Highlights of Drug Utilization in Office Practice National Ambulatory Medical Care Survey, 1985

by Hugo Koch, M.H.A., Division of Health Care Statistics, and Dee A. Knapp, Ph.D., University of Maryland at Baltimore

Prescribed or provided at three of every five visits, drugs are the most commonly used weapons in the therapeutic arsenal of the office-based doctor. This finding, along with other highlights of drug utilization that appear in this report, emerged from the National Ambulatory Medical Care Survey (NAMCS), a year-long sample survey of the Nation's office-based physicians, conducted in 1985 by the National Center for Health Statistics. General findings from the 1985 NAMCS have been published.[1]

The data-collection instrument used in the survey, the Patient Record, appears as figure 1. Item 14 of the Patient Record required responding physicians to enter the names of up to five of the specific drugs that they prescribed or provided in the course of the office visit. (Drugs ordered through telephone contact were not included.) This resulted in an estimated 693.4 million drug mentions, an average of 1.1 drug mentions for each of the 636.4 million office visits made during the survey year. Physicians were asked to report nonprescription as well as prescription drugs, to distinguish between new and continued medications, and to indicate whether the drug was intended for the principal diagnosis associated with the visit or used for some other reason.

The overall importance of drug therapy is made graphically evident in figure 2. An estimated 61 percent of all office visits were "drug visits"; that is, visits during which one or more drugs were prescribed or provided. Furthermore, in a sharply prominent 72 percent of these 389.5 million drug visits, drug therapy was the only form of treatment used.

Table 1 defines certain basic dimensions of the drug data base. Among the key findings are the following:

- The great majority (77 percent) of the drug mentions were applied to the principal diagnoses.
- A respectable tendency toward generic prescribing is suggested by the finding that 19 percent of drug entries use the generic name of the drug.
- About one of every five drug mentions was a fixed-ratio combination drug. Combinations have the advantage of offering more convenience to the patient but the off-setting disadvantages of a usually higher cost and of less flexibility in dosage adjustment due to their fixed-ratio composition.
- A small but critical proportion (8 percent) of drug mentions were controlled drugs. Controlled medications have significant potential for addiction or habituation. Because of this potential, they are under the regulatory control of the Drug Enforcement Agency (DEA), an agency of the Department of Justice. In table 1, drugs are characterized by their DEA control level ("schedule"). Each successive schedule, from II through V, reflects a decreasing potential for addiction. With a membership consisting chiefly of the minor tranquilizers (diazepam and alprazolam, for example), the Schedule IV drugs command the highest frequency of mention.

Tables 2 and 3 offer ranked listings of the 50 drugs most frequently prescribed or provided by the office-based practitioner. Table 2 uses entry names, that is, the trade or generic names entered by the physician on the prescription or other medical record. Table 3, because its list is based on the generic ingredients of the drugs (whether in single-entity or combination form), provides a more complete perspective of drug utilization in the doctor's office. The 50 drugs listed are present in almost two-thirds of the 693.4 million drug mentions.

Another useful overview of 1985 drug utilization appears in table 4. The 693.4 million drug mentions are classified here by the chief therapeutic effect that each was intended

[1]National Center for Health Statistics, T. McLemore and J. DeLozier: 1985 summary, National Ambulatory Medical Care Survey. Advance Data From Vital and Health Statistics. No. 128. DHHS Pub. No. (PHS) 87–1250. Public Health Service, Hyattsville, Md., Jan. 23, 1987.

