculated from original, unrounded figures and will not necessarily agree precisely with percents or average lengths of stay calculated from rounded data.

NOTE: A list of references follows the text.

Table I. Approximate relative standard errors of estimated number of discharges, first-listed diagnosis, and all-listed diagnoses, by selected patient and hospital characteristics

Size of estimate	Ownership of hospital		Bed size	All other characteristics
	Proprietary or State and local government	Nonprofit	less than 100	
	Relative standard error			
10,000	35.7	19.9	20.7	16.3
50,000	27.9	15.2	13.1	10.2
100,000	25.5	13.7	11.0	8.5
300,000	22.4	11.9	8.6	6.6
500,000	21.2	11.2	7.8	5.9
1,000,000	19.9	10.4	6.8	5.1
4,000,000	17.7	9.2	5.4	4.0

Table II. Approximate standard errors of average lengths of stay

Number of discharges or first-listed diagnosis	Average length of stay in days		
	2	6	10
	Standard error in days		
10,000	0.7	1.2	1.7
50,000	0.3	0.7	1.0
100,000	0.3	0.6	0.9
500,000	0.2	0.5	0.8
1,000,000	0.2	0.5	0.8
5,000,000	0.2	0.5	0.8

Tests of significance

In this report, the determination of statistical inference is based on the two-tailed Bonferroni test for multiple comparisons. Terms relating to differences such as "higher" and "less" indicate that the differences are statistically significant. Terms such as "similar" or "no difference" mean that no statistically significant difference exists between the estimates being compared. A lack of comment on the difference between any two estimates does not mean that the difference was tested and found to be not significant.

Definition of terms

Patient.—A person who is formally admitted to the inpatient service of a short-stay hospital for observation, care, diagnosis, or treatment. In this report the number of patients refers to the number of discharges during the year including any multiple discharges of the same individual from one or more short-stay hospitals.

Obstetrical diagnosis.—A diagnosis relating to conditions arising from or affecting the management of pregnancy, childbirth, and the puerperium (the period following childbirth). These are code numbers 640–676 of the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM).[3]

Normal delivery.—Delivery without abnormality or complication of pregnancy, childbirth, or the puerperium, and with spontaneous cephalic delivery (that is, presentation of the child headfirst and delivery of the child without external aid). No mention of fetal manipulation or instrumentation is made. ICD-9-CM code 650 is assigned.

Complicated delivery.—All deliveries not considerd normal, including deliveries of multiple gestation. ICD-9-CM code numbers 640–648 and 651–676 are assigned.

First-listed diagnosis.—The coded diagnosis identified as the principal diagnosis or listed first on the face sheet of the medical record. The number of first-listed diagnoses is equivalent to the number of discharges.

All-listed diagnoses.—The estimated number of discharge (or final) diagnoses, up to a maximum of seven, that are listed on the face sheet of the medical record for inpatients discharged from non-Federal short-stay hospitals during the year.

Procedure.—One or more surgical or nonsurgical operations, procedures, or special treatments assigned by the physician to the medical record of patients discharged from the inpatient service of short-stay hospitals. In the NHDS all terms listed on the face sheet (summary sheet) of the medical record under the captions "operation," "operative procedures," "operations and/or special treatments," and the like are transcribed in the order listed. A maximum of four procedures are coded.

Average length of stay.—The total number of patient days accumulated at time of discharge by patients discharged during the year divided by the number of patients discharged.

Race.—A term used to classify patients into one of two groups: "white" and "all other." The "all other" classification includes all categories other than white. Mexican and Puerto Rican patients are included in the white category unless specifically identified as "all other."

Type of ownership of hospital.—The type of organization that controls and operates the hospital. Hospitals are grouped as follows:

- *Voluntary nonprofit.*—Hospitals operated by a church or another nonprofit organization.
- *Government.*—Hospitals operated by State or local governments.
- *Proprietary.*—Hospitals operated by individuals, partnerships, or corporations for profit.

NOTE: A list of references follows the text.

Geographic region.—One of the four geographic regions of the United States corresponding to those used by the U.S. Bureau of the Census:

Region	*States included*
Northeast	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania
North Central	Michigan, Ohio, Illinois, Indiana, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas
South	Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas
West	Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Hawaii, and Alaska

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 standards of reliability or precision (more than 30-percent relative standard error)
#	Figure suppressed to comply with confidentiality requirements

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Blood Pressure Levels and Hypertension in Persons Ages 6–74 Years: United States, 1976–80

By Michael Rowland and Jean Roberts, Division of Health Examination Statistics

Hypertension or substantially elevated blood pressure is one of the more prevalent chronic conditions known to increase the risk of developing circulatory diseases, particularly heart disease and stroke.[1–4] Circulatory diseases are the leading cause of death and of hospitalization in the United States. This report presents national estimates for blood pressure levels, the prevalence of known and previously undiagnosed hypertension, and the extent of use of antihypertensive medication in the general U.S. population during the period 1976–80. The data are from the second National Health and Nutrition Examination Survey, which used a probability cross-sectional sample of the civilian noninstitutionalized population ages 6–74 years in the United States, including Alaska and Hawaii.[5] Trends since 1960 in the extent of treatment, awareness, and control among those with hypertension are also shown.

Methods

The National Health and Nutrition Examination Survey of 1976–80 (NHANES II) is the fifth in a series of programs of the National Center for Health Statistics carried out over the past 20 years that were designed to collect a broad range of morbidity data and related health information through direct standardized examinations, histories, tests, and procedures used in clinical practice as previously described.[6–10]

In this latest survey, three blood pressure measurements were obtained on each person examined at the 64 sample locations throughout the country. The examining physicians used standardized methods based on recommendations of the American Heart Association.[11]

Of the 22,732 sample persons selected for the NHANES II to represent the 186.7 million persons ages 6–74 years in the U.S. population as of the midpoint of the survey (March 1, 1978), 16,204 persons or 71.3 percent were examined.

Examination surveys lose information not only through the failure to examine all sample persons, but also through the failure to obtain and record all items of information for those examined. In this survey, 1 percent of the values for systolic or diastolic or both measurements were missing for each of the three blood pressure determinations. When data were missing, imputation was used to minimize the effect on population estimates by considering the person's age, sex, race, arm girth, weight, height, and any other systolic or diastolic measurements recorded.

Additional information regarding the sample design, estimation procedure, tests of significance, sources of variation in blood pressure measures, and sampling variability of the national estimates is included in the "Technical notes."

For trend analyses, the national estimates from NHANES II blood pressure and medical history data are compared with those from the National Health Examination Surveys (NHES I, II, and III) and NHANES I, each based on findings for national probability samples of the designated civilian noninstitutionalized target population. NHES I of 1960–62 used a sample of adults 18–74 years of age; NHES II of 1963–65, children 6–11 years of age; and NHES III of 1966–70, youths 12–17 years. In NHANES I of 1971–74 the sample was for persons 6–24 years of age; NHANES I of 1971–75 and NHANES IA of 1974–75 for adults

25–74 years of age. Comparisons involving the use of antihypertensive medication are limited findings from NHANES II, NHANES IA, and NHES I because the question on medication use was identical only for these surveys. The survey data included in the trend analyses are summarized in table 1.

Findings

Systolic pressures

Age.—Mean systolic blood pressure estimates for the U.S. population in 1976–80 were higher in succeeding age groups ranging from 101.3 mm Hg among children ages 6–11 years to 144.3 mm Hg among the oldest adults in the study, those ages 65–74 years (table 2).

Sex.—At 12 through 54 years of age the mean levels of systolic pressure among males significantly exceeded those for females, but at 65 through 74 years, the mean levels for women were higher.

Race.—At 18–24 years of age, systolic mean pressures for white men exceeded those for black men, but at 35–44 and 55–64 years, the mean systolic levels of black men were higher. Mean systolic blood pressures of white females 12–17 years of age exceeded those for black females, but at 35–74 years of age, systolic levels of black women were higher.

Diastolic pressures

Age.—Mean diastolic pressure values were generally higher in succeeding age groups and ranged from 64.3 mm Hg among children ages 6–11 years to 83.5 mm Hg at ages 55–64 years (table 3).

Sex.—Mean levels for men significantly exceeded levels for women at ages 18 through 64 years.

Race.—At ages 35–74 years, mean diastolic pressures for black men and women exceeded those for white men and women, respectively.

Elevated blood pressure levels

The findings for elevated blood pressure are summarized for the variables age, sex, and race in this section. In addition, data are presented regarding the treatment (diagnosis and medication) for elevated blood pressure and the prevalence of hypertension. Elevated blood pressure level, for the purpose of this report, is defined differently for people under 25 years of age than for people 25–74 years of age. The definitions of all terms used in this section of the report (as well as in the section entitled "Secular trends") are presented in table 4 with a summary of the prevalence estimates discussed in this section.

Age.—In 1976–80, 0.4 percent of U.S. children ages 6–11 years and 3.6 percent of U.S. youths ages 12–17 years, or 0.9 million children and youths in the general population, were found to have elevated blood pressure levels as defined in table 4 (systolic pressure of at least 140 mm Hg or diastolic pressure of at least 90 mm Hg or both). Among young adults ages 18–24 years, 8.9 percent or 2.5 million had elevated blood pressure of this level.

At ages 25–74 years, 14.5 percent or 16.5 million had elevated levels—systolic pressure of at least 160 mm Hg and/or diastolic pressure of at least 95 mm Hg. Among adults the prevalence rates for this condition were higher in each succeeding age group ranging from 5.5 percent at ages 25–34 years to 26.6 percent at ages 65–74 years (table 5).

Sex.—Among young adults ages 18–24 years, prevalence of elevated blood pressure was significantly higher among men (15.0 percent) than women (3.2 percent). At ages 25–64 years the prevalence (as defined in table 4) was higher among men than women, although the differences in rates in the 10-year age groups within this age range were not consistently large enough to be significant at the 5-percent probability level.

Race.—Among white adults ages 18–24 years, the rates were higher for men than women but rates were similar for black men and women. At ages 25–74 years, elevated levels were significantly more prevalent among black than white adults (22.8 per 100 compared with 13.5). Among white, but not black, adults the rates were significantly higher for men than women at 25–74 years of age.

Treatment.—The percent of those with elevated blood pressure who were reported as never having been diagnosed by a doctor was higher among youths ages 12–17 years (90 percent) and young adults ages 18–24 years (78 percent) than among the adults ages 25–74 years (40 percent). However, an estimated 27 percent of the adults ages 25–74 years who were in the high risk group (diastolic pressure of at least 105 mm Hg) had never been told by a doctor that they had high blood pressure.

About one-third of the adults 25–74 years of age with elevated blood pressure reported they were currently taking prescribed antihypertensive medication (table 6). This would include persons for whom such treatment had been prescribed so recently that the medication had not yet taken full effect as well as those for whom the medication did not reduce their blood pressure below the level defined as elevated. Forty percent of the adults with diastolic pressures that placed them in the high risk group were on antihypertensive medication.

Hypertension

Assuming that those adults whose blood pressure was not elevated but who reported current use of antihypertensive medication were keeping their blood pressure below the critical level (systolic of 160 mm Hg

and/or diastolic of 95 mm Hg) through medication; that is, controlling their hypertension, there would have been 25.1 million U.S. adults ages 25–74 years in 1976–80 with hypertension, a rate of 22.0 per 100. This rate includes the 14.5 per 100 whose pressure was still elevated at the time of the survey and the 7.5 per 100 taking medication whose pressure was not then elevated.

Secular trends

Mean blood pressure.—Both mean systolic and diastolic blood pressure levels of U.S. children and youths in 1976–80 were similar to the levels found in 1971–74, but were lower than the levels for children and youths in 1963–65 and 1966–70, respectively.

Mean systolic blood pressure levels of adults in 1976–80 were significantly lower than mean levels at the time of the previous national surveys in 1960–62 and 1971–75.[12] The decrease in systolic pressure levels from those found among adults in 1971–75 was significant across the age range 25–74 years and from 1960–62 across ages 35–74 years (figure 1). The difference in mean levels reflects a change primarily in the systolic blood pressure of the older age groups. In 1960–62 the difference in systolic pressure between people ages 18–24 and those ages 65–74 was 38.4 mm Hg. In 1976–80 the difference was only 27.2 mm Hg.

Mean diastolic levels among adults in 1976–80 were significantly lower than the mean levels in 1971–75 but were essentially unchanged from the mean levels in 1960–62. In other words, the 1971–75 estimates were higher than estimates for the earlier and later time periods.

Mean systolic and diastolic blood pressure levels were significantly lower for both white and black adults ages 25–74 years in 1976–80 than in 1971–75. This difference was generally consistent across age groups for both men and women. Mean systolic blood pressure levels for each of the four race-sex groups of adults were also generally lower in 1976–1980 than in 1960–62, but the diastolic blood pressure levels in 1976–80 were essentially similar to the levels in 1960–1962 for each of the four race-sex groups.

Elevated blood pressure.—The prevalence of elevated blood pressure in children 6–11 years and youths 12–17 years in 1976–80 (0.4 and 3.6 per 100, respectively) was lower than in 1971–74 (0.6 for children and 6.4 for youths).[13] However, the difference was statistically significant only for youths.

For adults ages 25–74, the prevalence rate of 14.5 per 100 in 1976–80 was significantly less than the age-adjusted rates of 16.7 and 17.7 per 100 in 1960–62 and 1971–75,[12] respectively. Among the individual age groups the decrease was large enough to be statistically significant only at ages 55–74 years (figure 2). The downward trend occurred for three of the four race-sex groups. The differences in the age-adjusted prevalence of elevated blood pressure between the 1976–80 survey and the two earlier surveys were statistically significant for white and black women and black men.

High Risk.—Blood pressure high enough to put adults into the high risk category was slightly but not significantly less prevalent in 1976–80 than in 1960–62 (age-adjusted rate of 2.8 versus 3.5 per 100); however, it was significantly less than in 1971–75 (age-adjusted rate of 4.5 per 100).

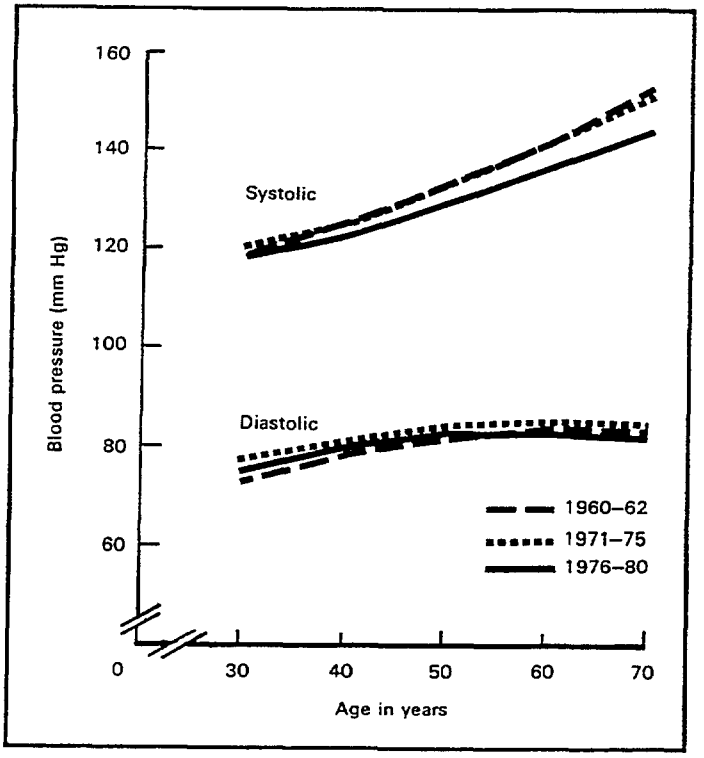


Figure 1. Mean blood pressure in adults ages 25–74 years: United States, 1960–62, 1971–75, and 1976–80

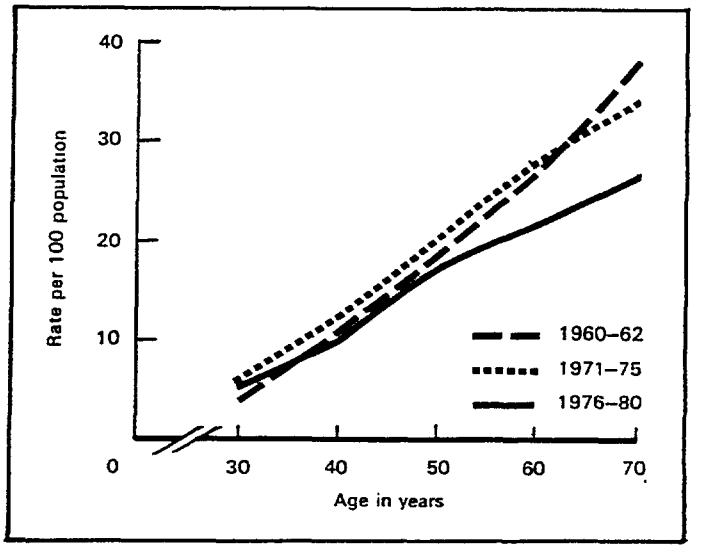
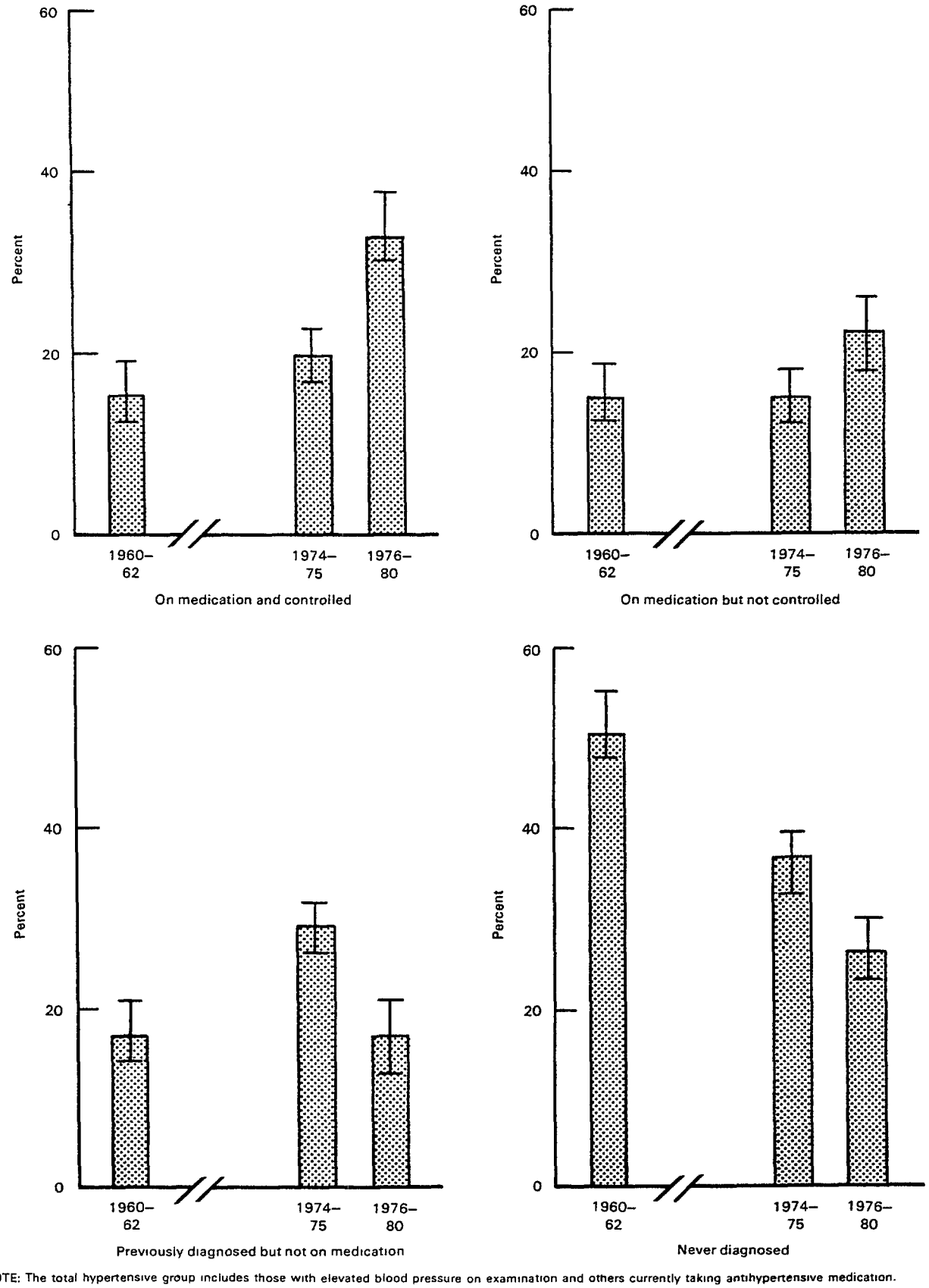


Figure 2. Prevalence rates for elevated blood pressure among adults ages 25–74 years, by age: United States, 1960–62, 1971–75, and 1976–80



NOTE: The total hypertensive group includes those with elevated blood pressure on examination and others currently taking antihypertensive medication.

Figure 3. Percent of total adults ages 25–74 years with hypertension by previous diagnosis and medication status: United States, 1960–62, 1974–75, and 1976–80

Treatment.—Among those adults 25–74 years with elevated blood pressure, a higher percent reported that they had been told by a doctor that they had high blood pressure in 1976–80 (60 percent) than in 1971–75 (51 percent) or in 1960–62 (45 percent). For the high risk group, the percent previously diagnosed was also higher in 1976–80 (73 percent) than in 1971–75 (64 percent) and in 1960–62 (59 percent). The increase in awareness of their condition among those with elevated blood pressure was large enough to be statistically significant. The percent of adults 25–74 years with elevated blood pressure who were currently taking prescribed antihypertensive medication in 1976–80 (33.5 percent) was higher than in 1974–75 (25.7 percent) and 1960–62 (23.0 percent).

Hypertension.—The prevalence of hypertension (as defined in table 4) among adults 25–74 years has not changed significantly since 1960–62 except for the increase among white men (table 7). However, among those with hypertension, the percent never diagnosed by a physician as having hypertension or high blood pressure has dropped significantly from 51 percent in 1960–62 (age-adjusted) to 27 percent in 1976–80 (figure 3). The decrease is consistent among white and black men and women. This decrease in unawareness or, conversely, increase in awareness since 1960–62 has been accompanied by an increase in the proportion of hypertensives who reported they were currently taking antihypertensive medication and an increase in the proportion taking such medication whose blood pressure at the time of the survey was below the elevated level. More than half the increase in awareness occurred prior to 1974–75; however, nearly 80 percent of the increase in the use of antihypertensive medication has occurred since the 1974–75 period.

Discussion

The findings indicate that there has been increased awareness, treatment, and control of hypertension during the 1970's. This has occurred at a time of decline in mortality from circulatory diseases and their two major components—coronary heart disease and stroke. Although many factors may be responsible for this decline, the improved control of blood pressure is considered a major contributor.[14] Kannel[15] has recently estimated that effective use of antihypertensive agents between 1968 and 1978 could be responsible for perhaps a third of the reduction in cardiovascular mortality during the same decade. Even prior to the era of decreased mortality from cardiovascular disease, Moriyama, Krueger, and Stamler[16] noted that differential trends in coronary heart disease among men and women, both black and white, in the 1940's and 1950's might be associated with the differential effects of hypertension on coronary heart disease risk and mortality.

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Table 1. Survey data used in study

Survey program	Time period	Age of examinees	Number of blood pressure measurements	Current use of antihypertensive medication
NHANES II	1976–80	12–74 years	3	Yes
NHANES II	1976–80	6–11 years	3	No
NHANES I	1971–75	25–74 years	3	No
NHANES IA	1974–75	25–74 years	3	Yes
NHANES I	1971–74	6–24 years	1	No
NHES III	1966–70	12–17 years	2	No
NHES II	1963–65	6–11 years	2	No
NHES I	1960–62	18–74 years	3	Yes

Table 2. Mean systolic blood pressure levels of persons 6–74 years by race, age, and sex, with standard errors of the means: United States, 1976–80

Race and age	Both sexes		Male		Female	
	Mean	Standard error of mean	Mean	Standard error of mean	Mean	Standard error of mean
	Blood pressure in mm Hg					
All races[1]						
6–11 years	101.3	0.73	101.2	0.74	101.4	0.89
12–17 years	112.8	0.71	114.8	0.81	110.8	0.79
18–24 years	117.1	0.62	123.7	0.82	110.9	0.64
25–34 years	118.2	0.66	124.6	0.80	112.2	0.67
35–44 years	122.6	0.78	126.1	0.99	119.4	0.85
45–54 years	129.9	0.66	131.3	0.84	128.6	0.96
55–64 years	137.4	0.83	137.3	0.89	137.4	1.03
65–74 years	144.3	0.83	142.3	0.85	145.8	0.95
White						
6–11 years	101.4	0.70	101.5	0.70	101.4	0.88
12–17 years	113.4	0.74	115.3	0.90	111.5	0.80
18–24 years	117.4	0.63	124.3	0.84	110.9	0.64
25–34 years	118.4	0.69	125.0	0.82	112.1	0.70
35–44 years	122.1	0.81	125.8	1.08	118.6	0.82
45–54 years	129.1	0.71	130.9	0.83	127.4	1.06
55–64 years	136.7	0.83	136.9	0.89	136.6	1.02
65–74 years	143.9	0.89	142.2	0.90	145.3	1.06
Black						
6–11 years	101.7	1.16	100.8	1.35	102.6	1.41
12–17 years	110.9	0.93	112.9	1.40	108.8	0.97
18–24 years	115.9	1.00	120.6	1.41	112.1	1.19
25–34 years	118.5	1.10	124.1	1.63	114.0	1.46
35–44 years	128.2	1.37	131.2	2.30	125.8	1.82
45–54 years	137.0	1.55	135.6	2.40	138.2	2.10
55–64 years	144.9	2.20	143.8	2.63	145.8	2.77
65–74 years	147.5	1.45	142.4	1.10	151.4	2.30

[1] Includes other racial groups in addition to white and black.

NOTE: All blood pressures are the average of 3 measurements.

Table 3. Mean diastolic blood pressure levels of persons 6–74 years by race, age, and sex, with standard errors of the means: United States, 1976–80

Race and age	Both sexes		Male		Female	
	Mean	Standard error of mean	Mean	Standard error of mean	Mean	Standard error of mean
	Blood pressure in mm Hg					
All races[1]						
6–11 years	64.3	0.46	64.3	0.56	64.1	0.46
12–17 years	69.8	0.44	70.1	0.40	69.5	0.57
18–24 years	72.8	0.36	75.6	0.44	70.2	0.45
25–34 years	75.9	0.51	79.2	0.64	72.8	0.53
35–44 years	80.0	0.59	82.4	0.70	77.8	0.61
45–54 years	83.4	0.58	85.3	0.63	81.6	0.71
55–64 years	83.5	0.51	85.0	0.57	82.3	0.53
65–74 years	82.2	0.49	82.5	0.53	81.9	0.58
White						
6–11 years	64.3	0.45	64.3	0.52	64.2	0.48
12–17 years	69.8	0.46	70.0	0.42	69.6	0.62
18–24 years	72.8	0.40	75.7	0.48	70.0	0.45
25–34 years	75.8	0.54	79.2	0.65	72.5	0.56
35–44 years	79.5	0.58	82.0	0.72	77.1	0.59
45–54 years	82.9	0.59	85.0	0.64	80.9	0.73
55–64 years	83.0	0.55	84.4	0.61	81.7	0.58
65–74 years	81.8	0.54	82.2	0.56	81.5	0.62
Black						
6–11 years	64.3	0.99	64.8	1.37	63.7	1.16
12–17 years	70.3	0.56	70.9	0.94	69.7	0.56
18–24 years	72.8	0.63	74.9	0.96	71.0	0.96
25–34 years	77.2	0.74	80.2	1.46	74.7	0.98
35–44 years	83.9	1.24	86.1	1.84	82.1	1.48
45–54 years	88.5	1.20	88.0	1.89	89.0	1.51
55–64 years	88.5	0.79	90.4	1.23	86.8	1.00
65–74 years	85.5	0.79	85.5	0.72	85.5	1.22

[1]Includes other racial groups in addition to white and black.

NOTE: All blood pressures are the average of 3 measurements.

Table 4. Definition of terms based on age, blood pressure measurement or questionnaire responses or both, and prevalence estimates for groups corresponding to these terms: United States, 1976–80

Term	Age	Measure	Prevalence estimate
			Percent
Normotension	25–74 years	Systolic below 140 mm Hg and diastolic below 90 mm Hg	69.3
Elevated blood pressure	6–24 years	Systolic 140 mm Hg or greater and/or diastolic 90 mm Hg or greater	0.4 (6–11 years) 3.6 (12–17 years) 8.9 (18–24 years)
	25–74 years	Systolic 160 mm Hg or greater and/or diastolic 95 mm Hg or greater	14.5
High risk	25–74 years	Diastolic at least 105 mm Hg	2.8
Hypertension	25–74 years	Systolic 160 mm Hg or greater and/or diastolic 95 mm Hg or greater, plus those with pressures below these levels at the time of examination who reported on medical history that they were currently taking antihypertensive medication	22.0
On medication	25–74 years	Persons who reported on medical history that they were currently taking antihypertensive medication regardless of blood pressure level on examination	12.3
Never diagnosed	12–74 years	Persons with elevated blood pressure among those who reported on medical history that they had never been told by a medical doctor that they had ever had hypertension (or high blood pressure)	90.0 (12–17 years) 77.7 (18–24 years) 40.4 (25–74 years)

Table 5. Prevalence rates of elevated blood pressure levels[1] for persons 25–74 years by race, age, and sex, with standard errors of the rates: United States, 1976–80

Race and age	Both sexes		Male		Female	
	Rate per 100 population	Standard error of rate	Rate per 100 population	Standard error of rate	Rate per 100 population	Standard error of rate
All races[2]	14.5	0.84	16.4	1.04	12.8	0.81
25–34 years	5.5	0.78	8.7	1.31	2.6	0.56
35–44 years	9.9	1.07	11.8	1.67	8.2	0.98
45–54 years	17.8	1.24	20.9	1.73	14.9	1.71
55–64 years	21.7	1.47	23.7	1.92	20.0	1.43
65–74 years	26.6	1.34	24.9	1.54	27.9	1.76
White	13.5	0.86	15.9	1.12	11.4	0.79
25–34 years	5.3	0.87	8.4	1.43	2.3	0.57
35–44 years	8.5	1.04	10.6	1.75	6.5	0.75
45–54 years	16.5	1.19	21.2	1.79	12.1	1.62
55–64 years	20.2	1.57	22.3	2.07	18.3	1.58
65–74 years	25.5	1.43	24.5	1.60	26.3	1.77
Black	22.8	1.62	22.4	1.87	23.2	2.29
25–34 years	7.6	1.14	11.7	2.30	4.3	1.46
35–44 years	19.6	2.74	22.3	5.01	17.6	4.18
45–54 years	30.7	4.61	23.0	5.37	37.3	5.50
55–64 years	37.6	3.97	39.2	3.89	36.4	6.06
65–74 years	36.5	3.26	27.5	3.01	43.4	5.62

[1]Systolic blood pressure of at least 160 mm Hg and/or diastolic blood pressure of at least 95 mm Hg.
[2]Includes other racial groups in addition to white and black.