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

B 467333

1. DATE OF VISIT

/ /
Month Day Year

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

OMB No. 0937-0141
Expires 9/30/86
(PHS) 6105-B
456–232

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. EXPECTED SOURCE(S) OF PAYMENT
|Check all that apply|

1 ☐ SELF-PAY

2 ☐ MEDICARE

3 ☐ MEDICAID

4 ☐ BLUE CROSS/ BLUE SHIELD

5 ☐ OTHER COMMERCIAL INSURANCE

6 ☐ HMO/PRE-PAID PLAN

7 ☐ NO CHARGE

8 ☐ OTHER |Specify|

7. WAS PATIENT REFERRED FOR THIS VISIT BY ANOTHER PHYSICIAN?

1 ☐ YES   2 ☐ NO

8. PATIENT'S COMPLAINT(S), SYMPTOM(S), OR OTHER REASON(S) FOR THIS VISIT |In patient's own words|

a MOST IMPORTANT

_____

b OTHER

9. GLUCOSE TESTS THIS VISIT
|Check all ordered or provided|

1 ☐ NONE

2 ☐ BLOOD

3 ☐ URINE

4 ☐ ORAL

10. OTHER DIAGNOSTIC SERVICES THIS VISIT
|Check all ordered or provided|

1 ☐ NONE

2 ☐ BREAST EXAM

3 ☐ PELVIC EXAM

4 ☐ RECTAL EXAM

5 ☐ VISUAL ACUITY

6 ☐ URINALYSIS

7 ☐ HEMATOLOGY

8 ☐ BLOOD CHEMISTRY

9 ☐ PAP TEST

10 ☐ OTHER LAB TEST

11 ☐ BLOOD PRESSURE CHECK

12 ☐ EKG

13 ☐ CHEST X-RAY

14 ☐ OTHER RADIOLOGY

15 ☐ ULTRASOUND

16 ☐ OTHER SERVICE |Specify|

11. PHYSICIAN'S DIAGNOSES

a PRINCIPAL DIAGNOSIS/PROBLEM ASSOCIATED WITH ITEM 8a

_____

b OTHER SIGNIFICANT CURRENT DIAGNOSES

12. HAVE YOU SEEN PATIENT BEFORE?

1 ☐ YES   2 ☐ NO

IF YES, FOR THE CONDITION IN ITEM 11a?

1 ☐ YES   2 ☐ NO

13. NON-MEDICATION THERAPY
|Check all services ordered or provided this visit|

1 ☐ NONE

2 ☐ PHYSIOTHERAPY

3 ☐ AMBULATORY SURGERY

4 ☐ RADIATION THERAPY

5 ☐ PSYCHOTHERAPY

6 ☐ FAMILY PLANNING

7 ☐ DIET COUNSELING

8 ☐ OTHER COUNSELING

9 ☐ CORRECTIVE LENSES

10 ☐ OTHER |Specify|

14. MEDICATION THERAPY |Record all new or continued medications ordered or provided at this visit. Use the same brand name or generic name entered on any Rx or office medical record.|

IF NONE, CHECK HERE ☐

	a NEW MEDICATION?		b FOR DX IN ITEM 11a?	
	YES	NO	YES	NO
1 _____	1 ☐	2 ☐	1 ☐	2 ☐
2 _____	1 ☐	2 ☐	1 ☐	2 ☐
3 _____	1 ☐	2 ☐	1 ☐	2 ☐
4 _____	1 ☐	2 ☐	1 ☐	2 ☐
5 _____	1 ☐	2 ☐	1 ☐	2 ☐

15. DISPOSITION THIS VISIT
|Check all that apply|

1 ☐ NO FOLLOW-UP PLANNED

2 ☐ RETURN AT SPECIFIED TIME

3 ☐ RETURN IF NEEDED, PRN

4 ☐ TELEPHONE FOLLOW-UP PLANNED

5 ☐ REFERRED TO OTHER PHYSICIAN

6 ☐ RETURNED TO REFERRING PHYSICIAN

7 ☐ ADMIT TO HOSPITAL

8 ☐ OTHER |Specify|_____

16. DURATION OF THIS VISIT
|Time actually spent with physician|

_____
Minutes

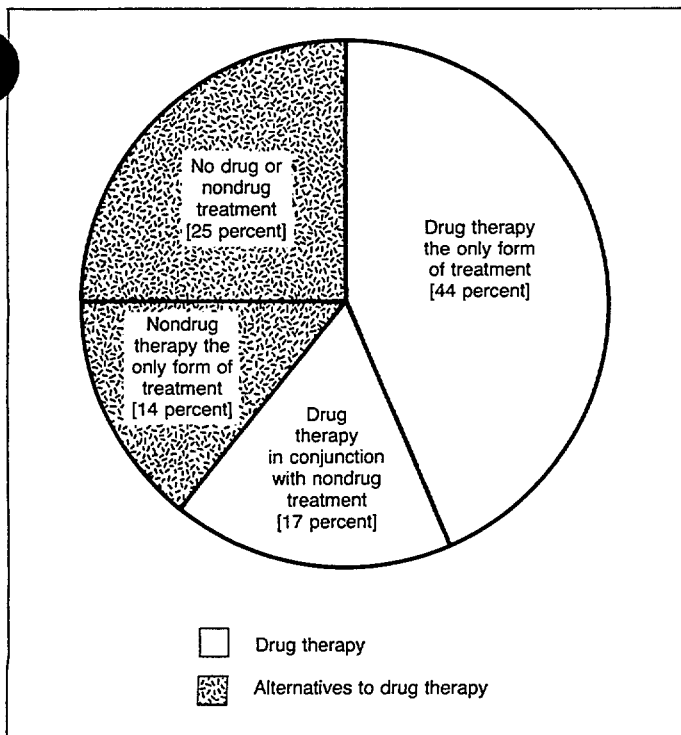Figure 1. National Ambulatory Medical Care Survey Patient Record

Figure 2. Percent distribution of office visits by treatment modality: United States, 1985

to produce. Clearly apparent is the preeminent role played by three therapeutic categories: antibiotics, cardiovascular-renal agents, and analgesics. Together they account for about 40 percent of all drug mentions.

The remaining numbered tables reveal the relationship between drug utilization and certain key variables in office-based care: the principal diagnosis (table 5), age and sex of patient (table 6), race and ethnicity of patient (table 7), and characteristics of the attending physician (table 8).

Of the numerous ways to measure drug utilization, tables 5–8 make use of four:

- One—the literal number of drug mentions for a given variable, the most exact measurement of overall *volume* of utilization.
- Two—the proportion of visits during which one or more drugs were prescribed or provided, a useful insight into the *frequency* of drug use.
- Three—the proportion of visits during which two or more drugs were prescribed or provided, an indicator of the *intensity* of use.
- Four—the Drug Utilization Index, an artifactual indicator of frequency plus intensity formed by combining proportions two and three above.

Diagnosis

Proper evaluation of the patterns of drug utilization requires that the data user look first to the morbidity that the drugs were intended to prevent, diagnose, or treat. The most direct and frequent linkage occurs here. In rational prescribing, a drug is seldom if ever utilized for the sole reason that the patient is over 65, or black, or female; or that the physician is an internist or a general practitioner. When variations in the substance and rhythm of utilization occur, they usually reflect differing patterns of morbidity.

It is fundamental, then, to first examine office-based drug utilization in terms of its diagnostic correlates. Table 5 makes this exploration, using the drug data specific to the first-listed (principal) diagnosis associated with each office visit (figure 1, item 11a). It is readily evident that two major diagnostic groups—respiratory disease and circulatory disease—dominate the world of office-based drug utilization, a dominance that is evident in all the various measures of utilization.

- The respiratory and circulatory disease diagnostic groups account for the highest respective proportions of total drug mentions (20 percent for respiratory disease and 16 percent for circulatory).
- They lead the other major diagnostic groups in the proportion of office visits during which one or more drugs

Table 1. Percent distribution of drug mentions by selected dimensions of the drugs utilized: United States, 1985

Drug dimension	Drug mentions	Drug dimension	Drug mentions
All mentions (693,355,000)	100.0	**Prescription status**	-
		Prescription drug	81.9
New or continued status		Nonprescription drug	11.2
New medication	42.9	Undetermined	6.9
Continued medication	52.6		
Undetermined	4.5	**Composition status**	
		Single-ingredient drug	71.9
Therapeutic target		Combination drug	20.2
		Undetermined	7.9
Principal diagnosis	77.1		
Other problem(s)	19.5	**Federal control status**	
Undetermined	3.4		
		Controlled drug	7.5
Entry status[1]		Schedule II drug	0.6
Generic name	18.6	Schedule III drug	1.8
Trade name	73.6	Schedule IV drug	4.1
Undetermined	7.8	Schedule V drug	1.0
		Noncontrolled drug	85.8
		Undetermined	6.7

[1]NAMCS respondents used the same form of entry—generic or trade name—that they used on the patient's medical record and/or on any prescription that they wrote.