NOTE: All blood pressures are the average of 3 measurements.

Table 6. Number and percent of persons ages 25–74 years by responses to selected medical history items and specified blood pressure levels, with standard error of the percent: United States, 1976–80

Medical history items	Systolic 160 mm Hg or greater and/or diastolic 95 mm Hg or greater			At least 105 mm Hg diastolic		
	Population in thousands	Percent	Standard error of percent	Population in thousands	Percent	Standard error of percent
Total 25–74 years	16,541	100.0	...	3,253	100.0	...
Have you ever been told by a doctor that you had high blood pressure or hypertension?						
Yes	9,863	59.6	1.50	2,363	72.6	3.19
During the past 12 months, about how many times have you seen or talked to a doctor about your high blood pressure or hypertension?						
One or more times	7,144	43.1	1.21	1,657	50.9	3.71
Are you now taking any medicine prescribed by a doctor for your high blood pressure or hypertension?						
Yes	5,535	33.5	1.46	1,294	39.8	3.88

NOTE: All blood pressures are the average of 3 measurements.

Table 7. Prevalence rates of hypertension for persons 25–74 years of age by treatment history, race, and sex, with standard errors of the percent: United States, 1960–62, 1974–75, and 1976–80

Race and sex	*Hypertensive*[1]			*Never diagnosed*[2]			*On medication*			*On medication and controlled*[3]		
	1960–62	*1974–75*	*1976–80*	*1960–62*	*1974–75*	*1976–80*	*1960–62*	*1974–75*	*1976–80*	*1960–62*	*1974–75*	*1976–80*
	Percent of population[4]			Percent of total with hypertension[1,4]								
All people 25–74 years[5]	20.3	22.1	22 0	51.1	36.4	26.6	31.3	34.2	56.2	16.0	19.6	34.1
White men	16.3	21.4	21.2	57.6	42.3	40.6	22.4	25.9	38.3	11.8	15.1	20.9
White women	20.4	19.6	20.0	43.9	29.7	25.2	38.2	48.5	58.6	21.9	28.1	40.3
Black men	31.8	37.1	28.3	70.5	41.0	35.7	18.5	*24.0	40.9	5.0	*12.7	16.1
Black women	39.8	35.5	39.8	35.1	28.9	14.5	48.1	36.4	60.6	20.2	*22.3	38.3
	Standard error of percent											
All people 25–74 years[5]	0.83	1.26	0.68	1.66	1.70	1.53	1.62	2.21	1.99	1.65	1.49	2.02
White men	0.95	2.19	1.04	3.75	2.63	1.80	3.07	3.22	2.47	2.59	2.56	2.01
White women	1.07	1.14	0.66	2.77	2.08	1.97	2.24	3.61	2.40	2.24	2.93	2.99
Black men	3.37	5.94	1.86	7.07	10.38	4.27	5.53	10.79	4.52	2.18	6.69	3.72
Black women	3.73	3.60	1.96	3.72	7.42	2.73	3.87	8.30	3.22	3.21	7.93	4.35

[1] Elevated blood pressure (that is, a systolic measurement of at least 160 mm Hg or a diastolic measurement of at least 95 mm Hg) or taking antihypertensive medication.
[2] Reported never told by physician that he or she had high blood pressure or hypertension.
[3] Subset of "On medication" group; those taking antihypertensive medication whose blood pressure was not elevated at the time of the examination.
[4] Age adjusted by direct method to the population at midpoint of the 1976–80 National Health and Nutrition Examination Survey.
[5] Includes all other races not shown separately.

Technical notes

Sample design

The information presented in this report is based on data from the direct standardized physical examinations, tests, measurements, and questionnaires collected in the second National Health and Nutrition Examination Survey (NHANES II) during 1976–80. The target population of NHANES II was the civilian noninstitutionalized population of the United States, including Alaska and Hawaii, ages 6 months through 74 years.

NHANES II used a multistage probability design that involved selection of primary sampling units (PSU's); households; eligible persons; and, finally, sample persons. The sample design provided for oversampling among persons 6 months–5 years of age, persons 60–74 years of age, and persons living in poverty areas. Under contract to the National Center for Health Statistics and according to rigorous agreed specifications, the U.S. Bureau of the Census selected the NHANES II sample of 27,801 persons. Of this total sample, 20,322 (73.1 percent) were examined.

The data in this report are presented as population or subdomain estimates. Examination findings for each sample person have been inflated by the reciprocal of the probability of selecting a person, adjusted for persons who were not examined, and poststratified so that final population estimates closely approximate the independent U.S. Bureau of the Census estimates for the civilian noninstitutionalized population of the United States by race, sex, and age as of the midpoint of the study, March 1, 1978.

Sampling errors

The estimates presented in this report are based on a sample of the target population rather than on the entire population. Thus the estimated values may differ from the values that would be obtained from examining the entire target population. Assuming that an estimate is unbiased, the expected magnitude of the sampling error is measured by a statistic called the standard error. A variant of the pseudoreplication method was used to produce the estimates of standard errors for this report.[17]

Standardized values

Means and rates have been adjusted for age to the U.S. civilian noninstitutionalized population in 1976–80, where indicated, using the direct method of standardization.[18] Standardization removes the effect that differences in the age distributions may have on the comparison of subgroup rates.

Tests of significance

The procedure used in this report for testing the significance of the difference between two means consisted of dividing this difference by the standard error of the difference (Z-statistic). An approximation of the standard error of a difference $d = x - y$ between the two statistics x and y is given by the formula $S_d = (S_y^2 + S_x^2)^{1/2}$ where S_x and S_y are estimates, respectively, of the actual standard errors. When the two groups or measures are positively or negatively correlated, this equation yields an overestimate or underestimate, respectively, of the actual standard error of the difference.

If more than one comparison is implied, the Bonferroni test[19] was used to test for significance. In the Bonferroni test the Z-statistic is computed for each component in the multiple comparison, but each individual significance level is adjusted to account for the increased likelihood of a significant result from multiple tests.

The 5-percent probability level has been used for the determination of statistical significance in this report.

Order of measurements

The examinee's first blood pressure determination in the NHANES II of 1976–80 was made before the physical examination with the examinee sitting, the second at the end of the examination with the examinee supine, and the third immediately after the second with the examinee sitting on the edge of the examination table. This examination protocol was also used in the NHANES I of 1971–75. In the NHES of 1960–62, the order of the measurements in relation to the examination was similar to that in the present study, but all three were taken in a sitting position.

Initial blood pressure values for examinees on whom more than one reading was obtained in the National Health Examination Survey during the 1960's were generally higher than the subsequent ones. In contrast, blood pressure levels from all three measurements in the 1971–75 NHANES I were similar as are the three measurements in the 1976–80 NHANES II.

Note: A list of references follows the text.

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From Vital and Health Statistics of the National Center for Health Statistics Number 85 • October 8, 1982

Summary Data From the National Inventory of Pharmacists: United States, 1978–79

By Gloria Kapantais, Office of Vital and Health Care Statistics Program

Supply of pharmacists

Between May 1977 and June 1979, the National Center for Health Statistics conducted an inventory of all licensed pharmacists in the United States. The data collection spanned 2 years in an effort to time each State's survey to correspond with its license renewal period for pharmacists.

Results from this survey indicate that there were 160,664 licensed pharmacists, of which 112,335 were known to be active in their profession, 20,912 were inactive, and the activity status of 27,417 was unknown (table 1). As seen in this table, the percent of active pharmacists decreases as age increases. For those under age 30, 95 percent were active, while only 47 percent of those 65 years and older were active. This trend occurs among both sexes, although at every age a smaller percent of licensed female pharmacists are active. Table 1 indicates that 21 percent of active pharmacists are under age 30, while 12 percent are age 60 and over. Therefore, there is a sufficient influx of young pharmacists into the profession to replace the older pharmacists who are most likely to be leaving the profession.

In table 2, the activity status for those pharmacists who did not report this information is imputed by apportioning the 27,417 pharmacists with unknown activity status into categories in the same ratio as among the pharmacists whose activity status is known. Of the resulting 135,449 active pharmacists, the largest number is located in the South (43,932). New England has the highest ratio of active pharmacists per 100,000 population (69.0), while the Pacific division has the lowest ratio (55.9).

In 1978–79, there were 18,115 known female pharmacists who were active in the profession, which accounts for 16 percent of the supply of active pharmacists of known sex (table 1). Nearly three-fourths (71 percent) of the female pharmacists were under age 40.

The distribution of the 112,335 known active pharmacists by age, race, and Hispanic origin is shown in table 3. Active minority pharmacists constituted about 5 percent of all practicing pharmacists. Nearly two-thirds of these minority pharmacists were oriental, and approximately one-third were black. In 1978–79, nearly 2 percent of the practicing pharmacists were of Hispanic descent.

Work setting

In table 4 it is shown that 72 percent of the known active pharmacists were employed in pharmacies. Of the three types of pharmacies specified in the survey, the independent community pharmacy employed the largest number (38,408), with chain pharmacies employing 28,423 pharmacists, and clinic or medical building pharmacies employing only 3,968 pharmacists. Hospitals employed about 20 percent of the pharmacists, while nursing homes employed a very small percent (1.6 percent). The remaining pharmacists were employed by pharmaceutical manufacturing companies, colleges of pharmacy, or other employers.

It is seen in table 5 that almost all (nearly 83 percent) women pharmacists are salaried (manager, assistant manager, or staff pharmacist), while two-thirds of male pharmacists are. Employment as a staff

pharmacist is one of the forms of practice in which females are able to work part-time. This is the principal form of employment for 82 percent of the part-time female pharmacists.

Of the 112,335 pharmacists known to be active in their profession, half (52,129 or 50.8 percent) worked 36–45 hours a week (table 5). A larger percent of males worked 40 hours or more a week than females. As would be expected, the longest hours were worked by those pharmacists who were sole owners of their principal form of employment. Over 80 percent worked 46 or more hours a week.

Inactive pharmacists

A total of 20,912 known inactive pharmacists were surveyed, which was 16 percent of all licensed pharmacists in the survey (table 6). These pharmacists represent a potential source of manpower because they are trained and licensed and may at any time enter or return to the profession. In terms of potential pharmacist resources, 12 percent of the inactive pharmacists are seeking work in the profession. An additional 8 percent are homemakers. Less than half of the inactive pharmacists (45 percent) said they are inactive because they are retired.

The actual unemployment rate in the profession is less than 2 percent. That is based on the number of inactive pharmacists seeking work relative to the total number of licensed pharmacists. Licensed inactive pharmacists under 40 are usually in another field and are not seeking work in pharmacy, or are homemakers.

Additional data on the results of the 1978–79 national inventory of pharmacists will appear in a future *Vital and Health Statistics* publication.[1]

[1]National Center for Health Statistics, H. Davis: Characteristics of pharmacists: United States, 1978–79. *Vital and Health Statistics.* Series 14. Public Health Service, DHHS, Hyattsville, Md. To be published.

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 standards of reliability or precision
#	Figure suppressed to comply with confidentiality requirements

Table 1. Number and percent distribution of licensed pharmacists by sex and activity status, according to age: United States, 1978–79

Age	All licensed pharmacists				Male				Female				Sex unknown			
	Total	Active	Inactive	Unknown	Total	Active	Inactive	Unknown	Total	Active	Inactive	Unknown	Total	Active	Inactive	Unknown
							Number									
All ages	160,664	112,335	20,912	27,417	133,474	94,158	16,997	22,319	26,147	18,115	3,845	4,187	1,043	62	70	911
Under 30 years	24,975	23,604	1,371	-	16,644	15,931	713	-	8,318	7,664	654	-	13	9	4	-
30–39 years	35,580	32,264	3,316	-	29,337	27,085	2,252	-	6,223	5,160	1,063	-	20	19	1	-
40–49 years	25,769	23,096	2,673	-	25,569	20,544	2,025	-	3,185	2,540	645	-	15	12	3	-
50–59 years	21,454	19,059	2,395	-	18,976	17,155	1,821	-	2,465	1,896	569	-	13	8	5	-
60–64 years	7,127	5,649	1,478	-	6,525	5,251	1,274	-	600	397	203	-	2	1	1	-
65 years and over	16,867	7,844	9,023	-	15,832	7,501	8,331	-	989	342	647	0	46	1	45	-
Unknown	28,892	819	656	27,417	23,591	691	581	22,319	4,367	116	64	4,187	934	12	11	911
							Percent distribution									
All ages	100.0	84.3	15.7	...	100	84.7	15.3	...	100	82.5	17.5	...	100	47.0	53.0	...
Under 30 years	100.0	94.5	5.5	...	100	95.7	4.3	...	100	92.1	7.9	...	100	69.2	30.8	...
30–39 years	100.0	90.7	9.3	...	100	92.3	7.7	...	100	82.9	17.1	...	100	95.0	5.0	...
40–49 years	100.0	89.6	10.4	...	100	91.0	9.0	...	100	79.7	20.3	...	100	80.0	20.0	...
50–59 years	100.0	88.8	11.2	...	100	90.4	9.6	...	100	76.9	23.1	...	100	61.5	38.5	...
60–64 years	100.0	79.3	20.7	...	100	80.5	19.5	...	100	66.2	33.8	...	100	50.0	50.0	...
65 years and over	100.0	46.5	53.5	...	100	47.4	52.6	...	100	34.6	65.4	...	100	2.2	97.8	...
Unknown	100.0	55.5	44.5	...	100	54.3	45.7	...	100	64.4	35.6	...	100	52.2	47.8	...

Table 2. Active pharmacists, U.S. resident population, and active pharmacists per 100,000 people, by geographic region and division: United States, 1978–79

Geographic region and division	Active pharmacists, 1978–79[1]	U.S. resident population in thousands,[2] 1978	Active pharmacists per 100,000 people, 1978–79
Total	135,449	222,095	61.0
Northeast	31,426	49,244	63.8
New England	8,482	12,303	69.0
Middle Atlantic	22,944	36,942	62.1
North Central	35,695	58,538	61.0
East North Central	24,673	41,509	59.4
West North Central	11,022	17,028	64.7
South	43,932	73,003	60.2
South Atlantic	20,937	35,882	58.3
East South Central	8,845	14,395	61.4
West South Central	14,150	22,725	62.3
West	24,142	41,311	58.4
Mountain	7,064	10,746	65.7
Pacific	17,078	30,565	55.9
Foreign[3]	254	...	...

[1] Number of active pharmacists (112,335) adjusted to include corresponding proportion of pharmacists with unknown activity status (84.306 percent of 27,417 = 23,114 additional active pharmacists). Data entries increased proportionally.
[2] As of July 1. Data from U.S. Bureau of the Census: Preliminary estimates of the intercensal population of States: 1970 to 1980, Series 1, Washington.
[3] Includes pharmacists working in U.S. territories and foreign countries.

NOTE: See "Technical notes" for States included in each geographic region and division.

Table 3. Number and percent distribution of active pharmacists by age, according to race and Hispanic origin: United States, 1978–79

Race and Hispanic origin	Total	Age						
		Under 30 years	30–39 years	40–49 years	50–59 years	60–64 years	65 years and over	Unknown
All active pharmacists	112,335	23,604	32,264	23,096	19,059	5,649	7,844	819
White	90,422	18,683	26,299	18,564	15,436	4,637	6,638	165
Black	1,730	344	577	346	325	60	78	---
American Indian	144	33	42	25	30	7	7	---
Oriental	3,048	941	1,230	502	288	59	28	---
Other	94	27	42	10	12	1	2	---
Unknown	16,897	3,576	4,074	3,649	2,968	885	1,091	654
Hispanic origin								
All active pharmacists	112,335	23,604	32,264	23,096	19,059	5,649	7,844	819
Hispanic	1,671	368	480	399	313	49	61	1
Non-Hispanic	86,481	17,572	25,175	17,872	14,824	4,490	6,399	149
Unknown	24,183	5,664	6,609	4,825	3,922	1,110	1,384	669
				Percent distribution				
All active pharmacists	100.0	21.2	28.9	20.7	17.1	5.1	7.0	...
White	100.0	20.7	29.1	20.6	17.1	5.1	7.4	...
Black	100.0	19.9	33.4	20.0	18.8	3.5	4.5	...
American Indian	100.0	22.9	29.2	17.4	20.8	4.9	4.9	...
Oriental	100.0	30.9	40.4	16.5	9.5	1.9	0.9	...
Other	100.0	28.7	44.7	10.6	12.8	1.1	2.1	...
Hispanic origin								
All active pharmacists	100.0	21.2	28.9	20.7	17.1	5.1	7.0	...
Hispanic	100.0	22.0	28.7	23.9	18.7	2.9	3.7	...
Non-Hispanic	100.0	20.4	29.2	20.7	17.2	5.2	7.4	...

Table 4. Number and percent distribution of active pharmacists by primary employment setting, according to age: United States, 1978–79

Primary employment setting	All active pharmacists	Age						
		Under 30 years	30–39 years	40–49 years	50–59 years	60–64 years	65 years and over	Unknown
				Number				
All settings	112,335	23,604	32,264	23,096	19,059	5,649	7,844	819
Independent community pharmacy	38,408	4,994	9,235	9,300	8,045	2,428	4,279	129
Chain pharmacy	28,423	7,755	9,086	5,439	3,993	1,063	990	97
Clinic or medical building pharmacy	3,968	835	1,242	814	647	179	245	8
Hospital	19,603	6,305	6,980	2,743	2,320	649	538	67
Nursing home	1,551	447	458	270	185	61	128	2
Pharmaceutical manufacturer	2,476	206	682	775	582	158	67	6
College of pharmacy	1,288	294	457	224	217	56	36	4
Other	2,554	349	718	653	527	162	138	6
Unknown	14,063	2,419	3,407	2,878	2,543	895	1,423	500
				Percent distribution				
All settings	100.0	100.0	100.0	100.0	100.0	100.0	100.0	...
Independent community pharmacy	39.1	23.6	32.0	46.0	48.7	51.1	66.7	...
Chain pharmacy	28.9	36.6	31.5	26.9	24.2	22.3	15.4	...
Clinic or medical building pharmacy	4.0	3.9	4.3	4.0	3.9	3.8	3.8	...
Hospital	19.9	29.8	24.2	13.6	14.0	13.7	8.4	
Nursing home	1.6	2.1	1.6	1.3	1.1	1.3	2.0	...
Pharmaceutical manufacturer	2.5	1.0	2.4	3.8	3.5	3.3	1.0	...
College of pharmacy	1.3	1.4	1.6	1.1	1.3	1.2	0.6	...
Other	2.6	1.6	2.5	3.2	3.2	3.4	2.1	...

Table 5. Number of active pharmacists and total hours worked per week, by principal form of employment and sex: United States, 1978–79

Principal form of employment and sex	All active pharmacists	Total hours			
		1–35	36–45	46 and over	Unknown
Total	112,335	13,453	52,129	37,049	9,704
Male	94,158	8,323	42,727	35,193	7,855
Female	18,115	5,128	9,341	1,855	1,791
Unknown	62	2	1	1	58
Sole owner	16,490	541	2,420	13,111	418
Male	16,069	483	2,330	12,855	401
Female	421	58	90	256	17
Unknown	---	---	---	---	---
Partner	9,458	591	2,654	6,045	168
Male	8,984	444	2,534	5,854	152
Female	474	147	120	191	16
Unknown	---	---	---	---	---
Manager[1]	30,808	1,417	18,716	10,262	413
Male	27,277	1,019	16,227	9,671	360
Female	3,531	398	2,489	591	53
Unknown	---	---	---	---	---
Staff pharmacist	41,152	9,600	25,297	5,020	1,235
Male	29,711	5,396	19,038	4,398	879
Female	11,440	4,204	6,259	622	355
Unknown	1	---	---	---	1
Other[2]	5,962	976	2,486	2,230	270
Male	5,191	735	2,166	2,055	235
Female	771	241	320	175	35
Unknown	---	---	---	---	---
Unknown	8,465	328	553	381	7,200
Male	6,926	246	492	360	5,828
Female	1,478	80	63	20	1,315
Unknown	61	2	1	1	57

[1] Includes assistant manager.
[2] Includes volunteers.

Table 6. Number of inactive pharmacists and reason for inactivity, by sex and age: United States, 1978

Sex and age	All inactive pharmacists	Retired	Unemployed		Working in other field			Other	Unknown
			Seeking work in pharmacy	Not seeking work in pharmacy[1]	Seeking work in pharmacy	Not seeking work in pharmacy	Homemaker		
Total	20,912	7,879	1,469	272	576	4,587	1,397	1,322	3,410
Under 30 years	1,371	9	247	72	70	263	224	267	219
30–39 years	3,316	17	281	54	148	1,510	553	304	449
40–49 years	2,673	56	218	52	126	1,278	300	235	408
50–59 years	2,395	305	257	43	126	875	214	247	327
60–64 years	1,478	663	131	15	36	268	41	120	204
65 years and over	9,023	6,403	326	35	68	313	52	138	1,688
Unknown	656	425	9	1	2	80	13	11	115
Male	16,997	7,282	1,045	194	476	4,187	35	1,033	2,745
Under 30 years	713	7	118	46	49	203	3	167	120
30–39 years	2,252	11	154	34	128	1,396	8	220	301
40–49 years	2,025	41	141	35	106	1,196	4	194	308
50–59 years	1,821	249	197	33	98	783	5	214	242
60–64 years	1,274	601	117	11	32	240	2	104	167
65 years and over	8,331	5,984	310	34	62	292	12	127	1,510
Unknown	581	389	8	1	1	77	1	7	97
Female	3,845	586	424	78	99	400	1,362	289	607
Under 30 years	654	2	129	26	21	60	221	100	95
30–39 years	1,063	6	127	20	20	114	545	84	147
40–49 years	645	15	77	17	20	82	296	41	97
50–59 years	569	56	60	10	28	92	209	33	81
60–64 years	203	62	14	4	4	28	39	16	36
65 years and over	647	415	16	1	6	21	40	11	137
Unknown	64	30	1	---	---	3	12	4	14

[1] In a few States, this was phrased as "in training in pharmacy."
[2] Includes 70 inactive pharmacists with sex unknown.

Technical notes

Source of data

The 1978-79 national inventory of pharmacists was conducted through two separate but parallel mechanisms. The first was the Cooperative Health Statistics System (CHSS).[2] Those States with a CHSS manpower component contract collected data on pharmacists and submitted to the National Center for Health Statistics a specified set of data elements, using standardized processing specifications. The second data collection mechanism was for the remaining 28 non-CHSS States (including the District of Columbia). It utilized a single contractor, the American Association of Colleges of Pharmacy (AACP), to collect the same data items as the CHSS States. Similar data collection methodologies were used by both the CHSS State contractors and the AACP to insure uniformity of the data, which permitted the statistics from both mechanisms to be merged into a single national data file.

Because pharmacists were surveyed and counted in each State in which they were licensed, a mechanism had to be developed to remove duplicate counts resulting from multiple licensure. The total number of pharmacist records prior to the removal of duplicate and multiple records was 207,169. The procedures developed for removing duplicate records and for producing a national data file in which each pharmacist is counted only once have been described in detail in another publication.[3] After the removal of duplicates, a total of 160,664 records remained, one for each licensed pharmacist, regardless of the number of States in which a pharmacist holds licenses.

The questionnaire mailout spanned 2 years, in order to coordinate the mailings with the license renewal period of each State. States not only stagger their license renewal dates at varying times of the year but some also have biennial instead of annual renewal cycles. In all States the contractor (either the AACP or CHSS State agency) worked with the State licensing board to send the questionnaires to all licensed pharmacists.

Although the data from this survey are labeled as 1978–79, it should be noted that only 88 percent of the States collected data during these years. The remaining data were collected during 1977 or 1980. The *Vital and Health Statistics* series report on this survey will give the particular year of the data from each State.[1]

Response rate

The overall questionnaire response rate was 84 percent. In some CHSS States information that was a part of the survey questionnaire was already available in State licensing board records and therefore did not have to be asked. In the case of nonrespondents this information was provided directly from the existing records. This resulted in records of nonrespondents containing data that otherwise would be missing. When data are available on nonrespondents, they are used in this report without distinction for response status.

Adjustment for item nonresponse

Imputations for selected item nonresponse were performed on those records containing sufficient other data permitting such computations. The following selected items were imputed: year of birth, year of graduation, sex, Hispanic origin, academic degree held in pharmacy, and activity status.

Definitions

Practice settings are defined as follows:

- Chain pharmacy: small- or large-chain community pharmacy.
- Hospital: Government or other hospital.

Active pharmacists are placed in their work State. When work State was missing from a record, the following hierarchy was used for determining the State in which to place the pharmacist: (1) residence State when it equaled mail State, (2) licensure State when it equaled residence or mail State, (3) mail State, and (4) licensure State.

Inactive pharmacists are placed in their residence State. Mail State is used when data on residence State are missing. If both States are missing, licensure State is used.

Geographic region and division are defined as follows:

Geographic region and division	*States included*
Northeast	
New England	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut
Mid Atlantic	New York, New Jersey, and Pennsylvania
North Central	
East North Central	Ohio, Indiana, Illinois, Michigan, and Wisconsin
West North Central	Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas

[2]National Center for Health Statistics: The Cooperative Health Statistics System: Its mission and program. *Vital and Health Statistics.* Series 4-No. 19. DHEW Pub. No. (HRA) 77–1456. Health Resources Administration. Washington. U.S. Government Printing Office, Apr. 1977.

[3]National Center for Health Statistics, Ronald Biggar: Procedures for unduplication of pharmacy and optometry data. Working Paper Series. No. 9. Feb. 1982.

Geographic region and division—Con.	*States included—Con.*
South	
South Atlantic	Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida
East South Central	Kentucky, Tennessee, Alabama, and Mississippi
West South Central	Arkansas, Louisiana, Oklahoma, and Texas
West	
Mountain	Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, and Nevada
Pacific	Washington, Oregon, Alaska, California, and Hawaii

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Drug Utilization in Office Visits to Primary Care Physicians: National Ambulatory Medical Care Survey, 1980

By Beulah K. Cypress, Ph.D., Division of Health Care Statistics

Introduction

This report presents statistics on drug utilization during office visits to general and family practitioners, internists, pediatricians, and obstetrician-gynecologists, the physicians generally acknowledged to be most involved in the delivery of primary health care. The data were gathered in 1980 by the National Center for Health Statistics by means of the National Ambulatory Medical Care Survey.

For purposes of health manpower legislation (PL 94-484, 1976), Congress identified general and family practitioners, internists, and pediatricians as primary care providers. However, it is the policy of the American Medical Association to include obstetrician-gynecologists in the group of primary care providers. A 1978 Institute of Medicine study defined primary health care in terms of the scope, character, and integration of the services provided.[1] The report indicated that although primary care may be provided by many types of health professionals and by physicians in many different specialties, the physicians whose practice content fit the dimensions of primary care most closely were general and family practitioners, internists, pediatricians, and obstetrician-gynecologists. The National Ambulatory Medical Care Survey was the principal source of data used by the Institute of Medicine to describe the content of primary health care.

The National Ambulatory Medical Care Survey is a probability sample survey conducted annually through 1981 by the Division of Health Care Statistics of the National Center for Health Statistics. The technical notes at the end of this report provide brief information about the source of the data, sampling errors, and definitions of terms. A complete description of the survey including limitations and definitions was published in *Vital and Health Statistics*, Series 13, No. 66.[2] The methodology used to collect and process the drug information is described in *Vital and Health Statistics*, Series 2, No. 90.[3]

The Patient Record form used in the 1980 survey is reproduced in figure 1. Up to eight specific drugs, either new or continued during the visit, may be recorded by the physician in item 11, parts *a* and *b*. In order to present accurately what the physician ordered, prescribed, or provided, drug mentions used in this report are based on the physicians' entries on the Patient Record forms. These entries were brand or generic names of prescription (℞) or nonprescription (over-the-counter) drugs, and in some instances the physician recorded a therapeutic effect; e.g., "allergy relief."

Data highlights

Visit characteristics

Primary care physicians constituted 54 percent of the NAMCS physician universe, but had 66 percent of the office visits and accounted for 74 percent of all drug mentions (table 1). Among this group of physicians, general and family practitioners (GFP's) had a disproportionately large share of visits and drug mentions. They had 33 percent of the visits and 41 percent of the drug mentions although they represented only 23 percent of the physician universe. Obstetrician-gynecologists (OBG's) accounted for only 5 percent of the drug mentions compared with 10 percent of the visits, mainly because a relatively large proportion of their visits involve prenatal and postpartum

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
Public Health Service
Office of Health Research, Statistics, and Technology
National Center for Health Statistics

D 749612

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

1. DATE OF VISIT Month / Day / Year

2. DATE OF BIRTH Month / Day / Year

3. SEX
1 ☐ FEMALE
2 ☐ MALE

4. COLOR OR RACE
1 ☐ WHITE
2 ☐ BLACK
3 ☐ ASIAN/PACIFIC ISLANDER
4 ☐ AMERICAN INDIAN/ ALASKAN NATIVE

5. ETHNICITY
1 ☐ HISPANIC ORIGIN
2 ☐ NOT HISPANIC

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

7. MAJOR REASON FOR THIS VISIT *[Check one]*
1 ☐ ACUTE PROBLEM
2 ☐ CHRONIC PROBLEM, ROUTINE
3 ☐ CHRONIC PROBLEM, FLAREUP
4 ☐ POST SURGERY/POST INJURY
5 ☐ NON-ILLNESS CARE (ROUTINE PRENATAL, GENERAL EXAM WELL BABY, ETC.)

8. DIAGNOSTIC SERVICES THIS VISIT *[Check all ordered or provided]*
1 ☐ NONE
2 ☐ LIMITED HISTORY/EXAM
3 ☐ GENERAL HISTORY/EXAM
4 ☐ PAP TEST
5 ☐ CLINICAL LAB TEST
6 ☐ X RAY
7 ☐ BLOOD PRESSURE CHECK
8 ☐ EKG
9 ☐ VISION TEST
10 ☐ ENDOSCOPY
11 ☐ MENTAL STATUS EXAM
12 ☐ OTHER *(Specify)* _____

9. PHYSICIAN'S DIAGNOSES
a PRINCIPAL DIAGNOSIS/PROBLEM ASSOCIATED WITH ITEM 6a.
b OTHER SIGNIFICANT CURRENT DIAGNOSES

10. HAVE YOU SEEN PATIENT BEFORE?
1 ☐ YES 2 ☐ NO
IF YES, FOR THE CONDITION IN ITEM 9a?
1 ☐ YES 2 ☐ NO

11. MEDICATION THERAPY THIS VISIT ☐ NONE
[Using brand or generic names, record all new and continued medications ordered, injected, administered, or otherwise provided at this visit. Include immunizing and desensitizing agents]

a. FOR PRINCIPAL DIAGNOSES IN ITEM 9a	b. FOR ALL OTHER REASONS
1	1
2	2.
3	3
4	4

12. NON-MEDICATION THERAPY *[Check all services ordered or provided this visit]*
1 ☐ NONE
2 ☐ PHYSIOTHERAPY
3 ☐ OFFICE SURGERY
4 ☐ FAMILY PLANNING
5 ☐ PSYCHOTHERAPY/ THERAPEUTIC LISTENING
6 ☐ DIET COUNSELING
7 ☐ FAMILY/SOCIAL COUNSELING
8 ☐ MEDICAL COUNSELING
9 ☐ OTHER *(Specify)* _____

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

14. 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)* _____

15. DURATION OF THIS VISIT *[Time actually spent with physician]*
_____ Minutes

PHS-6105-D (9/79) OMB No. 68-R1498

Figure 1. Patient Record from the National Ambulatory Medical Care Survey

care, and examinations for which drugs are generally not indicated.