Table 2. The 50 drugs most frequently utilized in office practice by generic ingredients, number of mentions, rank, and therapeutic use: United States, 1985

Entry name of drug[1]	Number of mentions in thousands	Rank	Therapeutic use
All drugs	693,355	...	...
Aldomet (methyldopa)	3,888	29	Antihypertensive
Amoxicillin	10,959	1	Antibiotic
Amoxil (amoxicillin)	7,858	5	Antibiotic
Ampicillin	6,557	8	Antibiotic
Aspirin or A.S.A.	5,224	16	Analgesic, antipyretic, anti-inflammatory
Benadryl (diphenhydramine)	4,028	26	Antihistaminic
Ceclor (cefaclor)	3,783	30	Antibiotic
Coumadin (warfarin)	2,631	48	Anticoagulant
Darvocet-N (propoxyphene, acetaminophen)	3,610	34	Analgesic
Diabinese (clorpropamide)	3,036	43	Hypoglycemic agent
Digoxin	3,766	31	Cardiotonic
Dimetapp (brompheniramine, phenylpropanolamine)	3,145	42	Antihistaminic, decongestant
Diphtheria tetanus toxoids pertussis	5,805	12	Immunization
Dyazide (triamterene, hydrochlorothiazide)	9,304	3	Diuretic, antihypertensive
E.E.S. (erythromycin)	4,791	20	Antibiotic
Erythromycin	4,494	21	Antibiotic
Feldene (piroxicam)	3,572	36	Nonsteroidal anti-inflammatory agent
Hydrochlorothiazide or HCTZ	5,636	13	Diuretic
Inderal (propranolol)	7,844	6	Arrhythmia, angina pectoris, hypertension, migraine
Indocin (indomethacin)	3,177	39	Nonsteroidal anti-inflammatory agent
Influenza virus vaccine	2,869	47	Immunization
Insulin	2,566	50	Hypoglycemic agent
Isordil (isosorbide dinitrate)	2,921	45	Vasodilator
Keflex (cephalexin)	6,255	11	Antibiotic
Lanoxin (digoxin)	8,308	4	Cardiotonic
Lasix (furosemide)	10,654	2	Diuretic, antihypertensive
Lopressor (metoprolol)	3,761	32	Hypertension, angina pectoris
Materna (multivitamin)	2,584	49	Prenatal supplement
Motrin (ibuprofen)	7,295	7	Nonsteroidal anti-inflammatory agent
Naldecon (phenylephrine, phenylpropanolamine, phenyltoloxamine, chlorpheniramine)	3,206	38	Antihistaminic, decongestant
Naprosyn (naproxen)	6,489	9	Nonsteroidal anti-inflammatory agent
Nitroglycerin	3,164	41	Vasodilator
Ortho-novum (norethindrone, estradiol or mestranol)	3,176	40	Oral contraceptive
Pen-Vee-K (penicillin)	3,577	35	Antibiotic
Persantine (dipyridamole)	4,295	22	Angina pectoris
Polio vaccine	4,122	24	Immunization
Prednisone	6,454	10	Steroidal anti-inflammatory agent
Premarin (estrogens)	4,292	23	Estrogen replacement therapy
Prenatal vitamins	2,911	46	Prenatal supplement
Synthroid (levothyroxine)	3,001	44	Thyroid replacement
Tagamet (cimetidine)	5,205	17	Duodenal or gastric ulcer
T.B. Tine test (tuberculin)	3,257	37	Tuberculosis skin test
Tenormin (atenolol)	5,443	15	Antihypertensive, angina pectoris
Tetracycline	5,474	14	Antibiotic
Theo-dur (theophylline)	4,852	19	Bronchodilator
Timoptic (timolol)	3,901	28	Glaucoma
Tylenol (acetaminophen)	5,082	18	Analgesic
Tylenol No. 3 (acetaminophen, codeine)	3,909	27	Analgesic
Valium (diazepam)	3,672	33	Anxiety disorders
Xanax (alprazolam)	4,071	25	Anxiety disorders

[1]The trade or generic name used by the physician on the prescription or other medical records. The use 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. Because of its nonspecific nature, the entry "Allergy relief or shots," with 7,607,000 mentions, is omitted.

were prescribed or provided (83 percent for respiratory disease and 75 percent for circulatory).

- They lead the other groups in the proportion of visits at which multiple drug mentions appear.
- For each, therefore, the Drug Utilization Index, the combined indicator of frequency and intensity, well exceeds the Index for any other diagnostic group.

Patient

Along the continuum of patient age there were two peaks in drug utilization; this was true regardless of the method of measurement employed. There was a minor peak in the youngest age group, due largely to the more than average use of antibiotics and immunizations, and a major peak in

Table 3. The 50 drugs most frequently utilized in office practice by generic ingredients, number of mentions, rank, and therapeutic use: United States, 1985

Generic ingredient	Number of mentions in thousands[1]	Rank	Therapeutic use
All drugs	693,355	...	...
Acetaminophen	22,520	2	Analgesic, antipyretic
Amitriptyline	4,255	48	Antidepressant
Amoxicillin	19,204	3	Antibiotic
Ampicillin	7,293	25	Antibiotic
Aspirin	13,797	6	Analgesic, antipyretic, anti-inflammatory
Atenolol	5,443	35	Antihypertensive, angina pectoris
Atropine	5,294	36	Anticholinergic
Bacitracin	6,050	31	Antibiotic
Brompheniramine	4,393	47	Antihistaminic
Caffeine	5,259	37	Stimulant
Cephalexin	6,255	30	Antibiotic
Chlorpheniramine	12,644	8	Antihistaminic
Cimetidine	5,231	38	Duodenal or gastric ulcer
Codeine	13,211	7	Analgesic, antitussive
Dexamethasone	5,019	41	Steroidal anti-inflammatory agent
Digoxin	12,159	11	Cardiotonic
Diphenhydramine	5,049	40	Antihistaminic
Dipyridamole	4,930	42	Angina pectoris
Erythromycin	17,930	4	Antibiotic
Estradiol	6,922	27	Estrogen replacement therapy, oral contraception
Estrogens	4,747	45	Estrogen replacement therapy, oral contraception
Furosemide	10,844	12	Diuretic, antihypertensive
Guaifenesin	7,141	26	Expectorant
Hydrochlorothiazide	23,676	1	Diuretic, antihypertensive
Hydrocortisone	7,328	24	Steroidal anti-inflammatory agent
Ibuprofen	9,429	15	Nonsteroidal anti-inflammatory agent
Insulin	5,913	32	Hypoglycemic
Isosorbide	4,095	50	Vasodilator
Methyldopa	5,670	33	Antihypertensive
Naproxen	7,567	22	Nonsteroidal anti-inflammatory agent
Neomyoin	8,635	20	Antibiotic
Nitroglycerin	8,093	21	Vasodilator
Norethindrone	5,640	34	Oral contraceptive
Penicillin	12,393	10	Antibiotic
Phenylephrine	14,395	5	Sympathomimetic
Phenylpropanolamine	12,442	9	Sympathomimetic
Polymyxin B	7,443	23	Antibiotic
Prednisolone	4,095	49	Steroidal anti-inflammatory agent
Prednisone	6,702	29	Steroidal anti-inflammatory agent
Promethazine	4,436	46	Antihistaminic
Propoxyphene	4,786	44	Analgesic
Propranolol	8,792	19	Arrhythmia, angina pectoris, hypertension, migraine
Pseudoephedrine	9,699	13	Sympathomimetic
Sulfamethoxazole	9,353	17	Antibiotic
Tetracycline	6,913	28	Antibiotic
Theophylline	9,312	18	Bronchodilator
Timolol	4,851	43	Glaucoma
Triamcinolone	5,167	39	Steroidal anti-inflammatory agent
Triamterene	9,402	16	Diuretic, antihypertensive
Trimethoprim	9,476	14	Antibiotic