The patterns of medication therapy presented in this report differ by specialty because drug utilization is highly related to the patient's age, sex, and condition. Although GFP's, internists, pediatricians, and OBG's provide primary care, their patients have different demographic characteristics and present more, or less, of certain diagnoses. Patterns of medical care thus vary depending on the case-mix. Table 2 shows the distribution of office visits to primary care physicians by age and sex of the patient. By age group, GFP's see a more heterogeneous group of patients than do the other physicians. Internists provide care chiefly to adults over 24 years of age, and to a larger proportion of patients over 44 years of age (69 percent) than do GFP's (44 percent). Pediatricians chiefly treat children under 15 years of age. Visits by women in the child-bearing years, 15–44, account for 87 percent of the OBG's caseload. Because medication therapy, diagnosis, and the patient's age and sex are highly intercorrelated, the range of drug utilization and the classes of drugs prescribed vary among specialists.

Office visits and drug mentions

The number of office visits, the number and percent of visits in which one or more drugs were prescribed (drug

visits), and the number of drug mentions are shown in table 3. The drug mention rate is the number of drug mentions divided by the number of visits; e.g., GFP's recorded an estimated 279,186,000 drug names on Patient Record forms during 191,744,000 visits, which results in a drug mention rate (DMR), or average over *all* visits, of 1.46 drugs per visit. Another approach to measuring drug use is to divide the number of drug mentions by the number of *drug* visits (a visit in which one or more drugs were ordered). Thus, when drugs *were* prescribed, the average number a patient received (drug intensity rate, DIR) when visiting a GFP was 1.93. The percent of drug visits and the DIR are used in this report to make comparisons among specialties.

Proportions of total visits with one or more drugs prescribed were similar for GFP's (75 percent), internists (76 percent), and pediatricians (71 percent). Only 44 percent of OBG's visits included any drugs, reflecting the large volume of visits for routine prenatal care and gynecological examinations. However, the frequency of drug visits varies by age of the patient. The rising proportions of drug visits after age group 15–24 years for GFP's and internists is shown in figure 2, in which there is a striking similarity in the configuration of the two curves.

In figure 3 proportions of drug visits to GFP's are compared with those to pediatricians. Children under 11 years of age who visited GFP's were more likely to be given at least one medication than were their counterparts who visited pediatricians. This effect was the most

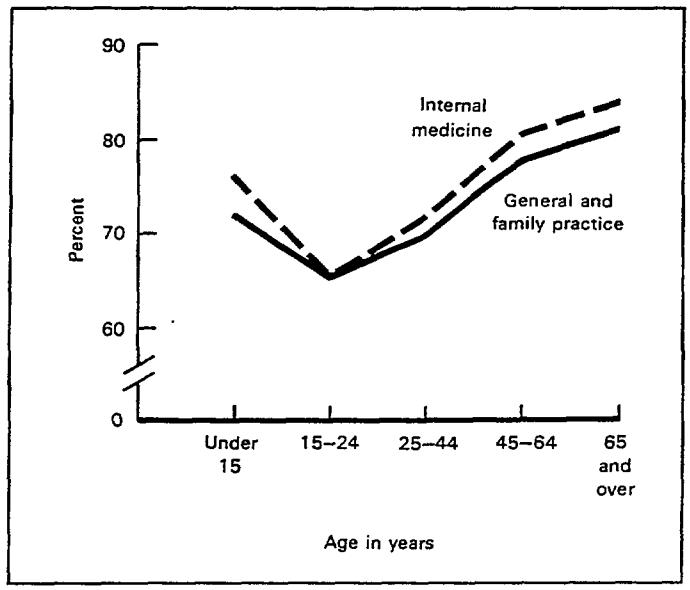

Figure 2. Percent of drug visits by age of patient and selected primary care physician specialty: United States, 1980.

pronounced for the age group 3–5 years. Although the GFP routinely treats children in the same age range as those of the pediatrician, visits to the pediatric specialist are more likely to be for routine examinations where medication therapy is not always indicated. Two preventive health care diagnoses, health supervision of infant or child and general medical examination, accounted for 27 percent of visits to pediatricians by

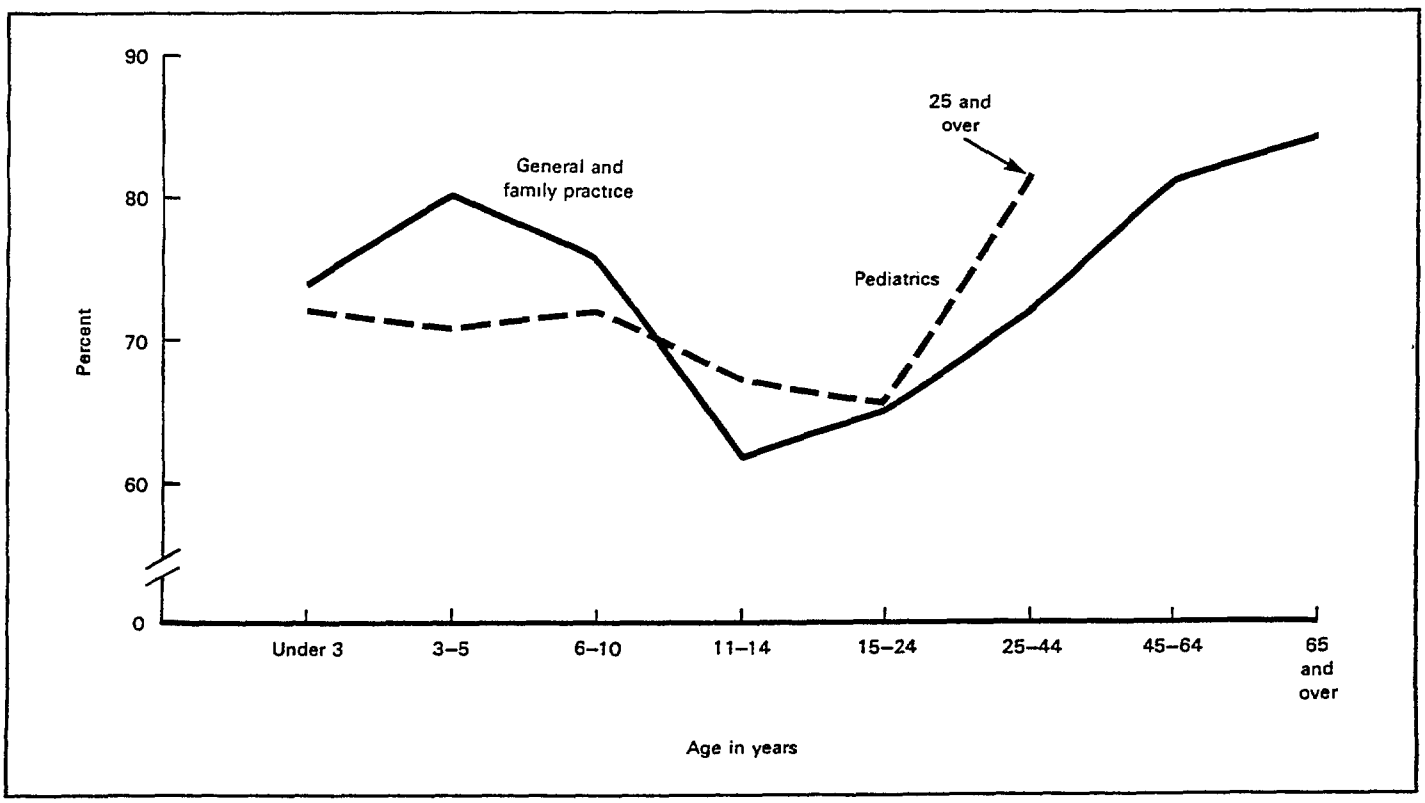

Figure 3. Percent of drug visits by age of patient and selected primary care physician specialty: United States, 1980

children under 11 years of age compared with only 16 percent of those to GFP's.

An even more marked difference is evident in figure 4 in which proportions of drug visits by the age group of women visiting GFP's and OBG's are plotted. Percents are consistently higher for GFP's than for OBG's. The curves exhibit a similar pattern of change except that women's drug visits to GFP's decline until age group 15–24 years while the low point of drug visits to OBG's is at age group 25–44 years. The lower proportions of drug visits found in the OBG's practice is explained by the preponderance of visits with diagnoses of normal pregnancy, postpartum care, and gynecological examinations (a total of 48 percent of all visits). Only 7 percent of women's visits to GFP's were represented by these diagnoses.

On the average, the highest number of drugs prescribed during drug visits was by internists, with a rate of 2.24 drugs per drug visit, followed by GFP's with 1.93 (table 3). These rates are plotted by patient age group in figures 5–7. Figure 5 illustrates drug intensity rates for GFP's and internists. As expected, rates increase with increasing age after age group 15–24 years, regardless of which of the two specialists was visited. At that point, however, the curves diverge, and beginning with age group 25–44 years, internists prescribed higher numbers of medications than GFP's did.

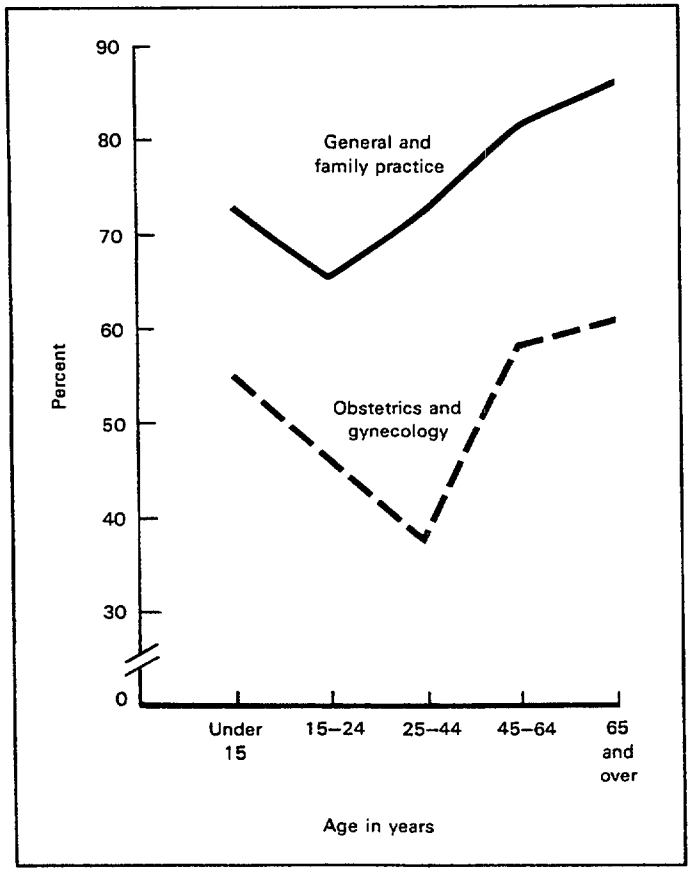

Figure 4. Percent of drug visits by age of female patient and selected primary care physician specialty: United States, 1980

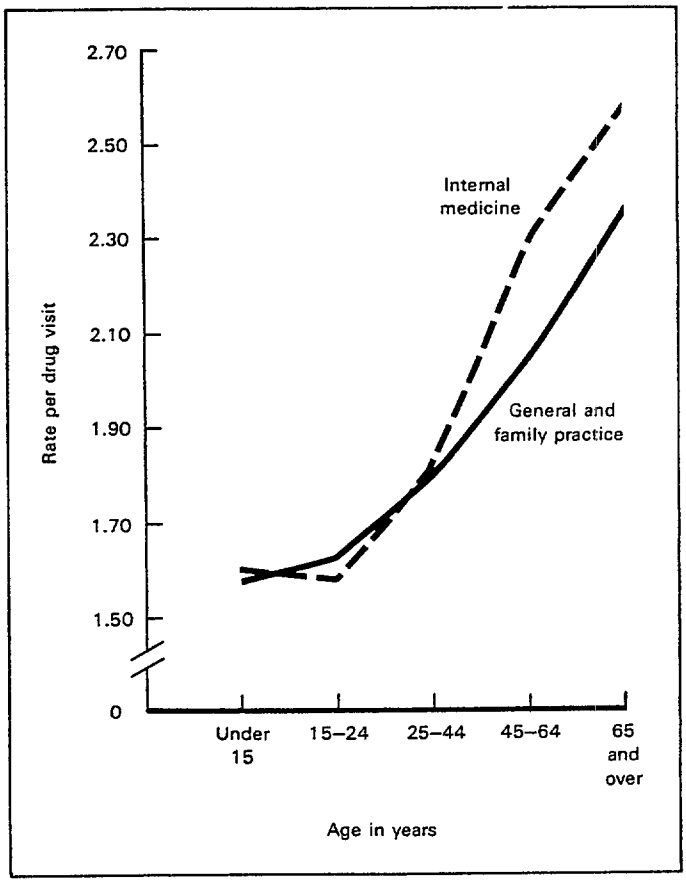

Figure 5. Drug intensity rate by age of patient and selected primary care physician specialty: United States, 1980

Differential diagnosis is likely to contribute to this difference in rates.

Although it was shown in figure 3 that a higher percent of visits by children under 11 years of age to GFP's included one or more drugs than did those to pediatricians, figure 6 shows that when drugs were used, the average numbers prescribed by both types of physicians were very close.

For every age group shown in figure 7, GFP's prescribed a higher average number of drugs than OBG's did, and the number prescribed tended to increase with increasing age group after 15–24 years for GFP's and after 25–44 years for OBG's. The data illustrated in figures 4 and 7 reveal that not only did GFP's have more drug visits, but they also prescribed more drugs during those visits than OBG's did. However, these findings are clearly related to the lower proportion of illness-related visits made to OBG's, as noted previously.

Number of medications

The proportions of visits that included precisely one, two, three, or four or more drugs are listed in table 4. In the first part of this table distributions are based on all visits and thus they include a "none" category. In the lower section, distributions are based on the number of

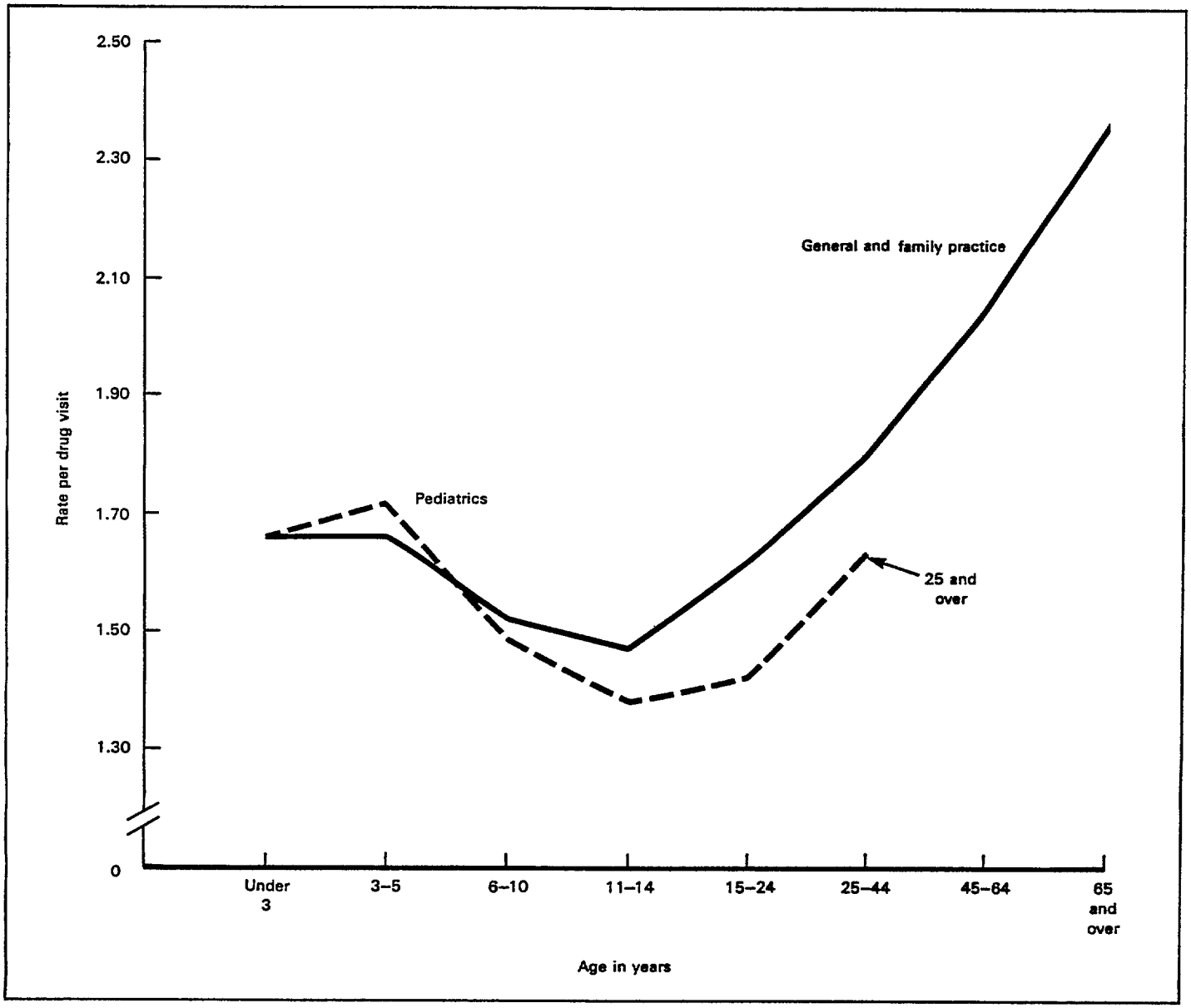

Figure 6. Drug intensity rate by age of patient and selected primary care physician specialty: United States, 1980

drug visits and, therefore, arrays do not include the "none" category. The proportions in this category are simply the complements of the percents of drug visits shown in table 3. For patients treated by GFP's, internists, and pediatricians, the largest proportions of visits were in the category of one drug mention, but the majority of visits to OBG's had no drugs mentioned. When OBG's did order drugs, 72 percent of visits included only one. Internists were more likely than other primary care physicians to order three or more drugs. About 34 percent of their drug visits included this number compared with 24 percent of GFP's, 13 percent of pediatricians, and 7 percent of OBG's. This was not unexpected in view of their relatively high proportion of visits by the elderly. It has been shown that, in general, and for certain diagnoses, the number of drugs ordered increases as the patient's age group increases.[4–6]

Drug status characteristics

NAMCS drug data are characterized by entry status (brand name,[a] generic entity, or therapeutic effect), prescription status (prescription or over-the-counter drug), and composition status (single ingredient, combination drug, or multivitamin). Drug mentions are distributed by these variables in table 5. The most common method employed by physicians to enter drugs on

[a]Inclusion of brand or trade names is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

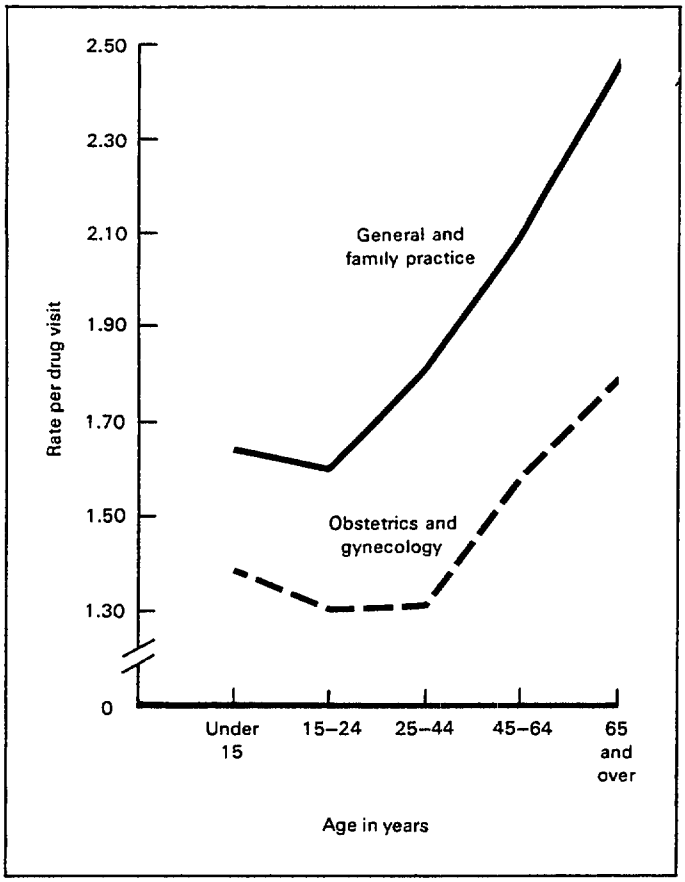

Figure 7. Drug intensity rate by age of female patient and selected primary care physician specialty: United States, 1980

the Patient Record form was by brand name. GFP's, internists, and OBG's used brand names (manufacturer's product name) in over 70 percent of mentions; pediatricians in about 58 percent. Pediatricians are more likely than other specialists to enter drugs by generic name because of their frequent use of immunizing agents and other injectable drugs. Prescription drugs were also more frequently ordered than over-the-counter drugs, ranging from 76 percent of mentions by OBG's to 85 percent of those by internists. Drugs consisting of a single principal ingredient were more likely to be prescribed than combination drugs by internists, GFP's, pediatricians, and OBG's, in declining order of frequency.

The NAMCS file also includes information on the Federal control status of each drug utilized. Drugs under the regulatory control of the Drug Enforcement Administration of the U.S. Department of Justice are assigned by them to one of five schedules based on potential for abuse and psychological or physical dependence, ranging from schedule I with the highest potential for abuse and dependence to schedule V with the lowest (see reference 3 for a more detailed explanation of the schedules and examples). Drug mentions are classified in table 5 according to whether they are controlled or uncontrolled drugs. A very small proportion of drugs listed by primary care physicians were federally controlled, amounting to 11 percent of all mentions by GFP's, 8 percent by internists, and 5 percent each of those by pediatricians and OBG's. For GFP's, internists, and OBG's, the majority of controlled drugs were in schedule IV (53, 58, and 62 percent, respectively). For pediatricians, 62 percent of controlled drugs mentioned were in schedule V.

Therapeutic categories

Each specific drug mentioned in NAMCS is a member of a group of drugs identified by the desired therapeutic effect. These groups are based on the classification system of the American Hospital Formulary Service.[7] Drug mentions are aggregated by therapeutic categories in table 6. The leading category of drugs used varied among the primary care physicians, reflecting the demographic and clinical characteristics of their patients. For GFP's, central nervous system drugs accounted for the largest share of their mentions (19 percent). Internists used cardiovascular drugs (21 percent) proportionately more often than other drugs. Pediatricians most often used anti-infective agents (29 percent). Hormones and synthetic substitutes constituted the major portion of mentions by OBG's (26 percent).

The five leading categories prescribed by both GFP's and internists, although in different order of frequency, were anti-infective agents; cardiovascular drugs; central nervous system drugs; electrolytic, caloric, and water balance; and hormones and synthetic substitutes. These five categories accounted for 62 percent of drug utilization by GFP's and 70 percent of that by internists. Three of these classes were also among the five most frequently used by OBG's: anti-infective agents, central nervous system drugs, and hormones and synthetic substitutes. Two other categories frequently ordered by OBG's were skin and mucous membrane preparations (10 percent) and vitamins (19 percent). Pediatricians prescribed antihistamine drugs; expectorants and cough preparations; and serums, toxoids and vaccines proportionately more frequently than did the other primary care physicians.

Specific drug mentions

Because GFP's see a large number of patients in every age group ranging from infants to the elderly, the number and percent of the most frequently ordered specific drugs are ranked by age group in table 7. The other primary care specialties have a more homogeneous patient load. Therefore, specific drugs are listed but not shown by age group, for internists (chiefly adults) in table 8, for pediatricians (chiefly children) in table 9, and for OBG's (chiefly women 15–44 years of age) in table 10. The reader is cautioned that estimates may not differ from other near estimates due to sampling variability. Therefore, ranks may be somewhat artificial.

To treat patients under 15 years of age with medica-

tion therapy, GFP's prescribed Ampicillin, Amoxicillin, and Penicillin in a total of 11 percent of drug mentions. Dimetapp was the leading antihistamine ordered (4 percent). Diphtheria and tetanus toxoids and pertussis vaccine (DPT), and poliomyelitis vaccine each accounted for 4 percent of mentions. Aspirin was mentioned in 3 percent.

Penicillin and Ampicillin led the list of drugs mentioned when patients visiting GFP's were 15–24 years old or 25–44 years old. However, the variety of drugs ordered changed perceptibly beginning with age group 25–44 years. While 16 drugs accounted for 42 percent of mentions for patients under 15 years, it took twice as many or more to account for about the same proportion of mentions for patients in the three older groups. The diuretic, Lasix, appears for the first time among the leading drugs ordered for patients 25–44 years of age. Over 1 million mentions of chorionic gonadotropin, a hormone frequently associated with a diagnosis of obesity, also appear on the list for 25–44 year old patients as well as three anorexients used in the treatment of obesity: Ionamin, Fastin, and Phentermine (all three are the generic entity phentermine, making a total of 1.7 million mentions of this substance).

An increase in the number of different diuretics utilized in treating patients 45–64 years old reflects the increase of cardiovascular problems. Dyazide, Lasix, Hydrodiuril, Hygroton, and Hydrochlorothiazide were among the top 10 drugs ordered for this age group. Inderal, a drug often used to treat hypertension and certain heart conditions, was the second leading number of mentions. Inderal, as well as the previously mentioned diuretics were also among the most frequently mentioned drugs when patients were in the 65 years and over age group. Also frequently prescribed for this age group were Lanoxin and Digoxin, cardiovascular drugs both in the generic class digoxin; Aldomet, a hypotensive agent; and Motrin, which is commonly used to treat arthritis. The anti-diabetic agents Diabinese and Insulin were also among the leading medications ordered by GFP's for older patients.

The list of drugs prescribed by internists (table 8) closely resembles the lists of those used by GFP's for patients 45 years of age and over. One drug used by internists that is not among those most commonly used by GFP's is Fluorouracil, an antineoplastic agent.

Poliomyelitis vaccine accounted for 7 percent and DPT for 6 percent of all drugs mentioned by pediatricians. The tuberculin tine test was used in 5 percent. Antibiotics were prominently represented by Amoxicillin, Penicillin, Amoxil, Ampicillin, E.E.S., Bicillin, Larotid, V-Cillin, Erythromycin, and Ilosone. Many of the drugs used by pediatricians were also prominent in the section of table 7 (GFP's) showing the most frequent drugs ordered for patients under 15 years of age.

The multivitamins, Prenatal formula, Materna, Stuartnatal 1+1, and Natalins were among the drugs ordered most frequently by OBG's. Table 10 also shows that Ortho-novum, Lo/ovral, Ovral, Demulen, and Norinyl were the most commonly prescribed oral contraceptives. Other drugs such as Premarin (estrogen), Monistat (used for candidiasis), Flagyl (used for trichomoniasis), and Sultrin (for vaginal infections) reflect the range of diagnoses made by OBG's.

These and other data on the practice characteristics of primary care physicians in 1980 and 1981 will appear in a future *Vital and Health Statistics* Series 13 publication. Questions regarding this report may be directed to the Ambulatory Care Statistics Branch by calling 301/436–7132.

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[7]American Society of Hospital Pharmacists, Inc.: *The American Hospital Formulary Service.* Washington. Jan. 1980.

Table 1. Number and percent distribution of physicians in NAMCS physician universe and percent distribution of visits and drug mentions, by physician specialty: United States, 1980

Physician specialty	NAMCS physician universe		Visits	Drug mentions
	Number	Percent distribution	Percent distribution	
Total physicians	227,558	100.0	100.0	100.0
Total primary care physicians	122,635	53.9	66.2	74.2
General and family practice	53,147	23.4	33.3	41.1
Internal medicine	35,199	15.5	12.1	17.5
Pediatrics	16,043	7.1	11.2	10.7
Obstetrics and gynecology	18,246	8.0	9.6	4.9
Other specialties	104,923	46.1	33.8	25.8

Table 2. Percent distribution of visits by age and sex of patient, according to primary care physician specialty: United States, 1980

Age and sex of patient	Primary care physician			
	General and family practice	Internal medicine	Pediatrics	Obstetrics and gynecology
	Percent distribution			
All ages	100.0	100.0	100.0	100.0
Under 15 years	13.9	2.5	92.5	1.0
15–24 years	14.9	7.1	5.9	32.0
25–44 years	27.4	21.4	1.0	55.1
45–64 years	24.4	36.4	*0.4	9.4
65 years and over	19.4	32.7	*0.2	2.5
Sex				
Female	60.5	59.2	46.3	98.7
Male	39.5	40.8	53.7	1.3

Table 3. Number of office visits, number and percent of drug visits, number of drug mentions, drug mention rate, and drug intensity rate per visit, by primary care physician specialty: United States, 1980

Primary care physician	All visits in thousands	Drug visits[1] in thousands	Percent drug visits	Drug mentions in thousands	Drug mention rate[2] per visit	Drug intensity rate[3] per drug visit[1]
General and family practice	191,744	144,478	75.3	279,186	1.46	1.93
Internal medicine	69,481	53,091	76.4	118,943	1.71	2.24
Pediatrics	64,223	45,575	71.0	72,825	1.13	1.60
Obstetrics and gynecology	55,123	23,984	43.5	33,026	0.60	1.38

[1]A visit in which one or more drugs were prescribed.
[2]Drug mentions ÷ number of visits.
[3]Drug mentions ÷ number of drug visits.

Table 4. Number and percent distribution of office visits by number of medications for all visits and for drug visits, according to primary care physician specialty: United States, 1980

Number of medications	Primary care physician			
	General and family practice	Internal medicine	Pediatrics	Obstetrics and gynecology
	Number in thousands			
All visits	191,744	69,481	64,223	55,123
	Percent distribution			
Total	100.0	100.0	100.0	100.0
None	24.7	23.6	29.0	56.5
1	34.4	29.1	40.4	31.2
2	23.0	21.4	21.6	9.3
3	10.5	13.0	6.4	2.3
4 or more	7.6	13.1	2.5	0.8
	Number in thousands			
Drug visits[1]	144,478	53,091	45,575	23,984
	Percent distribution			
Total	100.0	100.0	100.0	100.0
1	45.6	38.1	57.0	71.7
2	30.5	28.0	30.5	21.3
3	13.9	17.0	9.0	5.2
4 or more	10.0	16.9	3.6	1.8

[1] A visit in which one or more drugs were prescribed.

Table 5. Number and percent distribution of drug mentions by selected drug status characteristics, according to primary care physician specialty: United States, 1980

Drug status characteristic	Primary care physician			
	General and family practice	Internal medicine	Pediatrics	Obstetrics and gynecology
	Number in thousands			
All drug mentions	279,186	118,943	72,825	33,026
	Percent distribution			
Total	100.0	100.0	100.0	100.0
Entry status				
Generic name	24.3	24.3	34.9	17.5
Brand name	71.2	72.8	57.8	77.8
Therapeutic effect	2.7	2.1	6.5	3.6
Undetermined	1.8	0.8	0.8	1.1
Prescription status				
Prescription drug	83.4	84.6	79.6	75.9
Nonprescription drug	12.0	12.5	13.1	19.4
Undetermined	4.6	2.9	7.3	4.8
Composition status				
Single ingredient drug	68.3	78.2	58.9	47.5
Combination drug	25.3	18.1	32.5	32.6
Multivitamin	2.0	0.8	1.3	15.3
Undetermined	4.5	2.9	7.3	4.7
Federal control status				
Controlled	10.9	8.2	4.6	5.2
Uncontrolled	84.5	88.9	88.0	90.0
Undetermined	4.6	2.9	7.3	4.8

Table 6. Number and percent distribution of drug mentions by therapeutic category, according to primary care physician specialty: United States, 1980

Therapeutic category[1]	*Primary care physician*			
	General and family practice	*Internal medicine*	*Pediatrics*	*Obstetrics and gynecology*
All categories	279,186	118,943	72,825	33,026
	Percent distribution			
Total	100.0	100.0	100.0	100.0
Antihistamine drugs	6.6	3.9	15.2	2.3
Anti-infective agents	16.2	6.9	28.8	16.9
Antineoplastic agents	*0.1	3.4	*0.1	-
Autonomic drugs	4.4	3.6	3.0	*1.5
Blood formation and coagulation	1.4	1.5	*0.3	3.5
Cardiovascular drugs	9.9	20.7	*0.2	2.5
Central nervous system drugs	18.5	18.2	4.8	8.0
Diagnostic agents	0.3	*0.2	4.7	*0.1
Electrolytic, caloric, and water balance	9.1	14.3	*0.3	3.1
Expectorants and cough preparations	3.3	1.9	6.8	*0.9
Eye, ear, nose and throat preparations	1.4	0.8	3.4	*0.5
Gastrointestinal drugs	4.6	4.7	1.6	*1.6
Hormones and synthetic substitutes	8.1	9.7	1.7	26.4
Serums, toxoids and vaccines	2.7	0.9	17.8	*0.9
Skin and mucous membrane preparations	4.9	2.4	5.9	9.9
Spasmolytic agents	1.7	2.3	2.2	*0.5
Vitamins	4.1	2.3	*0.5	18.6
Other, unclassified, or undetermined	2.9	2.4	2.9	3.0

[1] Based on the classification system of the American Hospital Formulary Service (A.H.F.S.). See reference 7.

Table 7. Number and percent distribution of drug mentions in office visits to general and family practitioners by age of patient and most frequently named drugs: United States, 1980

Age of patient and name of drug[1]	Number of mentions in thousands	Percent distribution
Under 15 years	30,497	100.0
Ampicillin	1,326	4.3
Poliomyelitis vaccine	1,272	4.2
Dimetapp	1,225	4.0
Diphtheria and tetanus toxoids and pertussis vaccine	1,170	3.8
Amoxicillin	1,095	3.6
Aspirin	995	3.3
Penicillin	963	3.2
Allergy relief or shots	809	2.7
Keflex	572	1.9
Erythromycin	548	1.8
Actifed	539	1.8
Amoxil (amoxicillin)	494	1.6
E.E.S. (erythromycin)	490	1.6
Benadryl	484	1.6
Phenergan	456	1.5
E-mycin (erythromycin)	413	1.4
Residual	17,646	57.7
15–24 years	29,989	100.0
Penicillin	1,501	5.0
Ampicillin	1,189	4.0
Aspirin	646	2.2
Tetracycline	539	1.8
Actifed	482	1.6
Allergy relief or shots	400	1.3
Benadryl	*364	1.2
Phenergan expectorant with codeine	*340	1.1
Tetanus toxoid	*340	1.1
Pramet FA	*323	1.1
Residual	23,865	79.6
25–44 years	68,195	100.0
Penicillin	1,868	2.7
Ampicillin	1,395	2.0
Lasix	1,327	1.9
Tetracycline	1,216	1.8
Chorionic gonadotropin	1,095	1.6
Aspirin	1,018	1.5
Vitamin B–12	845	1.2
Allergy relief or shots	837	1.2
Actifed	785	1.2
Valium	755	1.1
Ionamin (phentermine)	730	1.1
Hydrochlorothiazide	674	1.0
Tagamet	654	1.0
Phenergan expectorant with codeine	607	0.9
Erythromycin	588	0.9
Keflex	583	0.9
Thyroid	579	0.8
Fastin (phentermine)	532	0.8
Motrin	504	0.7
Amoxil (amoxicillin)	488	0.7
Phenergan	486	0.7
Inderal	476	0.7
Decadron	468	0.7
Phentermine	463	0.7
Tylenol with codeine	448	0.7
Tylenol	443	0.7
Darvocet-N	438	0.6
E.E.S. (erythromycin)	434	0.6
Terramycin	428	0.6
Tranxene	411	0.6
Residual	46,620	68.4

Age of patient and name of drug[1]	Number of mentions in thousands	Percent distribution
45–64 years	77,235	100.0
Dyazide	1,421	1.8
Inderal	1,324	1.7
Lasix	1,291	1.7
Vitamin B–12	1,287	1.7
Motrin	1,125	1.5
Hydrodiuril (hydrochlorothiazide)	1,026	1.3
Hygroton	971	1.3
Ampicillin	960	1.2
Penicillin	956	1.2
Hydrochlorothiazide	953	1.2
Valium	877	1.1
Tagamet	867	1.1
Thyroid	849	1.1
Tetracycline	759	1.0
Insulin	754	1.0
Prednisone	732	0.9
Diuril	686	0.9
Lanoxin (digoxin)	677	0.9
Aldomet	675	0.9
Indocin	633	0.8
Lopressor	543	0.7
Clinoril	485	0.6
Premarin	485	0.6
Aspirin	477	0.6
Tranxene	468	0.6
Diabinese	465	0.6
Benadryl	454	0.6
Butazolidin Alka	453	0.6
Allergy relief or shots	429	0.6
Aldoril	429	0.6
Phenobarbital	421	0.5
E.E.S. (erythromycin)	420	0.5
Darvocet-N	419	0.5
Ativan	408	0.5
Brethine	406	0.5
Ser-ap-es	405	0.5
Erythromycin	402	0.5
Residual	50,843	66.1
65 years and over	73,270	100.0
Lanoxin (digoxin)	2,553	3.5
Lasix	2,183	3.0
Vitamin B–12	1,723	2.4
Dyazide	1,723	2.4
Inderal	1,593	2.2
Aldomet	1,261	1.7
Digoxin	1,168	1.6
Motrin	1,059	1.4
Diabinese	972	1.3
Insulin	963	1.3
Hydrodiuril (hydrochlorothiazide)	919	1.3
Hygroton	886	1.2
Tagamet	790	1.1
Aspirin	779	1.1
Aldoril	778	1.1
Valium	772	1.1
Influenza virus vaccine, type A,B	734	1.0
Nitroglycerin	654	0.9
Slow-K	650	0.9
Isordil	639	0.9
Antivert	622	0.8
Tetracycline	616	0.8
Clinoril	605	0.8

See footnote at end of table.

Table 7. Number and percent distribution of drug mentions in office visits to general and family practitioners by age of patient and most frequently named drugs: United States, 1980—Con.

Age of patient and name of drug[1]	Number of mentions in thousands	Percent distribution	Age of patient and name of drug[1]	Number of mentions in thousands	Percent distribution
65 years and over—Con.			65 years and over—Con.		
Hydrochlorothiazide	596	0.8	Lopressor	469	0.6
Penicillin	542	0.7	Indocin	455	0.6
Dalmane	522	0.7	Darvocet-N	449	0.6
Orinase	501	0.7	Naprosyn	440	0.6
Nitro-bid (nitroglycerin)	485	0.7	Residual	44,171	60.2

[1] Based on the physician's entry on the Patient Record form.

Table 8. Number and percent distribution of drug mentions in office visits to internists by most frequently named drugs: United States, 1980

Name of drug[1]	Number of mentions in thousands	Percent distribution
All drug mentions	118,943	100.0
Inderal	4,150	3.5
Lasix	3,130	2.6
Lanoxin (digoxin)	2,752	2.3
Dyazide	2,743	2.3
Hydrochlorothiazide	2,287	1.9
Aldomet	2,232	1.9
Insulin	2,110	1.8
Isordil	2,080	1.7
Digoxin	1,979	1.7
Valium	1,952	1.6
Prednisone	1,948	1.6
Aspirin	1,889	1.6
Nitroglycerin	1,703	1.4
Allergy relief or shots	1,434	1.2
Motrin	1,326	1.1
Tagamet	1,220	1.0
Fluorouracil	1,217	1.0
Hydrodiuril (hydrochlorothiazide)	1,154	1.0
Lopressor	1,150	1.0
Hygroton	1,080	0.9
Tetracycline	1,026	0.9
Synthroid	1,018	0.9
Potassium	1,005	0.8
Naprosyn	992	0.8
Coumadin	965	0.8
Aldactazide	959	0.8
Indocin	954	0.8
Clinoril	945	0.8
Vitamin B-12	902	0.8
Diabinese	848	0.7
Residual	69,793	58.8

[1] Based on the physician's entry on the Patient Record form.

Table 9. Number and percent distribution of drug mentions in office visits to pediatricians by most frequently named drugs: United States, 1980

Name of drug[1]	*Number of mentions in thousands*	*Percent distribution*
All drug mentions	72,825	100.0
Poliomyelitis vaccine	4,829	6.6
Diphtheria and tetanus toxoids and pertussis vaccine	4,564	6.3
Tuberculin tine test	3,409	4.7
Amoxicillin	3,146	4.3
Allergy relief or shots	2,991	4.1
Penicillin	2,252	3.1
Dimetapp	1,858	2.6
Amoxil (amoxicillin)	1,538	2.1
Ampicillin	1,527	2.1
E.E.S. (erythromycin)	1,440	2.0
Aspirin	1,236	1.7
Dimetane	1,078	1.5
Bicillin (penicillin)	977	1.3
Phenergan	892	1.2
Larotid (amoxicillin)	857	1.2
Actifed	809	1.1
Vaccination (undetermined)	795	1.1
V-Cillin (penicillin)	794	1.1
Novahistine	789	1.1
Erythromycin	753	1.0
M-M-R (measles, mumps, rubella virus vaccine)	735	1.0
Diphtheria, tetanus toxoids	735	1.0
Tylenol	703	1.0
Phenergan expectorant with codeine	656	0.9
Rondec	654	0.9
Septra	632	0.9
Vitamin B-12	618	0.8
Ilosone (erythromycin)	593	0.8
Triaminic	591	0.8
Benadryl	575	0.8
Residual	29,799	40.9

[1] Based on the physician's entry on the Patient Record form.

Table 10. Number and percent distribution of drug mentions in office visits to obstetrician-gynecologists by most frequently named drugs: United States, 1980

Name of drug[1]	*Number of mentions in thousands*	*Percent distribution*
All drug mentions	33,026	100.0
Prenatal formula	1,621	4.9
Ortho-novum	1,254	3.8
Monistat	1,236	3.7
Premarin	1,215	3.7
Materna	1,116	3.4
Lo/ovral	936	2.8
Ampicillin	780	2.4
Vitamins (unspecified)	729	2.2
Stuartnatal 1+1	680	2.1
Flagyl	649	2.0
Tetracycline	587	1.8
Ovral	550	1.7
Nataiins	521	1.6
Demulen	507	1.5
Sultrin	506	1.5
Norinyl	459	1.4
Residual	19,680	59.5

[1] Based on the physician's entry on the Patient Record form.

Technical notes

Source of data and sample design

The information presented in this report is based on data collected by the National Center for Health Statistics through its National Ambulatory Medical Care Survey (NAMCS) during 1980. The target universe of NAMCS includes office visits made within the coterminous 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.

NAMCS utilizes a multistage probability sample design that involves samples of primary sampling units (PSU's), physicians' practices within PSU's, and patient visits within physician practices. For 1980 a sample of 2,959 non-Federal, office-based physicians was selected from master files maintained by the American Medical Association and the American Osteopathic Association. The physician response rate for 1980 was 77.2 percent. Sampled physicians were asked to complete Patient Records (figure 1) for a systematic random sample of office visits taking place during a randomly assigned weekly reporting period. During 1980, responding physicians completed 46,081 Patient Records, on which they recorded 51,372 drug mentions. Characteristics of the physician's practice, such as primary specialty and type of practice, were obtained during an induction interview. The National Opinion Research Center, under contract to the National Center for Health Statistics, was responsible for the survey's field operations.

For a more detailed discussion of the limitations, qualifications, and definitions of the data collected in the NAMCS, see *Vital and Health Statistics,* Series 13. No. 66.[2]

Estimates presented in this report differ from the estimates reported in the National Medical Care Utilization and Expenditure Survey (NMCUES), another program of the National Center for Health Statistics (NCHS). The variation in estimates is due to differences in survey populations, data collection methodology, and definitions. The NMCUES, cosponsored by NCHS and the Health Care Financing Administration (HCFA), is a national panel survey of households in which information on visits to physicians' offices and hospital outpatient departments was collected. Preliminary survey data as well as a discussion of the survey methodology are forthcoming from NCHS and HCFA.

Sampling errors and rounding of numbers

The standard error is primarily a measure of the sampling variability that occurs by chance because only a sample, rather than the entire universe, is surveyed. The relative standard error of an estimate is obtained by dividing the standard error by the estimate itself and is expressed as a percent of the estimate. Relative standard errors of selected aggregate visit statistics are shown in table I. Standard errors for estimated percents of visits are shown in table II. Similar standard errors for drug statistics and percents are shown in tables III and IV. Tables I and II should be used to obtain the standard error of a specific drug mention (e.g., Dyazide). Tables III and IV should be used to obtain the standard error of a group of drug mentions (e.g., all drugs prescribed for hypertension).

Estimates of office visits have been rounded to the nearest thousand. For this reason detailed figures within tables do not always add to totals. Rates and percents were calculated on the basis of original, unrounded figures and will not necessarily agree precisely with percents calculated from rounded data.

Definitions

An *ambulatory patient* is an individual presenting himself for personal health services who is neither bedridden nor currently admitted to any health care institution on the premises.

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

An *office* is a place that the physician identifies as a

Table I. Approximate relative standard errors of estimated number of office visits based on all physician specialties: NAMCS, 1980

Estimated number of office visits in thousands	*Relative standard error in percent*
500	27.3
1,000	19.5
2,000	14.1
5,000	9.4
10,000	7.3
20,000	5.9
50,000	4.9
100,000	4.5
550,000	4.1

Example of use of table: An aggregate estimate of 75,000,000 visits has a relative standard error of 4.7 percent, or a standard error of 3,525,000 visits (4.7 percent of 75,000,000).

NOTE: A list of references follows the text.

Table II. Approximate standard errors of percents of estimated numbers of office visits based on all physician specialties: NAMCS, 1980

Base of percent (number of office visits in thousands)	*Estimated percent*					
	1 or 99	*5 or 95*	*10 or 90*	*20 or 80*	*30 or 70*	*50*
	Standard error in percent					
500	2.7	5.9	8.1	10.8	12.4	13.5
1,000	1.9	4.2	5.7	7.6	8.7	9.5
2,000	1.3	2.9	4.0	5.4	6.2	6.7
5,000	0.8	1.9	2.6	3.4	3.9	4.3
10,000	0.6	1.3	1.8	2.4	2.8	3.0
20,000	0.4	0.9	1.3	1.7	2.0	2.1
50,000	0.3	0.6	0.8	1.1	1.2	1.3
100,000	0.2	0.4	0.6	0.8	0.9	1.0
500,000	0.1	0.2	0.3	0.3	0.4	0.4

Example of use of table: An estimate of 30 percent based on an aggregate of 15,000,000 visits has a standard error of 2.4 percent, or a relative standard error of 8 percent (2.4 percent ÷ 30 percent).

Table III. Approximate relative standard errors of estimated number of drug mentions based on all physician specialties: NAMCS, 1980

Estimated number of drug mentions in thousands	*Relative standard error in percent*
1,000	27.3
2,000	19.7
5,000	13.2
10,000	10.1
20,000	8.2
50,000	6.8
100,000	6.2
300,000	5.8
650,000	5.7

Example of use of table: An aggregate estimate of 75,000,000 drug mentions has a relative standard error of 6.5 percent, or a standard error of 4,875,000 mentions (6.5 percent of 75,000,000).

location for his ambulatory practice. Responsibility over time for patient care and professional services rendered there generally resides with the individual physician rather than an institution.

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 health services.

A *drug mention* is the physician's entry of a pharmaceutical agent ordered or provided—by any route of administration—for prevention, diagnosis, or treatment. Generic as well as brand-name drugs are included, as are nonprescription as well as 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.

Table IV. Approximate standard errors of percents of estimated numbers of drug mentions based on all physician specialties: NAMCS, 1980

Base of percent (number of drug mentions 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					
1,000	2.7	5.8	8.0	10.7	12.2	13.3
2,000	1.9	4.1	5.7	7.6	8.7	9.4
5,000	1.2	2.6	3.6	4.8	5.5	6.0
20,000	0.6	1.3	1.8	2.4	2.7	3.0
100,000	0.3	0.6	0.8	1.1	1.2	1.3
600,000	0.1	0.2	0.3	0.4	0.5	0.5

Example of use of table: An estimate of 30 percent based on an aggregate of 12,500,000 drug mentions has a standard error of 4.1 percent or a relative standard error of 13.7 percent (4.1 percent ÷ 30 percent).

nchs advancedata
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Drug Utilization in General and Family Practice by Characteristics of Physicians and Office Visits: National Ambulatory Medical Care Survey, 1980

by Beulah K. Cypress, Ph.D., Division of Health Care Statistics

Introduction

Women play an increasing role in the provision of medical care; young physicians of both sexes enter the relatively new specialty of family practice, and physicians who have been in practice for some time tend to delay retirement. At the same time, new discoveries in medication therapy are announced with great frequency. Therefore, it is of interest to know whether a changing population of physicians affects the number and kinds of drugs prescribed. If differences by sex and age of the physician do exist, are they simply the results of the structure of the physician's practice?

In this report drug utilization statistics are presented based on the relationship of the sex of the office-based physician and the year of medical school graduation to selected visit characteristics: sex and age of the patient, status and duration of the visit, major reason for the visit, and the type of physician's practice. An examination of these data indicated that the structure of the practice was more likely to influence drug utilization than was the sex of the physician or the year of medical school graduation.

The data were gathered in 1980 by the National Center for Health Statistics by means of the National Ambulatory Medical Care Survey (NAMCS), a probability sample survey conducted annually through 1981 by the Division of Health Care Statistics. Brief information about the source of the data, sampling errors, and definitions of terms are provided in the technical notes at the end of this report. A complete description of the survey including limitations and definitions was published in *Vital and Health Statistics,* Series 13, No. 66.[1] The methodology used to collect and process the drug information is described in *Vital and Health Statistics,* Series 2, No. 90.[2]

Only physicians engaged in general and family practice were used in this analysis to control for the effect of physician specialty on the nature of drug prescription. General and family practitioners who have a doctor of osteopathy (D.O.) degree were not included because data on the age, sex, or year of the physician's medical school graduation were not available.

The Patient Record form used in the 1980 survey is reproduced in figure 1. Up to eight specific drugs, either new or continued during the visit, may be recorded by the physician in item 11, parts *a* and *b.* In order to present accurately what the physician ordered, prescribed, or provided, drug mentions used in this report are based on the physicians' entries on the Patient Record forms. These entries were brand or generic names of prescription or nonprescription drugs, though in some instances the physician recorded a therapeutic effect; for example, "allergy relief."

Visit characteristics

Previous reports from NAMCS have demonstrated that drug utilization statistics vary widely with physician specialty and case-mix.[3–5] Therefore, when analyzing drug utilization patterns by variables such as physician sex and year of graduation, it is important to examine other factors that may contribute to differences. The data presented in tables 1 and 2 are for selected patient visit variables that could influence drug prescribing.

ASSURANCE OF CONFIDENTALITY—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, Education and Welfare
Public Health Service
Office of Health Research, Statistics and Technology
National Center for Health Statistics

C No. 499932

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

1. DATE OF VISIT Month / Day / Year

2. DATE OF BIRTH Month / Day / Year

3. SEX
1 ☐ FEMALE
2 ☐ MALE

4. COLOR OR RACE
1 ☐ WHITE
2 ☐ BLACK
3 ☐ ASIAN/PACIFIC ISLANDER
4 ☐ AMERICAN INDIAN/ ALASKAN NATIVE

5. ETHNICITY
1 ☐ HISPANIC ORIGIN
2 ☐ NOT HISPANIC

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

7. MAJOR REASON FOR THIS VISIT *[Check one]*
1 ☐ ACUTE PROBLEM
2 ☐ CHRONIC PROBLEM, ROUTINE
3 ☐ CHRONIC PROBLEM, FLAREUP
4 ☐ POST SURGERY POST INJURY
5 ☐ NON ILLNESS CARE (ROUTINE PRENATAL, GENERAL EXAM, WELL BABY, ETC)

8. DIAGNOSTIC SERVICES THIS VISIT *[Check all ordered or provided]*
1 ☐ NONE
2 ☐ LIMITED HISTORY/EXAM
3 ☐ GENERAL HISTORY/EXAM
4 ☐ PAP TEST
5 ☐ CLINICAL LAB TEST
6 ☐ X RAY
7 ☐ BLOOD PRESSURE CHECK
8 ☐ EKG
9 ☐ VISION TEST
10 ☐ ENDOSCOPY
11 ☐ MENTAL STATUS EXAM
12 ☐ OTHER (Specify) _____

9. PHYSICIAN'S DIAGNOSES
a PRINCIPAL DIAGNOSIS/PROBLEM ASSOCIATED WITH ITEM 6a
b OTHER SIGNIFICANT CURRENT DIAGNOSES

10. HAVE YOU SEEN PATIENT BEFORE?
1 ☐ YES 2 ☐ NO
IF YES, FOR THE CONDITION IN ITEM 9a?
1 ☐ YES 2 ☐ NO

11. MEDICATION THERAPY THIS VISIT ☐ NONE
[Using brand or generic names, record all new and continued medications ordered, injected, administered, or otherwise provided at this visit. Include immunizing and desensitizing agents]

a. FOR PRINCIPAL DIAGNOSES IN ITEM 9a	b. FOR ALL OTHER REASONS
1	1
2	2.
3	3.
4	4

12. NON-MEDICATION THERAPY *[Check all services ordered or provided this visit]*
1 ☐ NONE
2 ☐ PHYSIOTHERAPY
3 ☐ OFFICE SURGERY
4 ☐ FAMILY PLANNING
5 ☐ PSYCHOTHERAPY/ THERAPEUTIC LISTENING
6 ☐ DIET COUNSELING
7 ☐ FAMILY/SOCIAL COUNSELING
8 ☐ MEDICAL COUNSELING
9 ☐ OTHER (Specify) _____

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

14. 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) _____

15. DURATION OF THIS VISIT *[Time actually spent with physician]*
_____ Minutes

PHS-6105-C (9/79) OMB No. 68-R1498

Figure 1. Patient Record

They are presented to enhance and clarify the interpretation of drug utilization presented later. The following are noteworthy findings from tables 1 and 2 that may be factors contributing to drug use differences by sex of the physician and year of graduation from medical school.

- Female patients constituted 71 percent of visits to female physicians, compared with 60 percent of those to male physicians.
- Patients under 25 years of age accounted for 46 percent of visits to female physicians but only 29 percent of those to male physicians. Patients 45 years of age and over constituted 44 percent of visits to male physicians, compared with 34 percent of those to female physicians.
- Female physicians treated proportionately more new patients (27 percent) than males did (11 percent).
- Proportionately more visits involving nonillness care (general examinations, gynecological examinations, well-baby, and so forth) took place in female physicians' offices (25 percent) than in male physicians' offices (16 percent).
- Female physicians spent some time in face-to-face encounter with virtually all their patients, while 3 per-

Table 1. Percent distribution of office visits to general and family practitioners (M.D.) by selected visit characteristics, according to sex of physician and year of medical school graduation: United States, 1980

Characteristic	Sex of physician			Year of graduation				
	Both sexes	Female	Male	Before 1941	1941–50	1951–60	1961–70	1971–80
	Percent distribution							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sex of patient								
Female	60.1	71.2	59.8	57.1	59.6	59.9	61.4	61.8
Male	39.9	28.8	40.2	42.9	40.4	40.1	38.6	38.2
Age of patient								
Under 15 years	14.4	26.9	14.1	6.7	12.1	14.0	16.8	22.0
15–24 years	15.2	19.1	15.1	9.5	15.1	14.1	16.4	21.1
25–44 years	26.7	20.5	26.9	22.9	24.8	26.5	28.1	31.0
45–64 years	23.9	18.5	24.1	29.5	27.1	24.9	20.9	16.0
65 years and over	19.8	15.0	19.9	31.4	20.9	20.5	17.9	9.9
Visit status								
New patient	11.4	27.3	10.9	11.9	8.2	9.3	10.4	25.9
Old patient, new problem	34.3	25.4	34.5	26.9	34.2	35.4	37.7	30.0
Old patient, old problem	54.4	47.3	54.6	61.2	57.7	55.4	51.9	44.1
Major reason for visit								
Acute problem	46.6	40.7	46.8	43.8	43.4	47.1	48.7	49.6
Chronic problem, routine	24.6	22.2	24.7	36.6	28.1	23.7	22.9	15.3
Chronic problem, flareup	9.1	8.6	9.2	7.3	8.3	9.7	8.8	10.8
Postsurgery or postinjury	3.6	3.4	3.6	3.5	3.7	3.8	3.7	2.4
Nonillness care	16.0	25.1	15.8	8.8	16.6	15.7	16.0	22.0
Duration of visit								
0 minutes[1]	2.9	-	3.0	*1.0	2.0	3.9	3.1	2.5
1–5 minutes	12.3	*3.2	12.5	5.3	13.5	12.1	13.8	13.4
6–10 minutes	38.8	29.6	39.0	30.0	38.3	41.8	39.7	34.2
11–15 minutes	27.4	28.0	27.4	35.1	26.1	26.0	27.4	28.9
16–30 minutes	16.5	30.5	16.1	23.0	18.5	14.7	14.5	17.7
31 minutes or more	2.1	8.7	1.9	5.8	1.6	1.5	1.6	3.4
Type of practice								
Solo	61.4	32.8	62.2	92.9	85.8	61.7	44.4	21.9
Other[2]	38.6	67.2	37.8	7.1	14.2	38.3	55.6	78.1

[1] Represents visits in which there was no face-to-face encounter between patient and physician.
[2] Includes partnership, group, and other types of practice.

Table 2. Average number of office visits per week to general and family practitioners (M.D.) by sex of physician and year of medical school graduation: United States, 1980

Year of graduation	Sex of physician		
	Both sexes	Female	Male
	Number of visits per physician per week		
All years of graduation	94	73	96
Before 1941	60	43	61
1941–1950	90	30	92
1951–1960	111	87	111
1961–1970	102	45	107
1971–1980	81	54	85

cent of visits to male physicians were "0" minutes; that is, patients were treated by a staff member. Male physicians spent less than 11 minutes in 52 percent of their patient encounters; female physicians spent that amount of time in 33 percent. About 39 percent of visits to female physicians lasted 16 minutes or longer, compared with 18 percent of visits with the same duration to males.

- Visits to male physicians were more likely to be to those in solo practice than in other types of practice, while the reverse was true for females.
- In a typical work-week the average female physician saw 73 patients in the office; the average male saw 96.

- Patients under 25 years of age were more likely to visit physicians who graduated in recent years than those in practice a long time, while the reverse was true for patients 45 years of age and older (figure 2).
- Physicians who graduated after 1970 treated proportionately more new patients than physicians who graduated in earlier years did.
- Proportions of visits for routine chronic problems decreased as the year of graduation became more recent. Physicians who graduated in 1971–80 saw proportionately more patients for nonillness care than older physicians did.
- There were proportionately more visits lasting 16 minutes or longer, and fewer that were shorter than 11 minutes, to physicians who graduated before 1941 than to those who graduated in later years.
- The more recent the year of graduation, the less likely were visits to physicians in solo practice. A clear trend toward practice arrangements other than solo by more recent medical school graduates is indicated in figure 3.
- The most professionally active physicians of both sexes were those who graduated in the period 1951–60, but male physicians saw more patients in a typical work-week than females did, regardless of the year of graduation.