[1]Combines mentions as the generic form of single-ingredient drugs with its mentions as an ingredient of combination drugs. Vitamins, minerals, and vaccines are omitted.

the oldest age group, resulting largely from the presence—at times concomitant—of the chronic diseases that afflict the aging. It is noteworthy that these oldest patients, though they made up only 12 percent of the population, accounted for 20 percent of office visits and nearly 30 percent of all drug mentions (table 6).

The relationship between the sex of the patient and drug utilization requires careful evaluation: A gender comparison based on simple enumeration of drug mentions should be treated with caution. It is true that drug mentions for female patients substantially outnumber mentions for males—in a ratio of roughly 6 to 4. But this ratio also holds for office visits in general, where it is influenced to a pronounced extent by the presence of conditions and needs that are unique to the female and by the demographic fact that, in 1985, females outlived males by an average of 7 years, producing more

Table 4. Number and percent distribution of drug mentions by therapeutic categories: United States, 1985

Therapeutic category[1]	Number of mentions in thousands	Percent distribution	Therapeutic category[1]	Number of mentions in thousands	Percent distribution
All drugs	693,355	100.0	Antihistamines, antitussives, expectorants, and mucolytic agents	47,892	6.9
Anti-infective agents (systemic)	101,723	14.7	Eye, ear, nose, and throat preparations	30,589	4.4
Antibiotics	85,299	12.3	Anti-infectives	9,910	1.4
Cephalosporins	12,661	1.8	Antibiotics	6,349	0.9
Erythromycins	17,334	2.5	Anti-inflammatory agents	5,488	0.8
Penicillins	38,869	5.6	Miotics	6,052	0.9
Tetracyclines	10,707	1.5	Gastrointestinal drugs	26,647	3.8
Sulfonamides	10,453	1.5	Antacids and absorbents	4,174	0.6
All other anti-infective agents	5,971	0.8	Cathartics and laxatives	4,731	0.7
Antineoplastic agents	5,393	0.8	Emetics and anti-emetics	3,922	0.6
Autonomic drugs	25,366	3.7	Miscellaneous GI drugs (used chiefly in treating duodenal ulcer)	9,980	1.4
Anticholinergic agents	8,543	1.2	Hormones and synthetic substances	52,642	7.6
Sympathomimetic (adrenergic) agents	9,528	1.4	Adrenals	16,996	2.5
Skeletal muscle relaxants	6,241	0.9	Contraceptives	7,596	1.1
Blood formation and coagulation	8,176	1.2	Estrogens	7,268	1.0
Anti-anemia drugs	5,317	0.7	Antidiabetic agents	8,965	1.3
Cardiovascular drugs	80,237	11.6	Insulins	5,906	0.9
Cardiac drugs	31,931	4.6	Thyroid and antithyroid	5,113	0.7
Antihypertensive agents	29,331	4.2	Serums, toxoids, and vaccines	20,649	3.0
Vasodilating agents	18,338	2.6	Skin and mucous membrane agents	41,481	6.0
Analgesics and antipyretics	67,631	9.8	Anti-infectives	17,548	2.5
Nonsteroidal anti-inflammatory agents	42,803	6.2	Fungicides	5,759	0.8
Psychotropic drugs	41,934	6.0	Anti-inflammatory agents	12,587	1.8
Anxiolytics, sedatives, and hypnotics	22,826	3.3	Keratolytic agents	3,136	0.5
Antidepressants	12,057	1.7	Smooth muscle relaxants	11,675	1.7
Major tranquilizers and antimanic drugs	7,051	1.0	Vitamins	18,873	2.7
Electrolytic, caloric, and water balance	51,589	7.4	Vitamin B complex	5,069	0.7
Diuretics	34,764	5.0	Multivitamin preparations	11,494	1.7
Replacement solutions	13,208	1.9	Other or undetermined	60,908	8.7

[1]Based on American Hospital Formulary Service Classification System, Drug Product Information File, The American Druggist Blue Book Data Center. San Bruno, Calif., 1985.