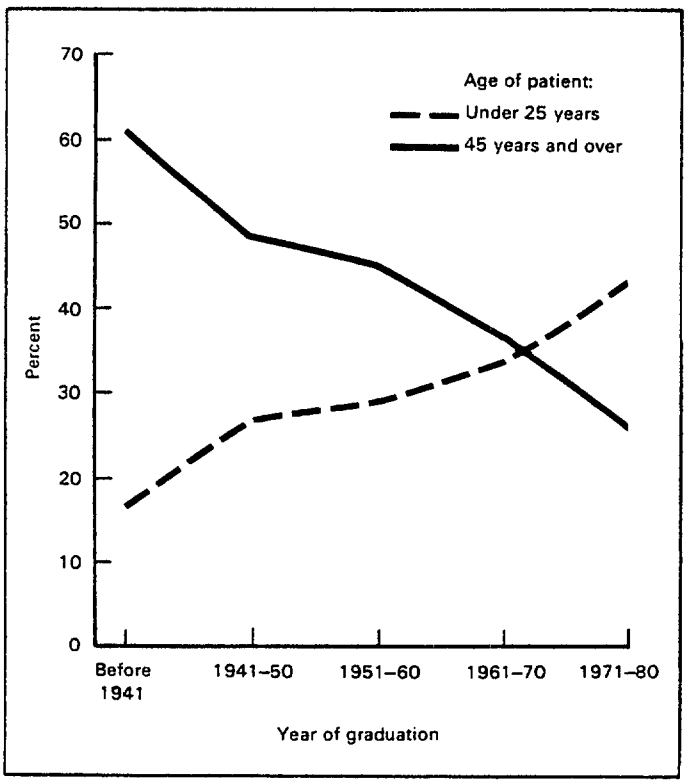

Figure 2. Percent of office visits to general and family practitioners (M.D.), by age of patient and year of medical school graduation: United States, 1980

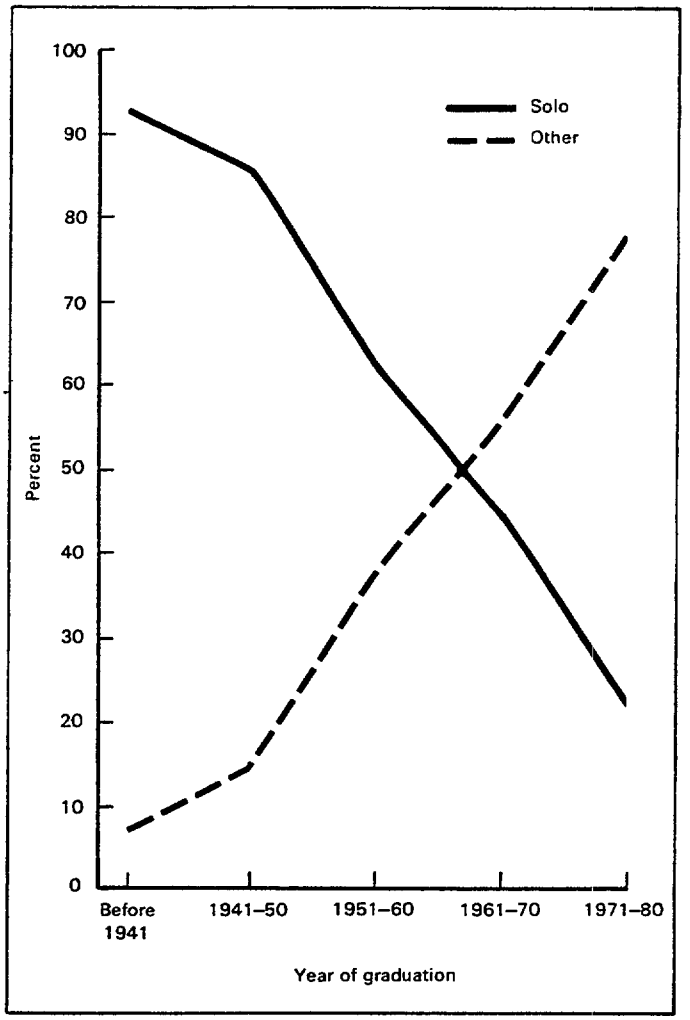

Figure 3. Percent of office visits to general and family practitioners (M.D.), by type of practice and year of medical school graduation: United States, 1980

Drug utilization rates

Two measures of drug utilization are used in this report: the percent of drug visits and the drug intensity rate. The percent of drug visits refers to the percent of visits in which one or more drugs were ordered or provided. The drug intensity rate is the average number of drugs ordered during drug visits. It is obtained by dividing the number of drug mentions by the number of drug visits. These drug utilization rates by the sex of the physician and the year of medical school graduation (in 10-year intervals) in terms of the same practice variables used to describe the visit estimates shown in table 1 are presented in tables 3–5. The percent distribution of drug mentions by the precise number of medications is shown in table 6.

Sex of physician

In general, differences in the utilization rates of female and male physicians were not statistically significant. Differences in rates based on the sex of the patient were also not statistically significant. Although female

Table 3. Percent of drug visits and drug intensity rate, by sex and age of patient, sex of general and family practitioner (M.D.), and year of medical school graduation: United States, 1980

Sex and age of patient	Sex of physician			Year of graduation				
	Both sexes	Female	Male	Before 1941	1941–50	1951–60	1961–70	1971–80
Sex of patient				Percent drug visits[1]				
Both sexes	75.1	78.7	75.0	82.8	74.8	78.3	70.6	66.9
Female	75.9	76.2	75.9	85.1	75.2	79.4	72.0	65.7
Male	74.0	85.0	73.8	79.7	74.2	76.7	68.5	68.9
Age of patient								
Under 15 years	71.5	73.9	71.4	73.5	68.6	77.1	69.8	64.1
15–24 years	64.4	67.0	64.3	68.6	65.6	66.7	62.6	58.4
25–44 years	72.2	76.9	72.1	81 8	73.5	74.5	66.6	67.1
45–64 years	80.1	84.8	80.0	82.9	78.1	83.4	76.4	73.3
65 years and over	83.9	97.2	83.6	89.6	82.2	85.8	78.3	80.5
Sex of patient				Rate per drug visit[2]				
Both sexes	1.92	2.01	1.92	1.91	1.84	2.05	1.87	1.64
Female	1.97	2.11	1.96	1.97	1.85	2.11	1.94	1.65
Male	1.85	1.79	1.85	1.81	1.83	1.96	1.75	1.63
Age of patient								
Under 15 years	1.59	1.85	1.58	1.84	1.53	1.63	1.60	1.47
15–24 years	1.58	1.71	1.57	1.55	1.47	1.74	1.47	1.48
25–44 years	1.75	1.77	1.75	1.72	1.67	1.90	1.65	1.55
45–64 years	2.05	2.21	2.05	1.92	1.89	2.22	2.02	1.87
65 years and over	2.36	2.53	2.36	2.12	2.31	2.46	2.50	2.10

[1] A visit in which one or more drugs were ordered.
[2] Drug mentions divided by number of drug visits.

physicians treated proportionately more female patients than male physicians did, they used drugs to treat female patients at about the same rate as their male counterparts.

Male physicians had a higher proportion of patients over 65 years of age than female physicians did, but proportionally fewer of those visits resulted in drug therapy than those to female physicians (84 percent of visits to male physicians, compared with 97 percent to females). However, the average number of drugs (drug intensity rate) prescribed during those visits was about the same for all physicians. Similarly, the drug intensity rates for patients under 25 years of age, who were more likely to be treated by female physicians than by males, were not statistically different by sex of the physician.

Regardless of the sex of the physician, patients seen before were more likely to have drug visits than new patients were. However, male physicians ordered more drugs during drug visits by returning patients than by new patients. The drug intensity rates for new and returning patients did not differ significantly when the physician was a female. However, when the major reason for the patient's visit was a routine chronic problem, about 91 percent of visits for such care given by female physicians resulted in a drug prescription, compared with 84 percent of those by male physicians, a statistically significant difference.

Female physicians also tended to prescribe one or more drugs proportionately more often during nonillness visits (69 percent) than male physicians did (49 percent). The drug intensity rates for the routine care of chronic problems and for nonillness care were also higher for female physicians than for males. These results may be due in part to the relatively larger number of female patients seen by female physicians. Also, a higher proportion of female physicians' visits were for examinations (23 percent) than male physicians were (15 percent). Chronic genitourinary problems treated during women's office visits usually require medication therapy while visits for gynecological examinations are likely to include contraceptive prescription. Vitamins are commonly used for prenatal care, which is a leading diagnosis in the nonillness category.

For both female and male physicians the lowest drug intensity rate was associated with very short visits (less than 6 minutes). Otherwise, the average number of drugs prescribed varied only slightly with the longer duration of the visit. Female physicians were more likely than males were to prescribe at least one drug when the visits lasted from 11 to 30 minutes. Because female physicians had a higher proportion of visits with a duration of 16 minutes or more, it may be that the utilization of drug therapy contributed to the greater visit length.

In comparing drug visits by type of practice for male physicians only, it was found that one or more drugs

Table 4. Percent of drug visits and drug intensity rate, by visit status, major reason for visit, duration of visit, sex of general and family practitioner (M.D.), and year of medical school graduation: United States, 1980

Visit status, major reason for visit, and duration of visit	Sex of physician			Year of graduation				
	Both sexes	Female	Male	Before 1941	1941–50	1951–60	1961–70	1971–80
Visit status	Percent drug visits[1]							
All patients	75.1	78.7	75.0	82.8	74.8	78.3	70.6	66.9
New patient	67 2	66.9	67.2	71.6	63.7	69.5	59.5	70.2
Old patient, new problem	76.0	80.1	75.9	78.6	75.2	80.2-	71.1	69.1
Old patient, old problem	76.3	84.8	76.1	86.8	76.1	78.6	72.5	63.5
Major reason for visit								
Acute problem	80.5	81.3	80.5	86.6	79.6	84.4	76.1	72.5
Chronic problem, routine	84.0	91.0	83.9	92.0	84.9	83.6	80.1	79.2
Chronic problem, flareup	83.8	*71.7	84.1	88.2	86.6	88.0	75.8	76.0
Postsurgery or postinjury	36.3	*57.2	35.7	*46.9	35.0	33.3	38.0	*40.3
Nonillness care	49.7	68.9	48.9	35.3	48.2	57.1	44.8	44.3
Duration of visit								
0 minutes[2]	77.4	-	77.4	*51.4	92.8	78.9	70.6	*69.7
1–5 minutes	74.1	*81.3	74.1	88.0	76.5	77.5	73.8	55.3
6–10 minutes	78.6	79.4	78.6	83.4	79.7	81.5	73.9	70.4
11–15 minutes	74.3	82.2	74.1	84.6	73.4	77.4	65.8	70.5
16–30 minutes	71.0	79.3	70.6	84.8	65.3	72.2	69.5	67.1
31 minutes or more	57.9	*61.9	57.4	60.5	54.4	69.4	*53.9	*43.3
Visit status	Rate per drug visit[3]							
All patients	1.92	2.01	1.92	1.91	1.84	2.05	1.87	1.64
New patient	1.71	1.99	1.69	1.75	1.54	1.88	1.83	1.50
Old patient, new problem	1.80	1.78	1.80	1.82	1.81	1.84	1.77	1.64
Old patient, old problem	2.03	2.13	2.03	1.97	1.89	2.21	1.94	1.74
Major reason for visit								
Acute problem	1.83	1.85	1.83	1.94	1.82	1.94	1.69	1.55
Chronic problem, routine	2.17	2.53	2.16	1.90	2.01	2.30	2.39	1.94
Chronic problem, flareup	2.21	*2.00	2.21	2.12	2.08	2.50	1.91	1.81
Postsurgery or postinjury	1.51	*1.56	1.51	*1.61	1.30	1.67	1.28	*1.18
Nonillness care	1.49	1.75	1.48	1.41	1.29	1.62	1.21	1.15
Duration of visit								
0 minutes[2]	1.38	-	1.38	*1.60	1.02	1.63	1.18	*1.02
1–5 minutes	1.56	*1.14	1.56	1.25	1.41	1.56	1.82	1.44
6–10 minutes	1.91	1.83	1.91	1.72	1.88	2.04	1.83	1.62
11–15 minutes	2.03	1.97	2.03	2.05	1.98	2.17	1.94	1.74
16–30 minutes	2.13	2.32	2.12	2.08	1.98	2.42	2.05	1.69
31 minutes or more	2.02	*2.00	2.02	1.97	1.98	2.14	*1.87	*2.00

[1] A visit in which one or more drugs were ordered
[2] Represents visits in which there was no face-to-face encounter between patient and physician.
[3] Drug mentions divided by number of drug visits.

were mentioned in proportionally more visits to those in solo practice (78 percent) than to those in other types of practice (70 percent). This difference was not statistically significant for female physicians. However, female physicians in multiple practices had a higher proportion of drug visits than males in multiple practice arrangements did.

Year of graduation

It was shown previously that older physicians tended to treat older patients, while recent graduates from medical school tended to treat younger patients. An earlier report[3] indicated a high correlation between the age of the patient and drug utilization, with rates increasing with increasing age. The current study results reflect these findings. Physicians who graduated before 1961 were more likely to include one or more drugs than those who graduated in later years were. The most recent graduates (1971–80) prescribed, on the average, fewer drugs per drug visit than their older counterparts did. They also had the highest proportion of visits with only one drug prescribed. However, their drug intensity rates for patients 45 years of age and over increased with increasing age as did those of other physicians, thus

Table 5. Percent of drug visits and drug intensity rate, by type of physician's practice, sex of general and family practitioner (M.D.), and year of medical school graduation: United States, 1980

Type of practice	Sex of physician			Year of graduation				
	Both sexes	Female	Male	Before 1941	1941–50	1951–60	1961–70	1971–80
	Percent of drug visits[1]							
All types of practice	75.1	78.7	75.0	82.8	74.8	78.3	70.6	66.9
Solo	78.0	81.6	77.9	82.9	76.2	79.8	74.6	69.7
Other[2]	70.6	77.3	70.3	81.3	66.5	76.0	67.4	66.1
	Rate per drug visit[3]							
All types of practice	1.92	2.01	1.92	1.91	1.84	2.05	1.87	1.64
Solo	1.95	2.30	1.94	1.89	1.85	2.08	1.87	1.82
Other[2]	1.87	1.86	1.87	2.22	1.74	2.01	1.87	1.59

[1] A visit in which one or more drugs were ordered.
[2] Includes partnership, group, and other types of practice.
[3] Drug mentions divided by number of drug visits.

Table 6. Percent distribution of drug visits to general and family practitioners (M.D.) by number of medications, according to sex of physician and year of medical school graduation: United States, 1980

Sex of physician and year of graduation	Number of medications				
	Total	1	2	3	4 or more
	Percent distribution				
All drug visits[1]	100.0	46.2	30.5	13.3	9.9
Sex of physician					
Female	100.0	38.7	38.4	*9.0	14.0
Male	100.0	46.5	30.3	13.4	9.8
Year of graduation					
Before 1941	100.0	42.3	33.6	16.9	7.2
1941–1950	100.0	50.3	28.3	13.1	8.3
1951–1960	100.0	41.6	31.3	14.1	13.0
1961–1970	100.0	48.7	30.1	12.1	9.1
1971–1980	100.0	56.5	29.4	9.4	4.7

[1] A visit in which one or more drugs were ordered.

providing evidence that the rate of drug use depends on the age of the patient and not the age of the physician.

For all medical school graduates, except the 1971–80 group, proportions of drug visits were higher for old patients returning to the same physician for care of a continuing problem than for new patients. On the other hand, the 1971–80 graduates were more likely to prescribe one or more drugs during initial visits (which were likely to be made by young rather than more mature patients) than during visits by patients returning for continuing care.

Physicians who graduated after 1960, and who had proportionately more patients under 25 years of age than other physicians did, had lower proportions of drug visits for care of acute or chronic problems than physicians who graduated before 1961 did. As expected, proportions of drug visits for nonillness care and postsurgery or postinjury were lowest among all major reasons for visit regardless of the physician's year of graduation. Physicians in practice the longest (graduated before 1941) were the least likely to have drug visits for nonillness care (35 percent). This was probably related to the fact that nonillness care given by older physicians was usually for a routine physical examination, while younger physicians provided more pediatric (immunizations, and so forth) and prenatal care.

Proportions of drug visits did not vary appreciably with changing duration intervals regardless of the year of graduation. Only very long visits (31 minutes or longer) had proportionately fewer drug visits than other durations did. However, the average number of drugs ordered during drug visits to some groups was related to

the duration of the visit. For physicians who graduated before 1961 the drug intensity rate for visits lasting 11 minutes or more was higher than that for visits lasting less than 11 minutes. This difference was not statistically significant for physicians who graduated in later years. One possible explanation for this is that both visit duration and drug utilization increase with increasing patient age group, and physicians who graduated before 1961 see proportionately more older patients than younger physicians do.

Therapeutic categories

Sex of physician

Each drug named by the physician in NAMCS is classified according to its desired therapeutic effect based on the classification system of the American Hospital Formulary Service.[6] The distribution of drug mentions by therapeutic category is shown in table 7.

The use of certain kinds of drugs tended to follow the case-mix pattern of the physician groups. The leading category used by physicians of both sexes was central nervous system drugs. Serums, toxoids, and vaccines (13 percent) was the next largest category prescribed by female physicians, and it was significantly greater than the 3 percent of the same drugs used by male physicians. For male physicians the second ranking therapeutic group was anti-infective agents (17 percent), which exceeded the use of such drugs by female physicians (10 percent). Other differences between therapeutic categories used by female and male physicians were not statistically significant.

There were some within-category differences depending on the sex of the physician. In the central nervous system group, no respiratory and cerebral stimulants were prescribed by females. In the hormones and synthetic substitutes group, males used proportionately more adrenals and androgens than females did, while females ordered proportionately more contraceptives. These results reflect the distribution of patient visits by sex of the patients likely to visit female and male physicians.

Year of graduation

As might be expected considering the age distributions of their patients, physicians who graduated before 1941 made greater use of cardiovascular drugs and diuretics than their younger counterparts did. Physicians who graduated before 1961 were more likely to prescribe central nervous system drugs than those who graduated later were. The most recent graduates were more likely to use antihistamines and skin and mucous membrane preparations, reflecting the higher proportions of young and female patients who visited them.

Specific drugs

The specific drugs most frequently prescribed by general and family practitioners (including doctors of osteopathy) were listed by age of the patient in Advance Data No. 86.[4] A comparison of those data with the drug lists generated by the physicians grouped by sex of the physician and year of graduation in the current analysis revealed few differences among the groups in the drugs named or their relative standing.

Table 7 Percent distribution of drugs mentioned by general and family practitioners (M.D.) by therapeutic category, according to sex of physician and year of medical school graduation: United States, 1980

Therapeutic category[1]	Sex of physician			Year of graduation				
	Both sexes	Female	Male	Before 1941	1941–50	1951–60	1961–60	1971–80
	Percent distribution							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Antihistamine drugs	6.7	5.4	6.7	6.3	6.3	5.7	7.5	11.3
Anti-infective agents	16.6	9.6	16.8	14.6	14.7	17.2	17.5	18.1
Autonomic drugs	4.6	*2.8	4 7	3.4	4.3	4.8	4.5	5.8
Blood formation and coagulation	1.4	*2.8	1.4	*1.2	0.9	1.8	1.3	*1 0
Cardiovascular drugs	10.3	7.8	10.4	14.8	11.7	9.6	9.4	7.7
Central nervous system drugs	18.2	14.5	18.3	17.1	21.4	18.3	16.0	15.8
Electrolytic, caloric, and water balance	8 6	10 4	8.5	11.1	9.9	8.0	8.2	6.7
Expectorants and cough preparations	3.4	*3.8	3.4	3.7	2.9	3.8	3.0	2.6
Eye, ear, nose, and throat preparations	1.5	*1.0	1.6	2.1	*0.7	1.6	1.9	*1.7
Gastrointestinal drugs	4.8	6.7	4.7	4.6	5.0	4.8	5.1	4.0
Hormones and synthetic substitutes	7.4	7.7	7.4	5.9	6.7	8.2	8.0	6.0
Serums, toxoids, and vaccines	2.9	13.2	2.6	2.4	3.1	2.8	3.5	2.2
Skin and mucous membrane preparations	5.1	8.4	5.0	4.9	3.9	4.4	6.5	8.6
Spasmolytic agents	1 8	*0 5	1.9	*1.3	2.3	1.8	1.5	2.0
Vitamins	3 8	*3.0	3.8	3 1	4.0	3.8	3.5	4.4
All other categories[2]	2.9	2.4	2.9	3 5	2.2	3 4	2 6	2.1

[1] Based on the classification system of the American Hospital Formulary Service See reference 6

[2] Includes antineoplastic agents, diagnostic agents, enzymes, gold compounds, heavy metal antagonists, local anesthetics, oxytocics, unclassified therapeutic agents, pharmaceutic aids, and therapeutic category undetermined

Discussion

This study was limited because of the small number of female physicians in the sample. Females constitute approximately 5 percent of the office-based general and family practitioners in the NAMCS universe. The female general and family practitioners (M.D.'s, doctors of medicine) accounted for 22 percent of all female physicians who reported visits in NAMCS: The males accounted for 21 percent of the male physicians in the same specialty. However, the relatively large sampling error associated with the small size of the female sample made it difficult to detect differences.

Most of the differences in drug utilization between female and male physicians can be attributed to the differences in the demographic characteristics of their patients and the diagnoses commonly associated with them. Although the study was restricted to only one specialty, it is apparent that in general and family practice, case-mix is influenced by the sex of the physician.

Similarly, case-mix also depends on the age of the physician. A medical practice is built over a period of time and it is natural for older patients to continue seeking their health care from the same established physicians. The caseload of the newly graduated physician, on the other hand, typically consists of young patients, many of them seeing a physician for the first time for preventive care or for self-limiting conditions.

These differences in visit characteristics were noticeable in the distribution of drugs by therapeutic category. As expected, there was a strong correlation between case-mix and the categories of drugs most frequently used. It is noteworthy, however, that in the choice of specific drugs, the age of the physician had no apparent effect. Physicians who graduated over 40 years ago prescribed the same brand name drugs, many of them only recently developed, as those who graduated in more recent decades did. Continuing medical education courses and seminars, often required for board certification, is one factor in the updating of the physician's medical knowledge. But pharmaceutical discoveries proliferate at a rapid pace, and the manufacturers also contribute to the modernization of the physician's treatment armamentarium through their representatives and literature. One conclusion that might be drawn from the results of this study suggests that the motivation to acquire new drug information is common to all age physicians.

References

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Technical notes

Source of data and sample design

The information presented in this report is based on data collected by the National Center for Health Statistics (NCHS) through its National Ambulatory Medical Care Survey (NAMCS) during 1980. The target universe of NAMCS includes office visits made within the coterminous 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.

NAMCS utilizes a multistage probability sample design that involves samples of primary sampling units (PSU's), physicians' practices within PSU's, and patient visits within physician practices. For 1980 a sample of 2,959 non-Federal, office-based physicians was selected from master files maintained by the American Medical Association and the American Osteopathic Association. The physician response rate for 1980 was 77.2 percent. Sampled physicians were asked to complete Patient Records (figure 1) for a systematic random sample of office visits taking place during a randomly assigned weekly reporting period. During 1980, responding physicians completed 46,081 Patient Records, on which they recorded 51,372 drug mentions. Characteristics of the physician's practice, such as primary specialty and type of practice, were obtained during an induction interview. The National Opinion Research Center, under contract to NCHS, was responsible for the survey's field operations.

For a more detailed discussion of the limitations, qualifications, and definitions of the data collected in the NAMCS, see *Vital and Health Statistics,* Series 13. No. 66.[1]

Estimates presented in this report differ from the estimates reported in the National Medical Care Utilization and Expenditure Survey (NMCUES), another program of NCHS. The variation in estimates is due to differences in survey populations, data collection methodology, and definitions. The NMCUES, cosponsored by NCHS and the Health Care Financing Administration (HCFA), is a national panel survey of households in which information on visits to physicians' offices and hospital outpatient departments was collected. Preliminary survey data as well as a discussion of the survey methodology are forthcoming from NCHS and HCFA.

Sampling errors and rounding of numbers

The standard error is primarily a measure of the sampling variability that occurs by chance because only a sample, rather than the entire universe, is surveyed. The relative standard error of an estimate is obtained by dividing the standard error by the estimate itself and is expressed as a percent of the estimate. Relative standard errors of selected aggregate visit statistics are shown in Table I. Standard errors for estimated percents of visits are shown in table II. Similar standard errors for drug statistics and percents are shown in tables III and IV. Tables I and II should be used to obtain the standard error of a specific drug mention (e.g., Dyazide). Tables III and IV should be used to obtain the standard error of a group of drug mentions (e.g., all drugs prescribed for hypertension).

Estimates of office visits have been rounded to the nearest thousand. For this reason detailed figures within tables do not always add to totals. Rates and percents were calculated on the basis of original, unrounded figures and will not necessarily agree precisely with percents calculated from rounded data.

Definitions

An *ambulatory patient* is an individual presenting himself for personal health services who is neither bedridden nor currently admitted to any health care institution on the premises.

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

An *office* is a place that the physician identifies as a

Table I. Approximate relative standard errors of estimated number of office visits based on all physician specialties, NAMCS, 1980

Estimated number of office visits in thousands	*Relative standard error in percent*
500	27.3
1,000	19.5
2,000	14.1
5,000	9.4
10,000	7.3
20,000	5.9
50,000	4.9
100,000	4.5
550,000	4.1

Example of use of table: An aggregate estimate of 75,000,000 visits has a relative standard error of 4.7 percent, or a standard error of 3,525,000 visits (4.7 percent of 75,000,000).

NOTE: A list of references follows the text.

Table II. Approximate standard errors of percents of estimated numbers of office visits based on all physician specialties: NAMCS, 1980

Base of percent (number of office visits in thousands)	*Estimated percent*					
	1 or 99	*5 or 95*	*10 or 90*	*20 or 80*	*30 or 70*	*50*
	Standard error in percent					
500	2.7	5.9	8.1	10.8	12.4	13.5
1,000	1.9	4.2	5.7	7.6	8.7	9.5
2,000	1.3	2.9	4.0	5.4	6.2	6.7
5,000	0.8	1.9	2.6	3.4	3.9	4.3
10,000	0.6	1.3	1.8	2.4	2.8	3.0
20,000	0.4	0.9	1.3	1.7	2.0	2.1
50,000	0.3	0.6	0.8	1.1	1.2	1.3
100,000	0.2	0.4	0.6	0.8	0.9	1.0
500,000	0.1	0.2	0.3	0.3	0.4	0.4

Example of use of table: An estimate of 30 percent based on an aggregate of 15,000,000 visits has a standard error of 2.4 percent, or a relative standard error of 8 percent (2.4 percent ÷ 30 percent).

Table III. Approximate relative standard errors of estimated number of drug mentions based on all physician specialties: NAMCS, 1980

Estimated number of drug mentions in thousands	*Relative standard error in percent*
1,000	27.3
2,000	19.7
5,000	13.2
10,000	10.1
20,000	8.2
50,000	6.8
100,000	6.2
300,000	5.8
650,000	5.7

Example of use of table: An aggregate estimate of 75,000,000 drug mentions has a relative standard error of 6.5 percent, or a standard error of 4,875,000 mentions (6.5 percent of 75,000,000).

location for his ambulatory practice. Responsibility over time for patient care and professional services rendered there generally resides with the individual physician rather than an institution.

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 health services.

A *drug mention* is the physician's entry of a pharmaceutical agent ordered or provided—by any route of administration—for prevention, diagnosis, or treatment. Generic as well as brand-name drugs are included, as are nonprescription as well as 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.

Table IV. Approximate standard errors of percents of estimated numbers of drug mentions based on all physician specialties: NAMCS, 1980

Base of percent (number of drug mentions in thousands)	*Estimated percent*					
	1 or 99	*5 or 95*	*10 or 90*	*20 or 80*	*30 or 70*	*50*
	Standard error in percent					
1,000	2.7	5.8	8.0	10.7	12.2	13.3
2,000	1.9	4.1	5.7	7 6	8.7	9.4
5,000	1.2	2.6	3.6	4.8	5.5	6.0
20,000	0.6	1.3	1.8	2.4	2.7	3.0
100,000	0.3	0.6	0.8	1.1	1.2	1.3
600,000	0.1	0.2	0.3	0.4	0.5	0.5

Example of use of table: An estimate of 30 percent based on an aggregate of 12,500,000 drug mentions has a standard error of 4.1 percent, or a relative standard error of 13.7 percent (4 1 percent ÷ 30 percent).

nchs advancedata

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

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1981 Summary: National Ambulatory Medical Care Survey

by Linda Lawrence and Thomas McLemore, Division of Health Care Statistics

During 1981 an estimated 585.2 million office visits were made to nonfederally employed, office-based physicians in the conterminous United States, an average of 2.6 office visits per person per year. These and other estimates presented in this report are based on data collected in the 1981 National Ambulatory Medical Care Survey, a probability sample survey conducted annually through 1981 by the Division of Health Care Statistics of the National Center for Health Statistics. The physician sample for the National Ambulatory Medical Care Survey (NAMCS) is selected, with the cooperation of the American Medical Association and the American Osteopathic Association, from a list of nonfederally employed physicians who are principally engaged in office-based practice. Physicians practicing in Alaska and Hawaii, and physicians in the specialties of anesthesiology, pathology, and radiology are excluded from the survey.

This report provides an overview of the data from the 1981 NAMCS. Utilization of office-based ambulatory medical care services is described in terms of the number and percent of office visits and of annual visit rates. Utilization statistics are presented on patient, physician, and visit characteristics as follows:

Table 1	Patient age and sex
Table 2	Patient race and ethnicity
Table 3	Physician specialty and type of practice
Tables 4 and 5	Principal reason for visit as expressed by the patient
Table 6	Major reason for visit, prior visit status, and referral status
Table 7	Diagnostic services ordered or provided
Tables 8 and 9	Principal diagnosis rendered by the physician
Tables 10 and 11	Medication therapy ordered or provided
Table 12	Non-medication therapy
Table 13	Disposition and duration of visit

Since the estimates presented in this report are based on a sample rather than on the entire universe of office visits, the data are subject to sampling variability. The technical notes at the end of this report provide a brief description of the sample design, an explanation of sampling errors, and guidelines for judging the precision of the estimates. A more detailed description of the NAMCS sample design and survey methodology has been published.[1]

Figure 1 is a facsimile of the 1981 NAMCS Patient Record used by participating physicians to record information about their office visits. The Patient Record can be a useful reference as survey findings are reviewed.

Data highlights

Patient characteristics

Office visit data according to patient demographic characteristics are presented in tables 1 and 2. As shown in table 1, the annual visit rate for 1981 varied from about 2.0 visits per person per year for the age groups under 25 years to 4.3 visits per person per year for the 65 years and over age group. Females accounted for about 60 percent of all visits. The annual visit rate for females (3.1 visits per person per year) was higher than the visit rate for males (2.1 visits per person per year). White persons (85.7 percent of the civilian noninstitutionalized population) accounted for 89 percent of all office visits (table 2). As also shown in table 2, persons of Hispanic origin accounted for approximately 4 percent of all visits. These data are essentially unchanged since 1975.