Table 5. Number and percent distribution of office visits and drug mentions; percent of office visits during which 1 drug or multiple drugs were used, and Drug Utilization Index, by principal diagnoses and ICD-9-CM codes: United States, 1985

Principal diagnosis and ICD-9-CM code[1]	Office visits		Drug mentions[2]		Drug visits		Drug Utilization Index[3]
	Number in thousands	Percent distribution	Number in thousands	Percent distribution	1 drug or more used[2]	2 drugs or more used[2]	
					Percent of all visits[3]		
All principal diagnoses	636,386	100.0	534,627	100.0	54.2	20.0	74
Infectious and parasitic diseases ... 001–139	24,869	3.9	22,051	4.1	66.2	16.9	83
Neoplasms ... 140–239	19,998	3.1	9,717	1.8	29.4	11.6	41
Endocrine, nutritional and metabolic diseases, and immunity disorders ... 240–279	22,480	3.5	21,901	4.1	61.3	21.6	83
Diseases of endocrine glands ... 240–259	15,554	2.4	15,603	2.9	64.9	20.5	85
Obesity ... 278	3,345	0.5	3,470	0.6	59.0	27.6	87
Diseases of blood and blood-forming organs ... 280–289	3,841	0.6	2,971	0.5	60.8	11.6	72
Mental disorders ... 290–319	25,988	4.1	20,835	3.9	52.3	19.2	72
Nonpsychotic disorders ... 300–316	20,198	3.2	12,428	2.3	45.0	12.5	58
Diseases of nervous system and sense organs ... 320–389	69,852	11.0	52,995	9.9	53.0	17.4	70
Diseases of central nervous system ... 320–349	4,827	0.8	5,382	1.0	68.3	27.8	96
Eye disorders ... 360–379	35,000	5.5	21,045	3.9	39.7	14.5	54
Otitis media ... 382	15,607	2.5	16,426	3.1	78.6	23.1	102
Diseases of circulatory system ... 390–459	55,953	8.8	85,552	16.0	74.7	42.8	118
Essential hypertension ... 401	26,049	4.1	39,011	7.3	81.2	42.5	124
Ischemic heart disease ... 410–414	10,249	1.6	21,900	4.1	82.2	64.7	147

See footnotes at end of table.

Table 5. Number and percent distribution of office visits and drug mentions; percent of office visits during which 1 drug or multiple drugs were used, and Drug Utilization Index, by principal diagnoses and ICD-9-CM codes: United States, 1985—Con.

Principal diagnosis and ICD-9-CM code[1]	Office visits		Drug mentions[2]		Drug visits		Drug Utilization Index[3]
	Number in thousands	Percent distribution	Number in thousands	Percent distribution	1 drug or more used[2]	2 drugs or more used[2]	
					Percent of all visits[3]		
Diseases of respiratory system 460–519	77,008	12.1	106,836	20.0	82.7	39.2	122
Acute upper respiratory infection 465	14,691	2.3	19,472	3.6	83.5	38.7	122
Asthma 493	6,503	1.0	12,915	2.4	88.5	55.2	144
Diseases of digestive system 520–579	27,222	4.3	21,700	4.1	54.0	19.0	73
Diseases of genitourinary system 580–629	38,999	6.1	26,932	5.0	54.0	12.1	66
Male genitourinary system 600–608	5,365	0.8	3,097	0.6	48.2	8.1	56
Female genitourinary system 614–629	17,882	0.8	12,557	2.3	54.0	13.3	67
Diseases of skin and subcutaneous tissue 680–709	36,196	5.7	38,048	7.1	65.5	27.1	93
Diseases of musculoskeletal system 710–739	45,064	7.1	38,943	7.3	59.7	18.1	78
Arthropathies 711–716	12,172	1.9	14,148	2.6	74.0	25.2	99
Symptoms, signs, and ill-defined conditions 780–799	22,489	3.5	16,066	3.0	47.8	15.3	63
Injury and poisoning 800–999	52,743	8.3	27,883	5.2	42.1	8.6	51
Normal pregnancy V22	24,182	3.8	10,932	2.0	36.3	8.4	45
Health supervision of infant or child V20	17,088	2.7	6,153	1.2	24.4	10.3	35
Other or undetermined	72,414	11.4	25,112	4.7	...	...	...