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, Education and Welfare
Public Health Service
Office of Health Research, Statistics and Technology
National Center for Health Statistics

C No. 499932

1. DATE OF VISIT Month / Day / Year

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

2. DATE OF BIRTH Month / Day / Year

3. SEX
1 ☐ FEMALE
2 ☐ MALE

4. COLOR OR RACE
1 ☐ WHITE
2 ☐ BLACK
3 ☐ ASIAN/PACIFIC ISLANDER
4 ☐ AMERICAN INDIAN/ ALASKAN NATIVE

5. ETHNICITY
1 ☐ HISPANIC ORIGIN
2 ☐ NOT HISPANIC

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

7. MAJOR REASON FOR THIS VISIT *[Check one]*
1 ☐ ACUTE PROBLEM
2 ☐ CHRONIC PROBLEM, ROUTINE
3 ☐ CHRONIC PROBLEM, FLAREUP
4 ☐ POST SURGERY/POST INJURY
5 ☐ NON-ILLNESS CARE (ROUTINE PRENATAL, GENERAL EXAM, WELL BABY, ETC)

8. DIAGNOSTIC SERVICES THIS VISIT *[Check all ordered or provided]*
1 ☐ NONE
2 ☐ LIMITED HISTORY/EXAM
3 ☐ GENERAL HISTORY/EXAM
4 ☐ PAP TEST
5 ☐ CLINICAL LAB TEST
6 ☐ X-RAY
7 ☐ BLOOD PRESSURE CHECK
8 ☐ EKG
9 ☐ VISION TEST
10 ☐ ENDOSCOPY
11 ☐ MENTAL STATUS EXAM
12 ☐ OTHER (Specify) _____

9. PHYSICIAN'S DIAGNOSES
a PRINCIPAL DIAGNOSIS PROBLEM ASSOCIATED WITH ITEM 6a
b OTHER SIGNIFICANT CURRENT DIAGNOSES

10. HAVE YOU SEEN PATIENT BEFORE?
1 ☐ YES 2 ☐ NO
IF YES, FOR THE CONDITION IN ITEM 9a?
1 ☐ YES 2 ☐ NO

11. MEDICATION THERAPY THIS VISIT ☐ NONE
[Using brand or generic names, record all new and continued medications ordered, injected, administered, or otherwise provided at this vist. Include immunizing and desensitizing agents]

a. FOR PRINCIPAL DIAGNOSES IN ITEM 9a	b. FOR ALL OTHER REASONS
1	1
2.	2.
3.	3.
4	4.

12. NON-MEDICATION THERAPY *[Check all services ordered or provided this visit]*
1 ☐ NONE
2 ☐ PHYSIOTHERAPY
3 ☐ OFFICE SURGERY
4 ☐ FAMILY PLANNING
5 ☐ PSYCHOTHERAPY/ THERAPEUTIC LISTENING
6 ☐ DIET COUNSELING
7 ☐ FAMILY/SOCIAL COUNSELING
8 ☐ MEDICAL COUNSELING
9 ☐ OTHER (Specify) _____

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

14. 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) _____

15. DURATION OF THIS VISIT *[Time actually spent with physician]*
_____ Minutes

PHS-6105-C (9/79) OMB No. 68-R1498

Figure 1. 1981 National Ambulatory Medical Care Survey Patient Record

Physician characteristics

Among office-based physicians, general and family practitioners led all other specialties in volume of office visits, accounting for about 32 percent of all office visits made during 1981 (table 3). The general and family physicians' share of visits, however, continues its steady decline since 1975, when they accounted for 41.3 percent of visits. The distribution of visits by the physician's type of practice shows that 55 percent of all visits were made to solo practitioners and 45 percent were made to physicians engaged in multiple member practice.

Visit characteristics

Reason for visit.—Data in tables 4 and 5 represent the principal reason for visiting the physician's office as expressed in the patient's own words. The principal reason for visit is the problem, complaint, or reason listed first in item 6 of the Patient Record. These data have been classified and coded according to the *Reason for Visit Classification for Ambulatory Care* (RVC)[2]. The RVC is divided into 8 modules or groups of reasons, as shown in table 4. Reasons for visit classified as "symptoms" (symptom module) accounted for over

Table 1. Number, percent distribution, and annual rate of office visits by sex and age of patient: United States, 1981

Sex and age	Number of visits in thousands	Percent distribution of visits	Number of visits per person per year[1]
Both sexes			
All ages	585,177	100.0	2.6
Under 15 years	106,773	18.3	2.1
15–24 years	79,234	13.5	2.0
25–44 years	155,689	26.6	2.4
45–64 years	136,055	23.3	3.1
65 years and over	107,426	18.4	4.3
Female			
All ages	353,612	60.4	3.1
Under 15 years	52,130	8.9	2.1
15–24 years	52,397	9.0	2.6
25–44 years	102,833	17.6	3.1
45–64 years	80,646	13.8	3.5
65 years and over	65,606	11.2	4.5
Male			
All ages	231,565	39.6	2.1
Under 15 years	54,643	9.3	2.1
15–24 years	26,837	4.6	1.3
25–44 years	52,856	9.0	1.7
45–64 years	55,408	9.5	2.7
65 years and over	41,820	7.1	4.1

[1] Rates are based on estimates of the civilian noninstitutionalized population of the United States, excluding Alaska and Hawaii, as of July 1, 1981.

Table 2. Number and percent distribution of office visits by race and ethnicity of patient: United States, 1981

Race and ethnicity	Number of visits in thousands	Percent distribution
All visits	585,177	100.0
Race		
White	520,974	89.0
All other	64,203	11.0
Black	57,674	9.9
Asian or Pacific Islander	5,517	0.9
American Indian or Alaskan Native	1,012	0.2
Ethnicity		
Hispanic	24,617	4.2
Not Hispanic	560,560	95.8

half of all visits, with symptoms of the respiratory and musculoskeletal systems accounting for about 19 percent of all visits. The 20 most common specific principal reasons for visit are listed in table 5. The reader is cautioned that the rankings presented in table 5 may be somewhat artificial because some estimates may not be statistically different from other near estimates due to sampling variability. Detailed tabulations of reason for

Table 3. Number and percent distribution of office visits by physician specialty and type of practice: United States, 1981

Physician specialty and type of practice	Number of visits in thousands	Percent distribution
All visits	585,177	100.0
Physician specialty		
General and family practice	189,966	32.5
Medical specialties	183,136	31.3
Internal medicine	74,691	12.8
Pediatrics	64,539	11.0
Other	43,906	7.5
Surgical specialties	183,635	31.4
General surgery	32,697	5.6
Obstetrics and gynecology	53,912	9.2
Other	97,026	16.6
Other specialties	28,440	4.8
Psychiatry	15,954	2.7
Other	12,486	2.1
Type of practice		
Solo	321,688	55.0
Partnership	110,330	18.9
Other[1]	153,159	26.2

[1] Includes group practice and other.

visit data from the 1977–78 NAMCS are in *Vital and Health Statistics,* Series 13, Number 56.[3]

Table 6 shows the number and percent distribution of office visits by the physician's determination of major reason for visit, patient's prior visit status, and referral status.

Major reason for visit.—In item 7 of the Patient Record, the physician was instructed to check the one major reason for the patient's office visit. Approximately equal proportions of visits were made for acute problems and chronic problems (37 percent).

Prior visit status.—Approximately 86 percent of the visits to office-based physicians were by patients who had seen the physician before ("old" patients). Furthermore, the majority of visits (64 percent) were made by "old" patients with an "old" problem, i.e., problems which had previously been treated by the physician.

Referral status.—Approximately 5 percent of all visits were the result of referrals from another physician. However, about 27 percent of all "new" patient visits were referrals.

Diagnostic services.—Information on various diagnostic services that may be ordered or provided during an office visit is presented in table 7. A limited history or examination was rendered at 65 percent of all visits. The procedures ordered or provided most often were blood pressure checks (35 percent) and clinical laboratory tests (22 percent). Although a Pap test was ordered or provided during about 4 percent of all visits, this represents about 7 percent of the visits by women.

Principal diagnosis.—Tables 8 and 9 present data on the principal diagnosis rendered by the physician.

Table 4. Number and percent distribution of office visits by patient's principal reason for visit: United States, 1981

Principal reason for visit and RVC code[1]	Number of visits in thousands	Percent distribution	Principal reason for visit and RVC code[1]	Number of visits in thousands	Percent distribution
All visits	585,177	100.0	Symptom module—Con.		
Symptom module. S001–S999	314,524	53.8	Symptoms referable to the genitourinary system S640–S829	27,507	4.7
General symptoms S001–S099	43,083	7.4	Symptoms referable to the skin, nails, and hair S830–S899	34,117	5.8
Symptoms referable to psychological and mental disorders S100–S199	13,886	2.4	Symptoms referable to the musculoskeletal system S900–S999	59,047	10.1
Symptoms referable to nervous system (excluding sense organs) S200–S259	18,106	3.1	Disease module D001–D999	51,202	8.8
Symptoms referable to the cardiovascular and lymphatic systems S260–S299	3,173	0.5	Diagnostic, screening, and preventive module X100–X599	113,246	19.4
Symptoms referable to the eyes and ears S300–S399	32,562	5.6	Treatment module T100–T899	61,829	10.6
Symptoms referable to the respiratory system S400–S499	54,528	9.3	Injuries and adverse effects module J001–J999	23,849	4.1
Symptoms referable to the digestive system S500–S639	28,516	4.9	Test results module R100–R700	3,543	0.6
			Administrative module A100–A140	8,667	1.5
			Other[2] U990–U999	8,316	1.4

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

Table 5. Number and percent of office visits by the 20 most common principal reasons for visit: United States, 1981

Rank	Most common principal reason for visit and RVC code[1]	Number of visits in thousands	Percent
1	General medical examination X100	30,222	5.2
2	Prenatal examination X205	23,501	4.0
3	Postoperative visit T205	18,071	3.1
4	Symptoms referable to the throat S455	15,098	2.6
5	Progress visit not otherwise specified T800	14,864	2.5
6	Well-baby examination X105	12,922	2.2
7	Cough S440	12,783	2.2
8	Blood pressure test X320	10,662	1.8
9	Back symptoms S905	10,318	1.8
10	Head cold, upper respiratory infection S445	9,185	1.6
11	Fever S010	9,160	1.6
12	Skin rash S860	8,882	1.5
13	Earache, or ear infection S355	8,745	1.5
14	Headache, pain in head S210	8,436	1.4
15	Chest pain and related symptoms S050	8,368	1.4
16	Abdominal pain, cramps, spasms S550	8,240	1.4
17	Eye examination X230	7,790	1.3
18	Hypertension D510	7,531	1.3
19	Knee symptoms S925	7,102	1.2
20	Vision dysfunctions S305	6,834	1.2
	All other reasons	346,463	59.2

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

Table 6. Number and percent distribution of office visits by patients' major reason for visit, prior visit status, and referral status: United States, 1981

Visit characteristic	Number of visits in thousands	Percent distribution
All visits	585,177	100.0
Major reason for visit		
Acute problem	213,794	36.5
Chronic problem, routine	163,715	28.0
Chronic problem, flareup	53,691	9.2
Postsurgery or postinjury	51,624	8.8
Nonillness care[1]	102,352	17.5
Prior visit status		
New patient	81,156	13.9
Old patient	504,021	86.1
New problem	128,484	22.0
Old problem	375,537	64.2
Referral status		
Referred by another physician	26,022	4.5
Not referred by another physician	559,155	95.6

[1] Includes, for example, routine prenatal care, general examination, and well-baby examination.

The principal diagnosis refers to the first-listed diagnosis in item 9 on the Patient Record, the one associated with the patient's presenting problem. The *International Classification of Diseases-9-Clinical Modification (ICD–9–CM)*[4] was used to classify these data. The Supplementary Classification of the *ICD–9–CM*, which contains categories for entries other than diseases and injuries, e.g., general medical and normal pregnancy examinations, accounted for the largest proportion of visits (17 percent), with diseases of the respiratory system accounting for the second largest proportion (13 percent). The 20 most common three-digit *ICD–9–CM* categories are presented in table 9. The presence of several large categories from the Supplementary Classification is evident. As in table 5, these rankings may vary somewhat due to sampling variability.

Medication therapy.—In item 11 of the Patient Record, the physician was asked to record, using brand or generic names, all new or continued medications

Table 7. Number and percent of office visits by diagnostic service ordered or provided: United States, 1981

Diagnostic service	Number of visits in thousands	Percent
None	47,056	8.0
Limited history/exam	379,544	64.9
General history/exam	88,570	15.1
Pap test	25,154	4.3
Clinical lab test	129,123	22.1
X-ray	44,813	7.7
Blood pressure check	202,159	34.6
Electrocardiogram	18,457	3.2
Vision test	33,875	5.8
Endoscopy	5,656	1.0
Mental status exam	7,861	1.3
Other	28,045	4.8

Table 8. Number and percent distribution of office visits by principal diagnosis: United States, 1981

Principal diagnosis and ICD–9–CM code[1]	Number of visits in thousands	Percent distribution
All diagnoses	585,177	100.0
Infectious and parasitic diseases 001–139	18,086	3.1
Neoplasms 140–239	14,687	2.5
Endocrine, nutritional, and metabolic diseases and immunity disorders 240–279	21,205	3.6
Mental disorders 290–319	23,281	4.0
Diseases of the nervous system and sense organs 320–389	56,980	9.7
Diseases of the circulatory system 390–459	58,654	10.0
Diseases of the respiratory system 460–519	73,128	12.5
Diseases of the digestive system 520–579	25,659	4.4
Diseases of the genitourinary system 580–629	35,568	6.1
Diseases of the skin and subcutaneous tissue 680–709	33,207	5.7
Diseases of the musculoskeletal system and connective tissue 710–739	42,367	7.2
Symptoms, signs, and ill-defined conditions 780–799	19,506	3.3
Injury and poisoning 800–999	48,536	8.3
Supplementary classification V01–V82	100,348	17.2
All other diagnoses[2]	7,670	1.3
Unknown diagnoses[3]	6,294	1.1

[1] Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM).
[2] Includes diseases of the blood and 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).
[3] Includes blank diagnosis, noncodable diagnosis, and illegible diagnosis.

ordered, injected, administered, or otherwise provided at this visit, including immunization and desensitizing agents. The physician was instructed to list drugs prescribed for the principal diagnosis in item 11a and all other drugs prescribed at that visit in item 11b. As used in the NAMCS, the term *drug* is interchangeable with the term *medication,* and the term *prescribing* is used in the broad sense to mean the ordering or providing of any medication, either prescription or nonprescription.

Table 9. Number and percent of office visits by the 20 most common principal diagnoses: United States, 1981

Rank	Most common principal diagnosis and ICD–9–CM code[1]	Number of visits in thousands	Percent
1	Essential hypertension 401	28,765	4.9
2	Normal pregnancy V22	25,051	4.3
3	Health supervision of infant or child V20	18,583	3.2
4	Acute upper respiratory infections of multiple or unspecified sites 465	14,853	2.5
5	General medical examination V70	14,132	2.4
6	Suppurative and unspecified otitis media 382	13,106	2.2
7	Diabetes mellitus 250	10,772	1.8
8	Special investigations and examinations V72	10,548	1.8
9	Followup examinations V67	10,207	1.7
10	Diseases of sebaceous glands 706	9,661	1.7
11	Neurotic disorders 300	9,590	1.6
12	Acute pharyngitis 462	8,473	1.4
13	Allergic rhinitis 477	8,441	1.4
14	Disorders of refraction and accommodation 367	8,216	1.4
15	Bronchitis, not specified as acute or chronic 490	6,731	1.2
16	Other forms of chronic ischemic heart disease 414	6,498	1.1
17	Osteoarthrosis and allied disorders 715	5,691	1.0
18	Contact dermatitis and other eczema 692	5,228	0.9
19	Acute tonsillitis 463	5,148	0.9
20	Asthma 493	5,024	0.9
	All other diagnoses	360,460	61.6

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

The NAMCS drug database permits classification by such variables as specific product name; generic class; entry form chosen by the physician, i.e., brand name, generic name, or therapeutic effect desired; prescription status, i.e., prescription (R) or nonprescription (OTC); Federally controlled substance status (for addicting or habituating drugs); composition status, i.e., single or multiple ingredient; and therapeutic category. A report describing the method and instruments used to collect and process drug information for the NAMCS has been published.[5]

Data on the provision of medication by office-based physicians are highlighted in tables 10 and 11. Data on drug visits, that is, visits at which at least one medication was prescribed, are presented in table 10. Approximately 61 percent of all office visits resulted in the use of a drug, chiefly for therapy, but also as a diagnostic or preventive agent. The percent of drug visits ranged from 35 percent for other surgical specialists to 76 percent for internists.

Data on the number and percent of drug mentions, that is, the total number of medications listed in items 11a and 11b (figure 1), are presented in tables 10 and 11. As shown in table 10, there were 651.2 million drug mentions in 1981, an average of 1.1 drug mentions for

Table 10. Number and percent distribution of drug visits and drug mentions by physician specialty: United States, 1981

Physician specialty	Number of drug visits in thousands[1]	Percent distribution	Number of drug mentions in thousands	Percent distribution	Percent of drug visits[2]
All specialties	354,285	100.0	651,153	100.0	60.5
General and family practice	136,623	38.6	252,880	38.8	71.9
Medical specialties	136,735	38.6	276,489	42.5	74.7
Internal medicine	56,708	16.0	132,427	20.3	75.9
Pediatrics	46,925	13.2	73,690	11.3	72.7
Other	33,102	9.3	70,372	10.8	75.4
Surgical specialties	68,590	19.4	100,759	15.5	37.4
General surgery	13,318	3.8	22,179	3.4	40.7
Obstetrics and gynecology	21,385	6.0	28,179	4.3	39.7
Other	33,888	9.6	50,402	7.7	34.9
Other specialties	12,337	3.5	21,025	3.2	43.4
Psychiatry	5,813	1.6	9,351	1.4	36.4
Other	6,525	1.8	11,674	1.8	52.3

[1]Those visits at which one or more drugs were prescribed.
[2]Number of drug visits divided by number of office visits multiplied by 100.

Table 11. Number and percent distribution of drug mentions by therapeutic categories: United States, 1981

Therapeutic categories	Number of drug mentions in thousands	Percent distribution	Therapeutic categories[1]	Number of drug mentions in thousands	Percent distribution
All categories	651,153	100.0	Electrolytic, caloric, and water balance	55,277	8.5
Antihistamine drugs	43,511	6.7	Diuretics	45,239	6.9
Anti-infective agents	104,804	16.1	Expectorants and cough preparations	17,864	2.7
Antibiotics	89,209	13.7	Eye, ear, nose, and throat preparations	23,546	3.6
Antineoplastic agents	4,019	0.6	Gastrointestinal drugs	24,196	3.7
Autonomic drugs	24,102	3.7	Hormones and synthetic substances	53,999	8.3
Blood formation and coagulation	8,020	1.2	Adrenals	20,731	3.2
Cardiovascular drugs	68,779	10.6	Serums, toxoids, and vaccines	22,068	3.4
Cardiac drugs	30,184	4.6	Skin and mucous membrane preparations	49,026	7.5
Hypotensive agents	24,263	3.7	Spasmolytic agents	10,654	1.6
Vasodilating agents	13,730	2.1	Vitamins	20,507	3.1
Central nervous system drugs	104,391	16.0	Other therapeutic agents, pharmaceutic devices and aids	11,553	1.8
Analgesics and antipyretics	58,841	9.0	Therapeutic category undetermined	4,840	0.7
Psychotherapeutic agents	15,140	2.3			
Sedatives and hypnotics	23,012	3.5			

[1]Based on the pharmacologic-therapeutic classification of the American Society of Hospital Pharmacists, selected categories reproduced with the permission of the Society.

every office visit or 1.8 mentions for every visit at which one or more medications were prescribed. Three physician specialties—general and family practice, internal medicine, and pediatrics—accounted for 70 percent of all drug mentions. The distribution of drug mentions by therapeutic category is shown in table 11. Anti-infective agents and central nervous system drugs were the leading therapeutic categories, accounting for 32 percent of all drug mentions. Of the drug mentions for anti-infective agents, 85 percent were for antibiotics.

Non-medication therapy.—Table 12 presents data on various types of non-medication therapy that may be ordered or provided during an office visit. Office surgery was ordered or performed at about 7 percent of all visits.

Table 12. Number and percent of office visits by non-medication therapy ordered or provided: United States, 1981

Non-medication therapy	Number of visits in thousands	Percent
None	322,019	55.0
Physiotherapy	26,743	4.6
Office surgery	42,844	7.3
Family planning	11,399	2.0
Psychotherapy/therapeutic listening	28,038	4.8
Diet counseling	44,692	7.6
Family/social counseling	11,068	1.9
Medical counseling	133,648	22.8
Other	13,444	2.3

Disposition of visit.—Data on disposition show that the majority of office visits involved some type of scheduled followup. At about 65 percent of the visits a return visit or telephone followup was planned (table 13). Approximately 2 percent of the office visits ended in hospital admission.

Duration of visit.—Duration of visit is that amount of time spent in face-to-face contact between physician and patient. It does not include time spent waiting to see the physician, time spent receiving care from someone other than the physician without the presence of the physician, or time spent reviewing records, test results, etc. In cases where the patient received care from a member of the physician's staff, but did not see the physician during the visit, the duration of visit was recorded as zero minutes. Some 73 percent of the visits had a duration of 15 minutes or less (table 13).

More detailed 1981 NAMCS data are forthcoming in the *Vital and Health Statistics* series. Questions regarding this report, future reports, or the NAMCS may be directed to the Ambulatory Care Statistics Branch by calling (301) 436–7132.

Table 13. Number and percent distribution of office visits by disposition and duration of visit: United States, 1981

Disposition and duration	*Number of visits in thousands*	*Percent distribution*
Disposition[1]		
No followup planned	65,970	11.3
Return at specified time	357,694	61.1
Return if needed	131,996	22.6
Telephone followup planned	20,059	3.4
Referred to other physician	14,735	2.5
Returned to referring physician	4,670	0.8
Admit to hospital	13,699	2.3
Other	1,205	0.2
Duration		
0 minutes[2]	16,164	2.8
1–5 minutes	74,471	12.7
6–10 minutes	173,441	29.6
11–15 minutes	165,206	28.2
16–30 minutes	121,047	20.7
31 minutes or more	34,847	6.0

[1] May not add to 100.0 since more than one disposition was possible.
[2] Represents office visits in which there was no face-to-face contact between the patient and the physician.

References

[1] National Center for Health Statistics, R. Gagnon, J. DeLozier, and T. McLemore: The National Ambulatory Medical Care Survey, 1979 summary. *Vital and Health Statistics.* Series 13-No. 66. DHHS Pub. No. (PHS) 82–1727. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1982.

[2] National Center for Health Statistics, D. Schneider, L. Appleton, and T. McLemore: A reason for visit classification for ambulatory care. *Vital and Health Statistics.* Series 2-No. 78. DHEW Pub. No. (PHS) 79–1352. Public Health Service. Washington. U.S. Government Printing Office, Feb. 1979.

[3] National Center for Health Statistics, B. Cypress: Patients' reasons for physician visits, NAMCS, U.S. 1977–78. *Vital and Health Statistics.* Series 13-No. 56. DHEW Pub. No. (PHS) 82–1717. Public Health Service. Washington. U.S. Government Printing Office, Dec. 1981.

[4] Commission on Professional and Hospital Activities: *International Classification of Diseases, 9th Revision, Clinical Modification.* Ann Arbor. Edwards Brothers, Inc., 1978.

[5] National Center for Health Statistics, H. Koch: The collection and processing of drug information: National Ambulatory Medical Care Survey, United States, 1980. *Vital and Health Statistics.* Series 2, No. 90. DHHS Pub. No. (PHS) 82–1364. Public Health Service. Washington. U.S. Government Printing Office, March 1982.

Technical notes

Source of data and sample design

The information presented in this report is based on data collected in the National Ambulatory Medical Care Survey (NAMCS) during 1981. The target universe of NAMCS includes office visits made within the conterminous 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.

NAMCS utilizes a multistage probability sample design that involves samples of primary sampling units (PSU's), physicians' practices within PSU's, and patient visits within physician practices. For 1981 a sample of 2,846 non-Federal, office-based physicians was selected from master files maintained by the American Medical Association and the American Osteopathic Association. The physician response rate for 1981 was 77.5 percent. Sampled physicians were asked to complete Patient Records (figure 1) for a systematic random sample of office visits taking place during a randomly assigned weekly reporting period. During 1981, responding physicians completed 43,366 Patient Records. Characteristics of the physician's practice, such as primary specialty and type of practice, were obtained during an induction interview. The National Opinion Research Center, under contract to the National Center for Health Statistics, was responsible for the survey's field operations.

For a more detailed discussion of the limitations, qualifications, and definitions of the data collected in the NAMCS, see *Vital and Health Statistics,* Series 13, Number 66.[1]

Estimates presented in this report differ from the estimates reported in the National Medical Care Utilization and Expenditure Survey (NMCUES), another program of the National Center for Health Statistics (NCHS). The variation in estimates is due to differences in survey populations, data collection methodology, and definitions. The NMCUES, cosponsored by NCHS and the Health Care Financing Administration (HCFA), is a national panel survey of households that collected information on visits to physicians' offices and hospital outpatient departments.

Sampling errors and roundings of numbers

The standard error is primarily a measure of the sampling variability that occurs by chance because 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 and is expressed as a percent of the estimate. Approximate relative standard errors of selected aggregate statistics are shown in tables I and II. Standard errors for percents of visits and standard errors for estimates of drug mentions will be included in future reports.

Table I. Provisional relative standard errors of estimated number of office visits based on all physician specialties: NAMCS, 1981

Estimated number of office visits in thousands	*Relative standard error in percent*
500	27.3
1,000	19.5
2,000	14.1
5,000	9.4
10,000	7.3
20,000	5.9
50,000	4.9
100,000	4.5
550,000	4.1

Example of use of table: An aggregate of 35,000,000 visits has a relative standard error of 5.4 percent or a standard error of 1,890,000 visits (5.4 percent of 35,000,000).

Table II. Provisional relative standard errors of estimated number of office visits based on an individual physician specialty: NAMCS, 1981

Estimated number of office visits in thousands	*Relative standard error in percent*
500	28.0
1,000	20.3
2,000	15.1
5,000	10.8
10,000	9.0
20,000	7.9
50,000	7.1
100,000	6.9

Example of use of table: An aggregate of 7,500,000 visits has a relative standard error of 9.9 percent or a standard error of 742,500 visits (9.9 percent of 7,500,000).

Estimates of office visits have been rounded to the nearest thousand. For this reason detailed figures within tables do not always add to totals. Rates and percents were calculated on the basis of original, unrounded figures and will not necessarily agree precisely with percents calculated from rounded data.

Definitions

Ambulatory patient.—An ambulatory patient is an individual presenting himself for personal health services who is neither bedridden nor currently admitted to any health care institution on the premises.

NOTE: A list of references follows the text.

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

Office.—An office is a place that the physician identifies as a location for his ambulatory practice. Responsibility over time for patient care and professional services rendered there generally resides with the individual physician rather than an institution.

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 health services.

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From Vital and Health Statistics of the National Center for Health Statistics Number 89 • April 15, 1983

Drugs Most Frequently Used in Office Practice: National Ambulatory Medical Care Survey, 1981

by Hugo Koch, Division of Health Care Statistics

This report offers descriptive data about the drugs utilized in office practice in the calendar year 1981, highlighting those pharmaceutical agents that were most frequently ordered or provided. The data, based on the findings of the National Ambulatory Medical Care Survey (NAMCS), were produced by a representative sample of the Nation's physicians who are primarily engaged in office-based, patient-care practice. Non-Federal doctors of medicine and osteopathy in all states except Alaska and Hawaii participated by completing records (figure 1, Patient Record) on a sample of their office visits over a weekly reporting period.

Item 11 of the Patient Record (figure 1) requires that the respondents report the names of the specific drugs that they "utilized" (that is, ordered or provided) in the course of their office visits. This resulted in an estimated 651,153,000 drug mentions. All routes of administration were allowed, and the mentions included immunizing and desensitizing agents, and nonprescription as well as prescription drugs. The physician recorded all new drugs and continued medications when the patient was specifically instructed during the visit to continue the medication. Drugs ordered through telephone contact were not included.

Because the estimates presented here are based on a sample rather than on the entire universe of office visits, the data are subject to sampling variability. Because of problems with statistical significance, the data user should avoid too literal an acceptance of closely ranked estimates. The technical notes at the end of this report provide a brief explanation of the sampling errors and guidelines for judging the precision of estimates. All subsequent references to drug mentions should be interpreted as *estimated* drug mentions, based on the sample of office-based physicians used in this study.

The 100 drug entries that respondents most frequently recorded are listed in rank order in table 1. The listing is arbitrarily restricted to the drugs that were specifically named—either by brand[1] or by generic name. This led to the exclusion of two entry choices that did not identify a specific agent, indicating only the therapeutic effect desired. These two therapeutic effects were

- *Allergy relief or shots* (unspecified), with 10,833,000 mentions.
- *Vitamin(s)* (unspecified), with 1,520,000 mentions.

The 100 drugs comprise only 4 percent of the 2,325 agents named by respondents. However, they account for about 341,427,000 mentions, or 52 percent of the total 651,153,000 drug mentions.

The 11 drugs most frequently named in 1981 were also the leading 11 in 1980. The rank order of the specific drugs, however, varied somewhat between the years (table 2). The two most notable gains in rank position were registered by Inderal, a beta-adrenergic blocking agent, and Dyazide, a diuretic agent.

In table 3, drug utilization in 1981 is expressed entirely in generic terms. Listed in alphabetical order are the 100 generic substances most frequently ordered or provided, either in single-entity form or as ingredients of combination products. Thus, the 29,687,000 total mentions of the ranking generic substance, hydrochlorothiazide, include its 11,583,000 mentions as a single-entity drug and its 18,105,000 mentions as an active component of a combination drug.

[1] Inclusion of trade names is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

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 Education and Welfare
Public Health Service
Office of Health Research Statistics and Technology
National Center for Health Statistics

C No. 499932

1. DATE OF VISIT Month / Day / Year

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

2. DATE OF BIRTH Month / Day / Year

3. SEX
1 ☐ FEMALE
2 ☐ MALE

4. COLOR OR RACE
1 ☐ WHITE
2 ☐ BLACK
3 ☐ ASIAN/PACIFIC ISLANDER
4 ☐ AMERICAN INDIAN/ ALASKAN NATIVE

5. ETHNICITY
1 ☐ HISPANIC ORIGIN
2 ☐ NOT HISPANIC

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

7. MAJOR REASON FOR THIS VISIT *[Check one]*
1 ☐ ACUTE PROBLEM
2 ☐ CHRONIC PROBLEM ROUTINE
3 ☐ CHRONIC PROBLEM, FLAREUP
4 ☐ POST SURGERY/POST INJURY
5 ☐ NON ILLNESS CARE (ROUTINE PRENATAL, GENERAL EXAM., WELL BABY, ETC.)

8. DIAGNOSTIC SERVICES THIS VISIT *[Check all ordered or provided]*
1 ☐ NONE
2 ☐ LIMITED HISTORY/EXAM
3 ☐ GENERAL HISTORY/EXAM
4 ☐ PAP TEST
5 ☐ CLINICAL LAB TEST
6 ☐ X RAY
7 ☐ BLOOD PRESSURE CHECK
8 ☐ EKG
9 ☐ VISION TEST
10 ☐ ENDOSCOPY
11 ☐ MENTAL STATUS EXAM
12 ☐ OTHER *(Specify)* _____

9. PHYSICIAN'S DIAGNOSES
a PRINCIPAL DIAGNOSIS/PROBLEM ASSOCIATED WITH ITEM 6a
b OTHER SIGNIFICANT CURRENT DIAGNOSES

10. HAVE YOU SEEN PATIENT BEFORE?
1 ☐ YES 2 ☐ NO
IF YES, FOR THE CONDITION IN ITEM 9a?
1 ☐ YES 2 ☐ NO

11. MEDICATION THERAPY THIS VISIT ☐ NONE
[Using brand or generic names, record all new and continued medications ordered, injected, administered, or otherwise provided at this visit. Include immunizing and desensitizing agents]

a. FOR PRINCIPAL DIAGNOSES IN ITEM 9a	b. FOR ALL OTHER REASONS
1	1
2	2.
3	3.
4	4.

12. NON-MEDICATION THERAPY *[Check all services ordered or provided this visit]*
1 ☐ NONE
2 ☐ PHYSIOTHERAPY
3 ☐ OFFICE SURGERY
4 ☐ FAMILY PLANNING
5 ☐ PSYCHOTHERAPY/ THERAPEUTIC LISTENING
6 ☐ DIET COUNSELING
7 ☐ FAMILY/SOCIAL COUNSELING
8 ☐ MEDICAL COUNSELING
9 ☐ OTHER *(Specify)* _____

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

14. 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)* _____

15. DURATION OF THIS VISIT *[Time actually spent with physician]*
_____ Minutes

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Figure 1. Patient Record

Another useful overview of 1981 drug utilization appears in table 4. Here the 651,153,000 drug mentions are described by the chief therapeutic effect that each was intended to produce. A comprehensive listing of 67 therapeutic categories is used. (The categories were selected from the American Hospital Formulary Classification System.[2]) The data user may note the obvious preeminence enjoyed by the nontopical anti-infective agents, the central nervous system drugs, and the combination of cardiovascular drugs and diuretics used to combat circulatory disease. Together these three categories accounted for virtually one-half of all drug mentions.

From 1980 to 1981, the use proportion (percent of all drug mentions) did not vary greatly for most of the therapeutic categories (table 5). The largest single decrease (0.6 percent) was registered by skin preparations. Their estimated number of mentions fell by about 6.2 million in 1981. These findings directly parallel a 0.6 percent drop found in 1981 for the number of office visits with skin disease as the principal diagnosis. The largest single increase in use proportion (1.8 percent) was achieved by the combination of cardiovascular drugs and diuretics. Their estimated number of mentions rose by about 6.7 million in 1981. This increase

[2] American Society of Hospital Pharmacists, Inc.: *The American Hospital Formulary Classification System.* Washington, Jan. 1980

appears directly related to the 0.7-percent increase found in 1981 for the number of office visits with circulatory disease as the principal diagnosis. Also contributing to the increase was the sharp surge in popularity enjoyed by certain new cardiovascular drugs, especially the beta-adrenergic blocking agents. They are useful in treating hypertension, angina, cardiac arrhythmia, and in preventing the recurrence of myocardial infarction.

Measured in terms of drug-visit proportion (that is, the percent of office visits at which one or more drugs were ordered or provided), the overall utilization of drugs by office-based physicians fell from 63.1 percent in 1980 to 60.5 percent in 1981, a decrease of 2.6 percent.

NAMCS drug findings for 1981 are reportable by product name, generic name, entry status (generic versus brand name), prescription status (prescription versus nonprescription), level of potential abuse (Federal control schedules), composition (single-ingredient versus combination), and therapeutic effect. These drug dimensions may be contrasted with other NAMCS variables to show the influence on drug utilization produced by prescriber characteristics, patient demographics, referral status, duration and disposition of the visit, and by such clinical features as symptoms, diagnosis, diagnostic procedures, and other (nondrug) forms of treatment. Inquiries about the NAMCS drug database may be directed to

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Table 1. The 100 drugs most frequently ordered or provided in office practice by drug name (as recorded by the physician), number of mentions, and therapeutic use: United States, 1981

Rank	Name of drug	Number of mentions in thousands	Therapeutic use
	All drugs	651,153	
1	Inderal (propranolol)	11,847	Arrhythmia, angina pectoris, hypertension, migraine
2	Lasix (furosemide)	10,770	Diuretic, antihypertensive
3	Dyazide (triamterene, hydrochlorothiazide	10,422	Diuretic, edema, hypertension
4	Ampicillin	9,173	Antibiotic
5	Penicillin	8,581	Antibiotic
6	Aspirin	7,543	Analgesic, antipyretic
7	Lanoxin (digoxin)	7,311	Cardiotonic
8	Tetracycline	7,030	Antibiotic
9	Diphtheria tetanus toxoids pertussis	6,583	Immunization
10	Polio vaccine	6,237	Immunization
11	Valium (diazepam)	6,063	Anxiety disorders
12	Motrin (ibuprofen)	5,967	Anti-inflammatory, analgesic
13	Amoxicillin	5,877	Antibiotic
14	Erythromycin	5,606	Antibiotic
15	Prednisone	5,575	Anti-inflammatory
16	E.E.S. (erythromycin)	5,535	Antibiotic
17	Aldomet (methyldopa)	5,418	Antihypertensive
18	Tagamet (cimetidine)	5,375	Ulcer and gastrointestinal disease
19	Hydrochlorothiazide	5,326	Diuretic
20	Insulin	5,285	Antidiabetic
21	Digoxin	5,086	Cardiotonic
22	Hydrodiuril (hydrochlorothiazide)	5,020	Diuretic
23	Amoxil (amoxicillin)	4,349	Antibiotic
24	Hygroton (chlorthalidone)	4,314	Diuretic, antihypertensive
25	Keflex (cephalexin)	4,195	Antibiotic
26	Dimetapp (brompheniramine, phenylephrine, phenylpropanolamine)	4,141	Antihistaminic, decongestant
27	Tylenol with codeine (acetaminophen, codeine)	4,085	Analgesic
28	Actifed (triprolidine, pseudoephedrine)	3,892	Common cold, allergic rhinitis
29	Isordil (isosorbide)	3,782	Coronary vasodilator
30	Vitamin B-12	3,758	Vitamins
31	Naprosyn (naproxen)	3,575	Anti-inflammatory, analgesic, antipyretic
32	Septra (sulfamethoxazole, trimethoprim)	3,476	Urinary infections, otitis media, pneumonitis
33	Tuberculin tine test	3,397	Tuberculosis skin test
34	Bactrim (sulfamethoxazole, trimethoprim)	3,337	Urinary infections, otitis media, pneumonitis
35	Clinoril (sulindac)	3,277	Analgesic, anti-inflammatory
36	Tylenol (acetaminophen)	3,271	Analgesic
37	Lopressor (metoprolol)	3,270	Antihypertensive, beta-blocker
38	Phenergan (promethazine)	3,258	Expectorant
39	Indocin (indomethacin)	3,106	Anti-inflammatory
40	Benadryl (diphenhydramine)	3,096	Antihistaminic
41	Decadron (dexamethasone)	2,999	Anti-inflammatory
42	Nitroglycerin	2,988	Vasodilator
43	Slow-K (potassium replacement solutions)	2,904	Potassium replacement therapy
44	Zomax (zolamine)	2,872	Analgesic
45	Diabinese (chlorpropamide)	2,871	Hypoglycemic agent
46	Pen-Vee K (penicillin)	2,854	Antibiotic
47	Premarin (estrogens)	2,801	Estrogen replacement therapy
48	Depo-medrol (methylprednisolone)	2,670	Glucocorticoid
49	Kenalog (triamcinolone)	2,607	Anti-inflammatory
50	Donnatal (hyosciamine, atropine, hyoscine, phenobarbital)	2,589	Sedative, antispasmodic
51	Influenza virus vaccine	2,556	Immunization
52	Coumadin (warfarin)	2,386	Anticoagulant
53	Ceclor (cefaclor)	2,317	Antibiotic
54	Neosporin (polymixin-B, neomycin)	2,278	Bacterial infections, topical
55	Synthroid (levothyroxine)	2,269	Thyroid hormone
56	Dimetane (brompheniramine)	2,253	Expectorant
57	E-mycin (erythromycin)	2,252	Antibiotic
58	Aldoril (methyldopa, hydrochlorothiazide)	2,241	Antihypertensive
59	Bicillin (penicillin)	2,238	Antibiotic
60	Xylocaine (lidocaine)	2,231	Local anesthetic
61	Butazolidin (phenylbutazone)	2,229	Anti-inflammatory
62	Naldecon (phenylephrine, phenylpropanolamine, chlorpheniramine)	2,182	Hay fever, sinus, congestion
63	Darvocet-N (propoxyphene, acetaminophen)	2,156	Analgesic
64	Mylanta (magnesium hydroxide, aluminum hydroxide)	2,077	Antacid, antiflatulent
65	Antivert (meclizine)	2,063	Antinauseant
66	Elavil (amitriptyline)	2,055	Antidepressant

Table 1. The 100 drugs most frequently ordered or provided in office practice by drug name (as recorded by the physician), number of mentions, and therapeutic use: United States, 1981—Con.

Rank	Name of drug	Number of mentions in thousands	Therapeutic use
67	Dilantin (phenytoin)	2,054	Anticonvulsant
68	Empirin with codeine (aspirin, codeine)	2,042	Analgesic, antipyretic
69	Dalmane (flurazepam)	2,041	Hypnotic
70	Cleocin (clindamycin)	2,033	Antibiotic
71	Potassium	2,028	Potassium replacement therapy
72	Theo-dur (theophylline)	2,026	Coronary vasodilator, diuretic
73	Cortisporin (polymixin-B, bacitracin, neomycin, hydrocortisone)	1,979	Anti-inflammatory
74	Phenergan with codeine (promethazine, codeine)	1,978	Expectorant
75	Vibramycin (doxycycline)	1,957	Antibiotic
76	V-cillin (penicillin)	1,946	Antibiotic
77	Persantine (dipyridamole)	1,932	Coronary or myocardial insufficiency
78	Rondec (pseudoephedrine, carbinoxamine maleate)	1,928	Decongestant, antitussive
79	Timoptic (timolol)	1,914	Treatment of glaucoma, ocular hypertension
80	Prenatal vitamins (multivitamins prenatal)	1,873	Vitamins
81	Minipress (prazosin)	1,789	Antihypertensive
82	Aldactazide (spironolactone, hydrochlorothiazide)	1,788	Antihypertensive
83	Aristocort (triamcinolone)	1,766	Anti-inflammatory
84	Monistat (miconazole)	1,743	Antifungal
85	Phenobarbital	1,694	Anticonvulsant, sedative, hypnotic
86	Ilosone (erythromycin)	1,692	Antibiotic
87	Larotid (amoxicillin)	1,640	Antibiotic
88	Librax (clidinium bromide, chlordiazepoxide)	1,635	Gastro-intestinal disorders
89	Robitussin (guaifenesin, dextromethorphan, phenylpropanolamine)	1,633	Antitussive, decongestant, expectorant
90	Sudafed (pseudoephedrine)	1,604	Decongestant
91	Tuss-ornade (chlorpheniramine, phenylpropanolamine)	1,580	Antitussive, decongestant
92	Ativan (lorazepam)	1,579	Psychotherapeutic agent
93	Librium (chlordiazepoxide)	1,569	Psychotherapeutic agent
94	Flexeril (cyclobenzaprine)	1,568	Skeletal muscle relaxant
95	Zyloprim (allopurinol)	1,567	Antigout
96	Drixoral (brompheniramine, pseudoephedrine)	1,561	Decongestant, antihistamine
97	Corgard (nadolol)	1,550	Antihypertensive, beta-blocker
98	Celestone (betamethasone)	1,544	Glucocorticoid
99	Parafon forte (chlorzoxazone, acetaminophen)	1,528	Skeletal muscle relaxant
100	Ortho-novum (norethindrone, estradiol)	1,519	Oral contraceptive

Table 2. The 11 drugs most frequently named in 1980 and 1981 by frequency of mention and rank order: United States, 1981

Name of drug	Number of mentions in thousands		Rank	
	1981	1980	1981	1980
Inderal	11,847	9,625	1	4
Lasix	10,770	9,879	2	1
Dyazide	10,422	7,435	3	7
Ampicillin	9,173	9,795	4	2
Penicillin	8,581	9,736	5	3
Aspirin	7,543	8,800	6	6
Lanoxin	7,311	7,105	7	8
Tetracycline	7,030	9,478	8	5
Diphtheria tetanus toxoids pertussis	6,583	6,067	9	11
Polio vaccine	6,237	6,535	10	9
Valium	6,063	6,499	11	10

Table 3. Number of drug mentions, rank, and therapeutic use of the 100 generic substances most frequently utilized in office practice: United States, 1981

Generic substance	Number of mentions in thousands[1]	Rank	Therapeutic use
Acetaminophen	10,830	14	Analgesic, antipyretic
Acetaminophen with codeine	4,092	59	Analgesic, antipyretic
Allopurinol	2,193	97	Antigout
Aluminum hydroxide	4,670	53	Antacid
Aluminum subacetate	2,137	98	Astringent wash
Amitriptyline	4,674	52	Antidepressant
Amoxicillin	12,356	11	Antibiotic
Ampicillin	10,270	17	Antibiotic
Aspirin	17,268	3	Analgesic, antipyretic
Atropine	5,871	38	Anticholinergic
Bacitracin	5,265	47	Antibiotic
Benzoyl peroxide	3,343	73	Keratolytic, acne treatment
Betamethasone	3,509	70	Glucocorticoid
Bismuth antidiarrhea agents	3,393	72	Antidiarrhea
Brompheniramine	8,165	20	Expectorant
Caffeine	6,111	33	Stimulant
Cefaclor	2,317	96	Antibiotic
Cephalexin	4,195	56	Antibiotic
Chlordiazepoxide	4,018	60	Emotional disturbance, sedative
Chlorpheniramine	12,789	9	Antihistaminic
Chlorpropamide	2,876	87	Hypoglycemic agent
Chlorthalidone	5,494	42	Diuretic, antihypertensive
Cimetidine	5,696	41	Ulcer and gastrointestinal disease
Codeine	7,433	23	Analgesic, antitussive
Dexamethasone	5,438	43	Anti-inflammatory
Dextromethorphan	3,246	78	Cough suppressant
Diazepam	6,165	32	Sedative, tranquilizer
Digoxin	12,397	10	Cardiotonic
Diphenhydramine	4,163	57	Antihistaminic
Diphtheria tetanus toxoids pertussis	6,583	29	Immunization
Doxycycline	2,782	90	Antibiotic
Erythromycin	17,468	2	Antibiotic
Estradiol	5,755	39	Estrogen replacement therapy
Estrogens	2,883	86	Estrogen replacement therapy
Furosemide	10,861	13	Diuretic
Guaifenesin	8,222	18	Cough suppressant
Hydralazine	3,903	62	Antihypertensive
Hydrochlorothiazide	29,687	1	Diuretic
Hydrocortisone	6,670	26	Anti-inflammatory
Hydroxyzine	3,140	80	Sedative, tranquilizer
Hyoscyamine	5,401	44	Anticholinergic
Ibuprofen	5,984	35	Anti-inflammatory
Indomethacin	3,199	79	Anti-inflammatory
Influenza virus vaccine	2,912	85	Immunization
Insulin	5,314	46	Antidiabetic
Ipecac	3,849	64	Emetic
Iron preparations	5,975	36	Iron deficiency
Isopropamide iodide	3,995	61	Anticholinergic
Isosorbide	4,842	51	Coronary vasodilator
Levothyroxine	2,588	94	Thyroid hormone
Lidocaine	2,956	83	Local anesthetic
Magnesium antacids	5,122	49	Antacid
Meclizine	3,321	74	Antinauseant
Methyldopa	7,757	21	Antihypertensive
Methylprednisolone	3,579	67	Glucocorticoid
Metoprolol	3,270	76	Beta-adrenergic blocker
Multivitamins	11,951	12	Vitamins
Naproxen	4,127	58	Anti-inflammatory, analgesic, antipyretic
Neomycin	8,216	19	Antibiotic
Nitroglycerin	5,077	50	Vasodilator
Norethindrone	3,014	82	Oral contraceptive
Nystatin	2,599	93	Antifungal
Oxycodone	2,757	91	Narcotic analgesic
Penicillin	17,035	4	Antibiotic
Phenacetin	5,384	45	Antipyretic, analgesic
Pheniramine	2,083	100	Antihistaminic

See footnote at end of table.

Table 3. Number of drug mentions, rank, and therapeutic use of the 100 generic substances most frequently utilized in office practice: United States, 1981—Con.

Generic substance	Number of mentions in thousands[1]	Rank	Therapeutic use
Phenobarbital	6,011	34	Anticonvulsant, sedative, hypnotic
Phenylbutazone	2,742	92	Anti-inflammatory
Phenylephrine	14,140	6	Sympathomimetic
Phenylpropanolamine	16,455	5	Sympathomimetic
Phenyltoloxamine	3,037	81	Antihistaminic
Polio vaccine	6,248	31	Immunization
Polymixin B	6,259	30	Antibacterial
Potassium guaiacolsulfonate	3,858	63	Cough preparations
Potassium replacement solutions	7,665	22	Potassium replacement therapy
Prednisolone	3,778	66	Anti-inflammatory
Prednisone	5,706	40	Anti-inflammatory
Promethazine	5,939	37	Antihistaminic, anti-emetic, sedative
Propoxyphene	3,551	68	Analgesic
Propranolol	12,813	8	Beta-blocker
Pseudoephedrine	12,933	7	Antihistaminic, cough suppressant
Reserpine	4,204	55	Antihypertensive
Salicylic acid	2,126	99	Antifungal, keratolytic
Scopolamine	3,528	69	Hypnotic, sedative, anticholinergic
Simethicone	2,926	84	Antiflatulent
Spironolactone	2,826	89	Diuretic
Sulfacetamide	3,258	77	Antibacterial
Sulfamethoxazole	7,393	24	Antibacterial
Sulindac	3,318	75	Analgesic, antipyretic
Tetracycline	10,316	16	Antibiotic
Theophylline	6,647	27	Coronary vasodilator, diuretic
Triamcinolone	6,616	28	Anti-inflammatory
Triamterene	10,681	15	Diuretic
Trimethoprim	7,150	25	Antibacterial
Triprolidine	4,647	54	Antihistaminic
Tuberculin	3,423	71	Tuberculosis skin test
Vitamin B-12	5,137	48	Vitamins
Warfarin	2,536	95	Anticoagulant
Zinc topical agents	3,805	65	Skin disease (astringent, antiseptic)
Zolamine	2,872	88	Antihistaminic, local anesthetic

[1] Combines the mentions of a generic substance as a single-ingredient agent with its mentions as an ingredient of a combination drug.

Table 4. Number and percent distribution of drug mentions by selected therapeutic categories: United States, 1981

Selected therapeutic categories[1]	Number of mentions in thousands	Percent distribution
All categories	651,153	100.0
Antihistamine drugs	43,511	6.68
Anti-infective agents	104,804	16.10
Antibiotics	89,209	13.70
Cephalosporins	8,355	1.28
Erythromycins	16,119	2.48
Penicillins	41,524	6.38
Tetracyclines	15,010	2.31
Sulfonamides	9,236	1.42
Antineoplastic agents	4,019	0.62
Autonomic drugs	24,102	3.70
Parasympatholytic agents	9,574	1.47
Skeletal muscle relaxants	5,737	0.88
Sympathomimetic agents	7,235	1.11
Blood formation and coagulation	8,020	1.23
Anti-anemia drugs	5,325	0.82
Anticoagulants	2,675	0.41
Cardiovascular drugs	68,779	10.56
Cardiac drugs	30,184	4.64
Hypotensive agents	24,263	3.73
Vasodilating agents	13,730	2.11
Central nervous system drugs	104,391	16.03
Analgesics and antipyretics	58,841	9.04
Anticonvulsants	2,858	0.44
Antidepressants	9,892	1.52
Respiratory and cerebral stimulants	4,501	0.69
Tranquilizers, sedatives, and hypnotics	27,574	4.23
Electrolytic, caloric, and water balance	55,277	8.49
Diuretics	45,239	6.95
Replacement solutions	8,527	1.31
Expectorants and cough preparations	17,864	2.74
Eye, ear, nose, and throat preparations	23,546	3.62
Anti-infective agents	6,330	0.97
Antibiotics	3,830	0.59
Eye, ear, nose, and throat preparations—Con.		
Anti-inflammatory agents	4,772	0.73
Local anesthetics	1,947	0.30
Miotics	1,590	0.24
Mydriatics	1,666	0.26
Vasoconstrictors	2,004	0.31
Gastrointestinal drugs	24,196	3.72
Antacids and adsorbents	3,562	0.55
Antidiarrhea agents	3,324	0.51
Antiflatulents	2,947	0.45
Cathartics and laxatives	3,655	0.56
Emetics and anti-emetics	3,776	0.58
Hormones and synthetic substances	53,999	8.29
Adrenals	20,731	3.18
Contraceptives	6,141	0.94
Estrogens	6,877	1.06
Insulins and antidiabetic agents	10,901	1.67
Insulins	5,314	0.82
Thyroid and antithyroid	4,328	0.66
Serums, toxoids, and vaccines	22,068	3.39
Toxoids	8,813	1.35
Vaccines	12,655	1.94
Skin and mucous membrane preparations	49,026	7.53
Anti-infectives	12,049	1.85
Fungicides	4,781	0.73
Anti-inflammatory agents	17,463	2.68
Antipruritics and local anesthetics	4,506	0.69
Emollients, protectants, demulcents	2,989	0.46
Keratolytic agents	5,860	0.90
Spasmolytic agents	10,654	1.64
Vitamins	20,507	3.15
Multivitamin preparations	11,638	1.79
Vitamin B complex	5,939	0.91
Other agents or therapeutic category undetermined	16,393	2.52

[1] Based on the pharmacologic-therapeutic classification of the American Society of Hospital Pharmacists, Inc.; selected categories reproduced with permission.

Table 5. Use proportion of selected therapeutic categories of drugs utilized in office practice in 1980 and 1981: United States, 1981

Selected therapeutic category[1]	Use proportion		Selected therapeutic category[1]	Use proportion	
	1981	1980		1981	1980
	Number of mentions in thousands			Percent distribution	
All categories	651,153	679,593	Contraceptives	0.9	1.2
	Percent distribution		Expectorants and cough preparations	2.7	2.8
All categories	100.0	100.0	Eye, ear, nose, and throat preparations	3.6	3.8
Adrenals	3.2	2.7	Gastrointestinal drugs	3.7	3.6
Analgesics and antipyretics	9.0	8.5	Serums, toxoids, and vaccines	3.4	3.5
Antidepressants	1.5	1.5	Skin and mucous membrane preparations	7.5	8.1
Antihistamine drugs	6.7	6.5	Spasmolytic agents	1.6	1.7
Anti-infective agents	16.1	15.4	Tranquilizers, sedatives, hypnotics	4.2	4.4
Antineoplastic agents	0.6	0.8	Vitamins	3.2	3.6
Autonomic drugs	3.7	3.7	Other agents or therapeutic category undetermined	9.5	11.2
Blood formation and coagulation	1.2	1.2			
Cardiovascular drugs and diuretics	17.6	15.8			

[1] Based on the pharmacologic-therapeutic classification of the American Society of Hospital Pharmacists, Inc.; selected categories reproduced with permission.

Technical notes

Source of data and sample design

The estimates presented in this report are based on data collected during 1981 by the National Center for Health Statistics by means of the National Ambulatory Medical Care Survey (NAMCS). The target universe of NAMCS comprises office visits made by ambulatory patients to non-Federal physicians who are principally engaged in office-based, patient-care practice. Visits to physicians practicing in Alaska and Hawaii are excluded from the range of NAMCS, as are visits to physicians who specialize in anesthesiology, pathology, and radiology.

NAMCS uses a multistage probability sample design that involves a step-wise sampling of primary sampling units (PSU's), physicians' practices within PSU's, and patient visits within physicians' practices. For 1981 a sample of 2,846 physicians was selected from master files maintained by the American Medical Association and the American Osteopathic Association. The physician response rate was 77.5 percent. Sampled physicians were asked to complete Patient Records (figure 1) for a systematic random sample of office visits made during a randomly assigned weekly reporting period. Telephone contacts were excluded. During 1981, responding physicians completed 43,366 Patient Records, on which they recorded 46,424 drug mentions. Characteristics of the physician's practice, such as primary specialty and type of practice, were obtained during an induction interview. The National Opinion Research Center, under contract to the National Center for Health Statistics, was responsible for the field operations of the survey.

Sampling errors and rounding of numbers

The standard error is primarily a measure of the sampling variability that occurs by chance because only a sample, rather than the entire universe, is surveyed. The relative standard error of an estimate is obtained by dividing the standard error by the estimate itself and is expressed as a percent of the estimate. Relative standard errors of selected aggregate visit statistics are shown in table I. Standard errors for estimated percents of visits are shown in table II. Similar standard errors for drug statistics and percents are shown in tables III and IV. Tables I and II should be used to obtain the standard error of a specific drug mention (for example, Dyazide). Tables III and IV should be used to obtain the standard error of a group of drug mentions (for example, all antibiotics).

Estimates of office visits have been rounded to the nearest thousand. For this reason detailed figures within tables do not always add to totals. Rates and percents were calculated on the basis of original, unrounded figures and will not necessarily agree precisely with percents calculated from rounded data.

Table I. Approximate relative standard errors of estimated number of office visits based on all physician specialties: NAMCS, 1981

Estimated number of office visits in thousands	*Relative standard error in percent*
500	27.3
1,000	19.5
2,000	14.1
5,000	9.4
10,000	7.3
20,000	5.9
50,000	4.9
100,000	4.5
550,000	4.1

Example of use of table: An aggregate estimate of 75,000,000 visits has a relative standard error of 4.7 percent, or a standard error of 3,525,000 visits (4.7 percent of 75,000,000).

Table II. Approximate standard errors of percents of estimated numbers of office visits based on all physician specialties: NAMCS, 1981

Base of percent (number of office visits in thousands)	*Estimated percent*					
	1 or 99	*5 or 95*	*10 or 90*	*20 or 80*	*30 or 70*	*50*
	Standard error in percent					
500	2.7	5.9	8.1	10:8	12.4	13.5
1,000	1.9	4.2	5.7	7.6	8.7	9.5
2,000	1.3	2.9	4.0	5.4	6.2	6.7
5,000	0.8	1.9	2.6	3.4	3.9	4.3
10,000	0.6	1.3	1.8	2.4	2.8	3.0
20,000	0.4	0.9	1.3	1.7	2.0	2.1
50,000	0.3	0.6	0.8	1.1	1.2	1.3
100,000	0.2	0.4	0.6	0.8	0.9	1.0
500,000	0 1	0.2	0.3	0.3	0.4	0.4

Example of use of table An estimate of 30 percent based on an aggregate of 15,000,000 visits has a standard error of 2.4 percent, or a relative standard error of 8 percent (2.4 percent ÷ 30 percent).

Table III. Approximate relative standard errors of estimated number of drug mentions based on all physician specialties: NAMCS, 1981

Estimated number of drug mentions in thousands	*Relative standard error in percent*
1,000	27.3
2,000	19.7
5,000	13.2
10,000	10.1
20,000	8.2
50,000	6.8
100,000	6.2
300,000	5.8
650,000	5.7

Example of use of table: An aggregate estimate of 75,000,000 drug mentions has a relative standard error of 6.5 percent, or a standard error of 4,875,000 mentions (6.5 percent of 75,000,000).

Definitions of terms

An *ambulatory patient* is an individual seeking personal health services who is neither bedridden nor currently admitted to any health care institution on the premises.

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

An *office* is a place that physicians identify as a location for ambulatory practice. Responsibility over time for patient care and professional services rendered there generally resides with the individual physician rather than with an institution.

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 health services.

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

Table IV. Approximate standard errors of percents of estimated numbers of drug mentions based on all physician specialties: NAMCS, 1981

Base of percent (number of drug mentions in thousands)	*Estimated percent*					
	1 or 99	*5 or 95*	*10 or 90*	*20 or 80*	*30 or 70*	*50*
	Standard error in percent					
1,000	2.7	5.8	8.0	10.7	12.2	13.3
2,000	1.9	4.1	5.7	7.6	8.7	9.4
5,000	1.2	2.6	3.6	4.8	5.5	6.0
20,000	0.6	1.3	1.8	2.4	2.7	3.0
100,000	0.3	0.6	0.8	1.1	1.2	1.3
600,000	0.1	0.2	0.3	0.4	0.5	0.5

Example of use of table: An estimate of 30 percent based on an aggregate of 12,500,000 drug mentions has a standard error of 4.1 percent, or a relative standard error of 13.7 percent (4.1 percent ÷ 30 percent).

nchs advancedata

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Utilization of Psychotropic Drugs in Office-Based Ambulatory Care: National Ambulatory Medical Care Survey, 1980 and 1981

by Hugo Koch, Division of Health Care Statistics, and William H. Campbell, Ph.D., University of Washington

In this report the annual findings of the National Center for Health Statistics 1980 and 1981 National Ambulatory Medical Care Survey are combined to describe the utilization of psychotropic drugs in office-based ambulatory care.

The term *utilization* is limited to the ordering or providing of a psychotropic drug by an office-based physician. It does *not* apply to patient compliance with the doctor's instruction.

As used in this report, the subject group *psychotropic drugs* is composed of the 136 psychotropic agents actually named by physician respondents in 1980 and 1981. A list of these agents appears in figure 1. Along with all *new* psychotropics ordered or provided, the physician also recorded *continued* psychotropics, if the patient was specifically instructed during the visit to continue the medication. (However, the data base does not distinguish between the *new* and the *continued* drug.) The listed agents appear as brand[1] or generic names, depending on the choice made by the physician in preparing the prescription. The group *psychotropic drugs* is divided among three subcategories.

- Category I: Anti-anxiety agents, sedatives, and hypnotics
- Category II: Antidepressants
- Category III: Antipsychotic and antimanic agents

[1] The use of trade names is for identification only and does not imply endorsement by the Public Health Service of the U.S. Department of Health and Human Services.

General findings

Over the 2-year span 1980 and 1981, combined National Ambulatory Medical Care Survey findings resulted in an estimated 1,160,921,856 visits made to office-based physicians. Of this total, 717,774,562 (62 percent) were *drug visits,* that is, visits at which one drug or more of any type was utilized. The total number of drug mentions for the 2-year span amounted to an estimated 1,330,746,129 mentions.

Visits involving one psychotropic drug or more numbered 69,269,110, about 6 percent of the overall number of office visits and about 10 percent of all drug visits. The total number of psychotropic drug mentions was 79,582,103, divided among the subcategories as follows.

	Drug mentions	
	Number in thousands	*Percent distribution*
All psychotropic drugs	79,582	100.0
Category I	48,048	60.4
Benzodiazepines	30,147	46.5
Barbituric agents	6,087	9.4
Category II	20,295	25.9
Category III	11,239	14.1

Table 1 lists the 25 psychotropic agents most frequently mentioned. They accounted for virtually four-fifths of all psychotropic mentions.

An extremely important issue in health and social policy is the use of medications having significant potential for addiction or habituation, especially because the use of such agents also creates the risk of diversion into

Psychotropic drugs

Category I
Anti-anxiety agents, sedatives, and hypnotics

Amobarbital	Coprobate	Meprobamate	Quan III
Amytal	Dalmane	Meprospan	Quiess
Anoquan	Doriden	Micrainin	Restoril
Atarax	Equagesic	Miltown	Ru-Lor
Ativan	Equanil	Nembutal	Seconal
Azene	Fiorinal	Nevrotose	Sedapap elixir
Bamo	Fiorinal with codeine	Nidar	Serax
Buff-A-Comp	Hydroxyzine	Noctec	SK-lygen
Butabarbital	Idenal	Noludar	SK-phenobarbital
Butal	Indogesic	Parest	Sopor
Buticaps	Infadorm drops	Pentobarbital	Tranxene
Butigetic	Isollyl	Pentothal	Tuinal
Butisol	Lanorinal	Phencoid	Tybratan
Carbrital	Libritabs	Phenobarbital	Valium
Centrax	Librium	Phrenilin	Valmid
Chloral hydrate	Lorazepam	Placidyl	Valobar
Chlordiazepoxide	Lotusate	Prazepam	Verstran
Clorazepate	Marnal	Quaalude	Vistaril

Category II
Antidepressants

Adapin	Elavil	Nardil	Sinequan
Amavil	Endep	Norpramin	SK-pramine
Amitriptyline	Etrafon	Nortriptyline	Surmontil
Amoxapine	Imipramine	Pamelor	Tofranil
Asendin	Limbitrol	Parnate	Triavil
Aventyl	Ludiomil	Perphenazine	Trimipramine
Desipramine	Maprotiline	Pertofrane	Vivactil
Doxepin	Marplan	Phenelzine	

Category III
Antipsychotic and antimanic agents

Chloramead	Lidone	Ormazine	Thioridazine
Chlorpromazine	Lithane	Proketazine	Thorazine
Chlorzine	Lithium	Prolixin	Tindal
Compazine	Lithobid	Promazine	Trifluoperazine
Deprol	Lithonate	Prozine 50	Trilafon
Eskalith	Loxitane	Serentil	Vesprin
Haldol	Mellaril	Sparine	
Haloperidol	Moban	Stelazine	
Inapsine	Navane	Taractan	

Figure 1. Psychotropic drugs actually named by physician respondents: United States, 1980 and 1981.

Table 1. The 25 psychotropic drugs most frequently mentioned in office-based practice, by name of drug and number and percent distribution of mentions: United States, 1980 and 1981

Rank	*Name of drug*[1]	*Number of mentions in thousands*	*Percent distribution*	*Rank*	*Name of drug*[1]	*Number of mentions in thousands*	*Percent distribution*
	All psychotropic drugs	79,582	100.0	12	Triavil (amitriptyline, perphenazine)	2,244	2.8
				13	Tofranil (imipramine)	1,778	2.2
	25 drugs most frequently used			14	Vistaril (hydroxyzine)	1,762	2.2
				15	Meprobamate	1,650	2.1
1	Valium (diazepam)	12,562	15.8	16	Limbitrol (chlordiazepoxide, amitriptyline)	1,642	2.1
2	Elavil (amitriptyline)	4,419	5.6				
3	Dalmane (flurazepam)	4,242	5.3	17	Compazine (prochlorperazine)	1,369	1.7
4	Tranxene (clorazepate)	3,621	4.6	18	Equagesic (meprobamate, ethoheprazine, aspirin)	1,211	1.5
5	Phenobarbital	3,453	4.3				
6	Atarax (hydroxyzine)	3,150	4.0	19	Lithium	1,203	1.5
7	Sinequan (doxepin)	3,133	3.9	20	Stelazine (trifluoperazine)	1,196	1.5
8	Ativan (lorazepam)	3,082	3.9	21	Thorazine (chlorpromazine)	1,137	1.4
9	Librium (chlordiazepoxide)	2,912	3.7	22	Centrax (prazepam)	1,111	1.4
10	Fiorinal (butalbital, aspirin, phenacetin, caffeine)	2,634	3.3	23	Haldol (haloperidol)	1,036	1.3
				24	Serax (oxazepam)	975	1.2
11	Mellaril (thioridazine	2,370	3.0	25	Norpramin (desipramine)	871	1.1

[1] The form of the drug name (brand or generic) represents the choice of the physician in preparing the prescription.

illicit channels. Because of these factors they are treated as *controlled* substances and placed under the regulatory authority of the U.S. Drug Enforcement Administration. The special sensitivity of the psychotropic series is evident in the NAMCS findings. More than one-half (56 percent) of all psychotropic mentions entailed the use of a controlled drug.

Because most of the psychotropic agents are under regulatory control, it comes as no surprise that there were no over-the-counter drugs among their members. The use of all psychotropics required a formal prescription by the physician. About 9 of every 10 psychotropics were prescribed by trade name. Only a relatively minor proportion (13 percent) were combination drugs, the most frequently mentioned combinations involving the addition of an analgesic ingredient to an anti-anxiety base.

Diagnosis

Proper evaluation of the patterns of psychotropic utilization requires that the data user look first to the conditions that the drugs were intended to prevent or treat. The most direct and frequent linkage occurs here. A psychotropic agent is seldom if ever utilized for the sole reason that the patient is over 65 years or a female; or that the physician is a general practitioner or a psychiatrist. It is fundamental then to examine the use of psychotropics in terms of the diagnoses rendered in office-based care. The rate of psychotropic utilization as it varied among the major diagnostic groups and with the general nature of the patient's problem is shown in table 2. Apart from the class of mental disorders, which sui generis command the highest rate of all psychotropic utilization, four other diagnostic classes exceeded the average utilization rate of 69 mentions per 1,000 visits. They are:

- Symptoms, signs, and ill defined conditions
- Diseases of the circulatory system
- Diseases of the digestive system
- Diseases of the musculoskeletal system

For these "nonmental" disorders it is the use of the Category I drugs that most clearly causes the above-average rates.

When the diagnostic findings are subjected to a finer scrutiny, the following specific diagnoses were found to be most frequently associated with psychotropic therapy:

Rank	*Diagnosis and ICD–9–CM Code*[1]	*Psychotropic mentions in thousands*
1	Neurotic disorders 300	8,834
2	Essential hypertension 401	5,536
3	Depressive disorder 311	2,675
4	Schizophrenic disorder 295	2,382
5	Affective psychosis 296	1,708

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

From the preceding correlations between diagnosis and psychotropic utilization, it is clear that the use of psychotropic therapy is most frequently associated with the chronic conditions (table 2). With the acute conditions it is much less common. With nonillness care and with the post-traumatic conditions of surgery or injury, the use of psychotropic drugs is extremely modest.

Patient characteristics

From its lowest level, for patients under 25 years, the office-based utilization of psychotropic drugs accelerates sharply in successive age groups until it reaches its highest point among middle-aged patients in the age group 45–54 years. It then begins a gradual, if fluctuating, descent among patients in the remaining years of life (table 3 and figure 2).

This pattern applies to each of the psychotropic subcategories, in large part reflecting the corresponding patterns of morbidity revealed by NAMCS diagnostic findings. For example, mental disorders, the conditions which command the highest rate of psychotropic usage, are proportionately most evident among office patients in the age group 30–50 years.

It is clear from the findings that female utilization of office-based, psychotropic therapy substantially exceeded its utilization by male patients (table 3). The imbalance favoring female patients lay almost entirely in the use of drugs in Categories I and II. For the antipsychotic and antimanic agents there was little or no difference between the sexes.

The sex-age findings show the age intervals in which the sex differences in psychotropic utilization become most manifest (table 4). Up to the 45th year, the general rate of utilization is equivalent for females and males. From the 45th year on, however, the rates diverge dramatically. In the age group 45–64 years, the female rate is roughly one-third again as high as the male rate; in the age group 65 and over, it exceeds the male rate by almost 60 percent.

These findings correlate positively with NAMCS diagnostic evidence. For example, mental disorders and essential hypertension, the conditions that command the highest rate of psychotropic utilization, were proportionately more frequent among the older female patients than among males.

Although overall psychotropic usage did not vary significantly between black and white office patients (table 4), the below-average use of antidepressants by blacks is an interesting finding, and one not clearly explicable by diagnostic correlates. (Black office patients show about the same proneness to depressive conditions as their white counterparts.) However, they visited the psychiatrist with only one-third the frequency of white patients, a fact that may partly explain the seeming anomaly. As evidenced by the findings, psychiatrists' use of antidepressants substantially exceed their use by other physicians (table 5).

Table 2. Number of office visits, number of all psychotropic drug mentions, and number of mentions per 1,000 visits, by major clinical problem: United States, 1980 and 1981

Major clinical problem	Number of visits in thousands	Psychotropic drugs							
		All psychotropic drugs		Category I[1]		Category II[2]		Category III[3]	
		Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits
All visits	1,160,922	79,582	69	48,048	41	20,295	17	11,239	11
Major diagnostic groups[4]									
Infectious and parasitic diseases	37,714	783	21	*518	14	*149	*4	*116	*3
Neoplasms	30,707	1,144	37	647	21	*153	*5	*344	*11
Endocrine, nutritional, and metabolic diseases, and immunity disorders	45,371	3,028	67	1,793	40	809	18	*426	*9
Mental disorders	47,624	25,098	527	9,863	207	9,532	200	5,703	120
Diseases of nervous system and sense organs	109,573	3,374	31	2,337	21	*505	*5	*532	*5
Diseases of circulatory system	112,344	13,038	116	9,260	82	2,717	24	1,061	9
Diseases of respiratory system	146,014	5,003	34	3,212	22	1,148	8	643	4
Diseases of digestive system	49,080	3,957	81	2,376	48	980	20	*601	*12
Diseases of genitourinary system	68,504	2,411	35	1,594	23	*575	*8	*242	*4
Diseases of skin and subcutaneous tissue	69,421	3,143	45	2,781	40	*240	*3	*122	*2
Diseases of musculoskeletal system	79,206	5,899	74	4,334	55	1,205	15	*360	*5
Symptoms, signs, and ill-defined conditions	38,526	4,722	123	3,424	89	967	25	*331	*9
Injury and poisoning	94,723	3,587	38	2,893	31	*492	*5	*202	*2
Supplementary classification (normal pregnancy, health supervision of child, and so forth	202,585	2,879	14	1,942	10	*627	*3	*310	*2
Residual	29,530	1,516	51	...		...		...	
Problem categories									
Acute problem	422,223	22,915	54	15,317	36	2,223	5	5,375	13
Chronic problem, routine	325,791	38,409	118	21,659	66	6,190	19	10,560	32
Chronic problem, flareup	106,393	12,468	117	7,007	66	2,095	20	3,366	32
Postsurgery and/or post-injury	101,792	2,134	21	1,588	16	*203	*2	*343	*3
Nonillness care	204,722	3,656	18	2,477	12	*528	*3	651	*3

[1]Anti-anxiety agents, sedatives, and hypnotics.
[2]Antidepressants.
[3]Antipsychotic and antimanic agents.
[4]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification.*

Prescriber characteristics

Among office-based specialists it was, of course, psychiatrists who showed the highest rate of psychotropic utilization, especially of the Category II and III agents (table 5). After all, a substantial part of their professional effort is associated with those disorders that other specialists tend to refer for treatment, among them depressive conditions, schizophrenic disorders, and affective psychoses.

What may be surprising about the findings, as shown in table 5, is the extent that two primary care providers, the general practitioner and the internist, were involved in the utilization of psychotropic drugs. In sheer numbers of mentions they accounted for 66 percent of all Category I drugs used in office-based practice, 59 percent of the Category II drugs, and even a substantial 45 percent of the Category III drugs. Their above-average rates of psychotropic utilization appear to stem less from their clinical involvement with the mental disorders than from their treatment of the other diagnostic groups that invite the use of psychotropics, notably: symptoms,

Table 3. Number of office visits, number of all psychotropic drug mentions, and number of mentions per 1,000 visits, by patient characteristics: United States, 1980 and 1981

Patient characteristic	Number of visits in thousands	Psychotropic drugs							
		All psychotropic drugs		Category I[1]		Category II[2]		Category III[3]	
		Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits
All visits	1,160,922	79,582	69	48,048	41	20,295	17	11,239	11
Age									
Under 15 years	216,128	2,381	11	1,713	8	*307	*1	*361	*2
15–24 years	160,795	5,160	32	3,295	20	1,021	7	844	5
25–44 years	310,384	23,338	75	13,195	43	6,178	20	3,965	12
25–29 years	97,109	5,055	52	2,939	30	1,159	12	958	10
30–34 years	86,896	6,705	77	3,606	41	1,740	20	1,359	16
35–39 years	69,611	5,895	85	3,331	48	1,553	22	1,011	15
40–44 years	56,768	5,683	100	3,320	58	1,725	30	*638	*11
45–64 years	265,700	28,930	109	17,164	65	7,966	30	3,800	14
45–49 years	56,265	6,657	118	3,797	67	1,894	34	966	17
50–54 years	68,032	7,895	116	4,736	70	2,093	31	1,066	16
55–59 years	70,825	7,286	103	4,140	58	2,117	30	1,029	15
60–64 years	70,578	7,093	100	4,492	64	1,864	26	737	10
65 years and over	207,915	19,772	95	12,680	61	4,823	23	2,269	11
65–69 years	67,884	6,708	99	4,495	66	1,633	24	*580	*9
70–74 years	57,577	5,871	102	3,520	61	1,542	27	809	14
75–79 years	43,309	3,968	92	2,456	57	1,061	24	*451	*10
80 years and over	39,145	3,227	82	2,211	56	*588	*15	*428	*11
Sex									
Female	699,718	53,409	76	31,972	46	14,398	21	7,039	10
Male	461,204	26,173	57	16,076	35	5,897	13	4,200	9

[1] Anti-anxiety agents, sedatives, and hypnotics.
[2] Antidepressants.
[3] Antipsychotic and antimanic agents.

signs, and ill-defined conditions; and the circulatory, digestive, and musculoskeletal disease groups. About 30 percent of all visits to the general practitioner and 45 percent of all the internists' visits were associated with one of these "nonmental" disease groups.

Among the most-visited specialties, the lowest rates in psychotropic utilization occurred among the specialists with the largest proportion of nonillness care, the pediatrician and the obstetrician and/or gynecologist.

The differences in psychotropic utilization between doctors of medicine and doctors of osteopathy (table 5) probably reflect the fact that a clear majority of osteopathic physicians are in general practice. The general practitioners, as already noted, well exceed the average in their use of psychotropic agents.

Other visit characteristics

An examination of the utilization rates reveals that the new patient is much less likely to receive psychotropic drug therapy than the patient whom the doctor has seen before (table 6). This is especially true if the new patient has been referred by another physician. In fact, the findings suggest that a *new problem*—whether it is one presented by a new patient or one appearing for the first time in an old patient—will probably result in a use of psychotropic agents that is considerably below average. Thus newness of patient or problem (or both) seems to invite a more conservative approach toward psychotropic therapy by the prescribing physician.

Not only does this conservatism prevail at the point of entry into office-based ambulatory care, it is also evident at the end point of the visit. Of those visits that involved the prescription of one psychotropic drug or more, by far the most frequent disposition instruction—given the patient at 72 percent of visits—was to return at a specified time. (The average use of this instruction in office practice is 60 percent.) Although such specificity of return instruction was probably strongly influenced by the nature and potential seriousness of the patient's problem, it seems also to reflect a commendable desire by the physician to maintain a closer than usual surveillance on a family of drugs that has its own unique hazards of use.

Co-occurrence

Utilized at 62 percent of office visits, drug therapy (of all types) is by far the most frequent form of treatment provided in office practice. Its magnitude is com-

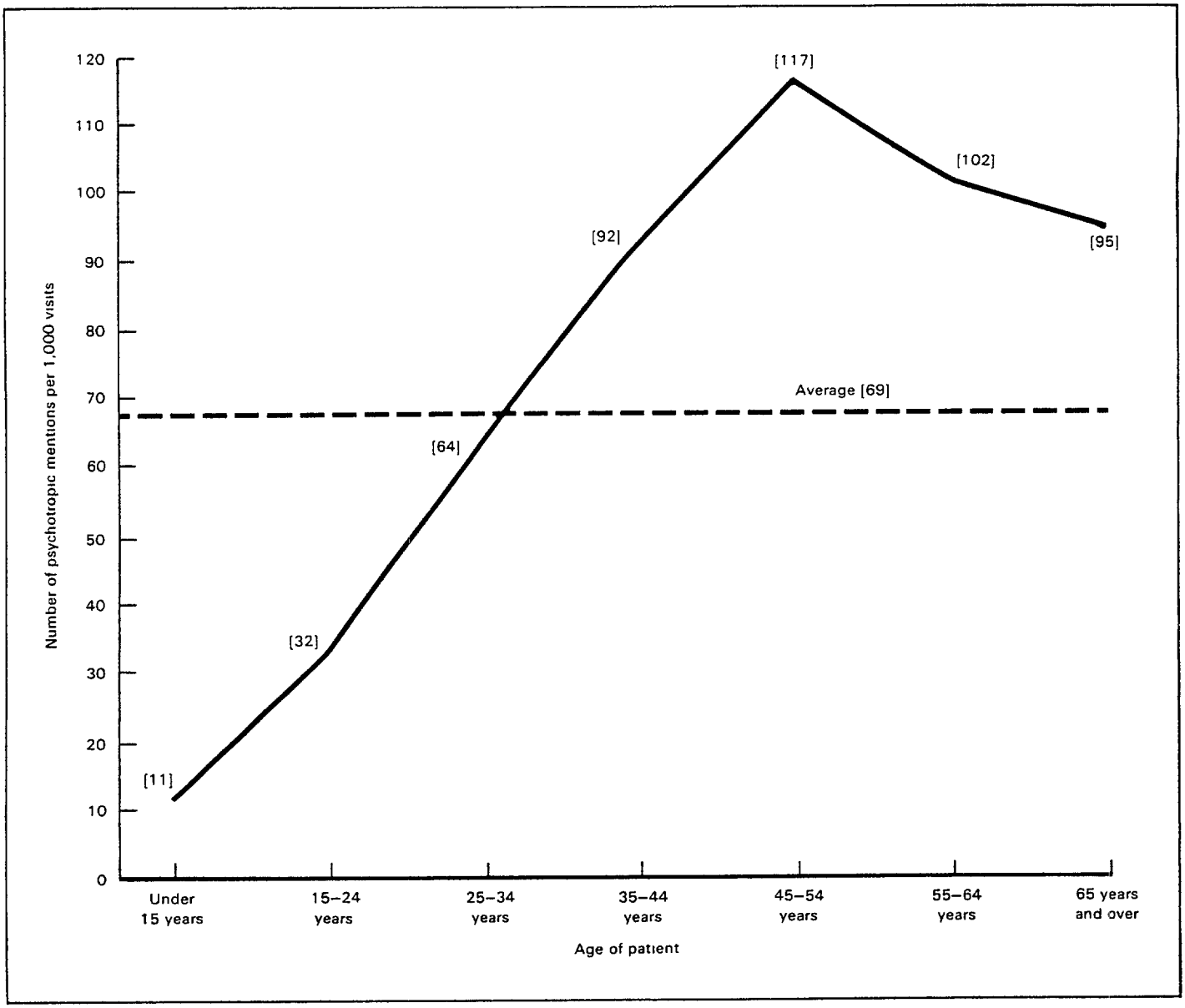

Figure 2: Psychotropic utilization rates by age of patient: United States, 1980 and 1981

pounded by the finding that physicians, when they do use a drug, tend to use more than one. The overall average is about two drugs per drug visit, but larger multiples are not uncommon, especially when the patient suffers from more than one disorder. With co-occurrence the rule rather than the exception, it is interesting—indeed mandatory—to explore the patterns of concomitant utilization of drugs, for herein lies the potential for harmful as well as helpful interactions.

In table 7 is shown the extent to which psychotropic drugs co-occur with drugs in other therapeutic families, and the co-occurrence that exists among the psychotropic subcategories themselves.

At the 69.3 million visits at which a psychotropic agent was utilized, its use (expressed as a percent of these visits) co-occurred most frequently with the use of one member or more of the following eight therapeutic families:

Co-occurring therapeutic family	*Percent of co-occurrence*
Analgesics	17
Diuretics	16
Cardiac drugs	11
Other psychotropic agents	10
Autonomic drugs	9
Hypotensive agents	8
Gastrointestinal drugs	8
Antibiotics	6

Within the psychotropic family itself, the most frequent co-occurrences existed among drugs in Categories I and II (at 3.5 million visits); next among Category II and III drugs (at 1.8 million visits). The least frequent pattern of co-occurrence was found among the drugs in Categories I and III (at 1.4 million visits).

Table 4. Number of office visits, number of all psychotropic drug mentions, and number of mentions per 1,000 visits, by patient characteristics: United States, 1980 and 1981

Patient characteristics	Number of visits in thousands	Psychotropic drugs							
		All psychotropic drugs		Category I[1]		Category II[2]		Category III[3]	
		Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits
All visits	1,160,922	79,582	69	48,048	41	20,295	17	11,239	11
SEX AND AGE									
Female									
Under 15 years	102,633	1,180	11	802	8	*143	*1	*235	*2
15–24 years	107,276	3,424	32	2,296	21	723	7	*405	*4
25–44 years	206,394	15,572	75	8,965	43	4,281	21	2,326	11
45–64 years	157,031	19,155	122	11,198	71	5,516	35	2,441	16
65 years and over	126,383	14,078	111	8,711	69	3,736	30	1,631	13
Male									
Under 15 years	113,495	1,201	11	911	8	*164	*1	*126	*1
15–24 years	53,519	1,734	32	998	19	*298	*6	*438	*8
25–44 years	103,990	7,766	75	4,230	41	1,897	18	1,639	16
45–64 years	108,668	9,776	90	5,967	55	2,451	23	1,358	12
65 years and over	81,532	5,695	70	3,969	49	1,087	13	*639	*8
RACE[4]									
White	1,037,590	71,783	69	42,740	41	18,976	18	10,067	10
Black	110,546	7,403	67	5,066	46	1,247	11	1,090	10

[1]Anti-anxiety agents, sedatives, and hypnotics.
[2]Antidepressants.
[3]Antipsychotic and antimanic agents.
[4]Excludes about 12,786,000 visits by patients of races other than white or black.

Table 5. Number of office visits and number of psychotropic drug mentions and number of mentions per 1,000 visits, by prescriber characteristics: United States, 1980 and 1981

Prescriber characteristic	Number of visits in thousands	Psychotropic drugs							
		All psychotropic drugs		Category I[1]		Category II[2]		Category III[3]	
		Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits
All prescribers	1,160,922	79,582	69	48,048	41	20,295	17	11,239	11
Most-visited specialities									
General and family practice	381,710	32,199	84	21,037	55	7,852	21	3,310	9
Internal medicine	144,172	16,559	115	10,827	75	4,047	28	1,685	12
Pediatrics	128,762	1,395	11	1,032	8	*165	*1	*197	*2
Obstetrics and gynecology	109,035	1,720	16	1,407	13	*204	*2	*109	*1
General surgery	61,013	2,392	39	1,851	30	*408	*7	*133	*2
Psychiatry	31,810	14,038	441	3,878	122	5,448	171	4,712	148
All other specialties	304,420	...	...	...	...	...	...	...	...
Professional identity									
Doctor of medicine	1,089,638	74,030	68	44,717	41	18,488	17	10,825	10
Doctor of osteopathy	71,284	5,553	78	3,331	47	1,807	25	*415	*6

[1]Anti-anxiety agents, sedatives, and hypnotics.
[2]Antidepressants.
[3]Antipsychotic and antimanic drugs.

Table 6. Number of office visits, number of psychotropic drug mentions, and number of mentions per 1,000 visits, by selected visit characteristics: United States, 1980 and 1981

Selected visit characteristic	Number of visits in thousands	Psychotropic drugs							
		All psychotropic drugs		Category I[1]		Category II[2]		Category III[3]	
		Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits	Number of mentions in thousands	Number of mentions per 1,000 visits
All visits	1,160,922	79,582	69	48,048	41	20,295	17	11,239	11
Referral status									
Referred by another physician	51,392	1,610	31	947	18	*446	9	*217	*4
Not referred by another physician	1,109,530	77,972	70	47,101	42	19,849	18	11,022	10
Patient visit status									
New patient	166,675	5,919	36	3,713	22	1,504	9	702	4
Old patient	994,247	73,663	74	44,335	45	18,791	19	10,537	11
Old patient, new problem	258,778	13,397	52	9,504	37	2,723	11	1,170	5
Old patient, old problem	735,469	60,266	82	34,831	47	16,068	22	9,367	13
Problem status									
New problem	425,453	19,316	45	13,217	31	4,227	10	1,872	4
Return visit for old problem	735,469	60,266	82	34,831	47	16,068	22	9,367	13

[1] Anti-anxiety agents, sedatives, and hypnotics.
[2] Antidepressants.
[3] Antipsychotic and antimanic agents.

Table 7. Number of drug visits at which the use of a psychotropic drug co-occurred with the use of drugs in other therapeutic categories: United States, 1980 and 1981

Selected co-occurring therapeutic category[1]	Category I[2] drug visits	Category II[3] drug visits	Category III[4] drug visits	Selected co-occurring therapeutic category[1]	Category I[2] drug visits	Category II[3] drug visits	Category III[4] drug visits
	Number in thousands				Number in thousands		
Adrenals	1,709	*438	*151	Gastrointestinal drugs	3,836	1,169	965
Analgesics	8,843	2,557	1,209	Hypotensive agents	3,842	1,649	*422
Antibiotics	3,076	995	*409	Insulins and antidiabetic agents	1,002	590	*251
Anticonvulsants	1,385	*263	*217	Skin preparations	2,883	569	*322
Antihistamine drugs	2,405	625	*443	Spasmolytic agents	1,475	547	*312
Antineoplastic agents	*169	*70	*310	Thyroid and antithyroid	1,133	552	*223
Autonomic drugs	3,480	1,959	1,685	Vasodilating agents	2,776	796	*246
Blood formation and coagulation	1,217	*336	*268	Vitamins	2,559	773	624
Cardiac drugs	5,012	2,028	795				
Diuretics	7,709	3,227	1,030	Category I drugs	...	3,482	1,381
Expectorants and cough preparations	874	*229	*31	Category II drugs	3,482	...	1,763
				Category III drugs	1,381	1,763	...

[1] Based on the pharmacologic-therapeutic classification of the American Society of Hospital Pharmacists.
[2] Anti-anxiety agents, sedatives, and hypnotics.
[3] Antidepressants.
[4] Antipsychotic and antimanic drugs.

Technical notes

Source of data and sample design

The estimates presented in this report are based on the findings of the National Ambulatory Medical Care Survey (NAMCS), a sample survey of office-based care conducted annually from 1973 through 1981 by the National Center for Health Statistics. The target universe of NAMCS is composed of office visits made by ambulatory patients to non-Federal and noninstitutional physicians who are principally engaged in office-based, patient-care practice. Visits to physicians practicing in Alaska and Hawaii are excluded from the range of NAMCS, as are visits to anesthesiologists, pathologists, and radiologists.

NAMCS uses a multistage probability sample design that involves a step-wise sampling of primary sampling units (PSU's), physicians' practices within PSU's, and patient visits within physicians' practices. The physician sample (5,805 for 1980 and 1981) was selected from master files maintained by the American Medical Association and the American Osteopathic Association. Those members of the sample who proved to be inscope and eligible participated at a rate of 77.3 percent. Responding physicians completed visit records for a systematic random sample of their office visits made during a randomly assigned weekly reporting period. Telephone contacts were excluded. During 1980 and 1981 responding physicians completed 89,447 visit records on which they recorded 97,796 drug mentions. Characteristics of the physician's practice, such as primary specialty and type of practice, were obtained during an induction interview. The National Opinion Research Center, under contract to the National Center for Health Statistics, was responsible for the field operations of the survey.

Sampling errors and rounding

The standard error is a measure of the sampling variability that occurs by chance because only a sample, rather than the entire universe, is surveyed. The relative standard error of an estimate is obtained by dividing the standard error by the estimate itself and is expressed as a percent of the estimate. In this report, any estimate that exceeds a relative standard error of 30 percent is marked with an asterisk. Table I should be used to obtain the relative standard error for aggregates of office visits or for mentions of drugs by specific name (for example, Valium). Table II should be used to obtain the relative standard error for drug mentions expressed as drug groups (for example, the psychotropic drug family).

In the tables of this report estimates have been rounded to the nearest thousand. For this reason, detailed estimates do not always add to totals.

Table I. Approximate relative standard errors of estimated numbers of office visits and of drug mentions when the drug is listed by product name (for example, Valium), based on all physician specialties: National Ambulatory Medical Care Survey, 1980 and 1981

Estimated number of office visits or specific drug mentions in thousands	*Relative standard error in percent*
*200	*44.8
*400	*31.7
*450	*30.0
600	26.0
800	22.6
1,000	20.2
2,000	14.5
5,000	9.5
10,000	7.1
20,000	5.6
50,000	4.4
100,000	3.9
200,000	3.6
500,000	3.5
1,000,000	3.4

Example of use of table: An aggregate estimate of 35,000,000 office visits has a relative standard error of 5.0 percent or a standard error of 1,750,000 visits (5.0 percent of 35,000,000 visits).

Table II. Approximate relative standard errors of estimated numbers of drug mentions when the drugs appear in groups (for example, the psychotropic drug family), based on all physician specialties: National Ambulatory Medical Care Survey, 1980 and 1981

Estimated number of grouped drug mentions in thousands	*Relative standard error in percent*
*200	*54.2
*400	*38.5
*600	*31.5
*650	*30.0
800	27.3
1,000	24.5
2,000	17.6
5,000	11.6
10,000	8.7
20,000	6.8
50,000	5.3
100,000	4.7
200,000	4.4
500,000	4.2
1,000,000	4.1

Example of use of table: An aggregate estimate of 30,000,000 drug mentions has a relative standard error of 7.0 percent or a standard error of 2,100,00 mentions (7.0 percent of 30,000,000 mentions).

Definitions

An *office* is a place that physicians identify as a location for their ambulatory practice. Responsibility

for patient care and professional services rendered there resides with the individual physician rather than an institution.

A *visit* is a direct personal exchange between an ambulatory patient seeking health care and a physician, or staff member working under the physician's supervision, who provides the health services.

A *drug mention* is the physician's entry on the visit record of a pharmaceutical agent ordered or provided by any route of administration for prevention, diagnosis, or treatment. Generic as well as brand-name drugs are included, as are nonprescription as well as prescription drugs. The physician records all new drugs, and continued medications when the patient is specifically instructed during the visit to continue the medication.

An *acute problem* is a morbid condition with a relatively sudden or recent onset (within 3 months of the visit).

A *chronic problem, routine* is a morbid condition that existed for 3 months or more before the visit. The care indicated is of a regular, maintenance nature.

A *chronic problem, flare up* is a sudden exacerbation of a preexisting chronic condition.

Nonillness care denotes health examinations and care provided for presumably healthy persons. Examples are: prenatal and postnatal care, annual physicals, well-child examinations, and insurance examinations.

*U.S. Government Printing Office: 1993 — 301-019/80019

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