[1]Based on the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM).
[2]Includes only those drug mentions that were specifically intended for the principal (first-listed) diagnosis. Drug mentions associated with other-listed diagnoses or utilized for any other reason are not included.
[3]A composite indicator of the frequency and intensity of drug utilization, formed by adding the percent of visits with 1 drug mention or more to the percent of visits with multiple drug mentions and rounding to the nearest whole integer.

Table 6. Number and percent distribution of office visits and drug mentions; percent of office visits during which 1 drug or multiple drugs were used, and Drug Utilization Index, by age and sex of patient: United States, 1985

Age and sex	Office visits		Drug mentions		Drug visits		Drug Utilization Index[1]
	Number in thousands	Percent distribution	Number in thousands	Percent distribution	1 drug or more used	2 drugs or more used	
					Percent of all visits		
All patients	636,386	100.0	693,355	100.0	61.2	27.7	89
Age							
Under 15 years	118,768	18.7	107,018	15.4	62.0	21.7	84
15–24 years	73,964	11.6	60,288	8.7	56.4	18.6	75
25–44 years	175,724	27.6	156,234	22.5	55.7	22.2	78
45–64 years	137,391	21.6	171,234	24.7	63.4	33.1	97
65 years and over	130,538	20.5	198,582	28.6	68.2	40.3	109
Sex							
Female	387,481	60.9	426,653	61.5	61.8	28.1	90
Male	248,905	39.1	266,702	38.5	60.2	27.2	87
Sex and age							
Female							
Under 15 years	58,175	9.1	53,107	7.6	62.7	21.8	85
15–24 years	48,883	7.7	40,255	5.8	58.4	18.3	77
25–44 years	118,557	18.6	107,079	15.4	56.4	22.6	79
45–64 years	82,331	12.9	103,173	14.9	64.2	33.6	98
65 years and over	79,535	12.5	123,040	17.7	68.8	41.3	110
Male							
Under 15 years	60,594	9.5	53,911	7.8	61.3	21.6	83
15–24 years	25,081	3.9	20,034	2.9	52.7	19.0	72
25–44 years	57,167	9.0	49,155	7.1	54.3	21.3	76
45–64 years	55,060	8.7	68,061	9.8	62.1	32.4	95
65 years and over	51,004	8.0	75,542	10.9	67.2	38.7	106

[1]A composite indicator of the frequency and intensity of drug utilization, formed by adding the percent of visits with 1 drug mention or more to the percent of visits with multiple drug mentions and rounding to the nearest whole integer.

Table 7. Number and percent distribution of office visits and drug mentions; percent of office visits during which 1 drug or multiple drugs were used, and Drug Utilization Index, by race and ethnicity of patient: United States, 1985

Race and ethnicity	Office visits		Drug mentions		Drug visits		Drug Utilization Index[1]
	Number in thousands	Percent distribution	Number in thousands	Percent distribution	1 drug or more used	2 drugs or more used	
					Percent of all visits		
All patients	636,386	100.0	693,355	100.0	61.2	27.7	89
Race							
White	572,507	90.0	614,585	88.6	60.6	27.1	88
Black	52,143	8.2	66,394	9.6	67.2	34.4	102
Other[2]	11,736	1.8	12,376	1.8	62.8	29.4	92
Ethnicity							
Hispanic	40,609	6.4	43,325	6.2	62.9	27.5	90
Non–Hispanic	595,777	93.6	650,030	93.8	61.1	27.8	89

[1]A composite indicator of the frequency and intensity of drug utilization, formed by adding the percent of visits with 1 drug mention or more to the percent of visits with multiple drug mentions and rounding to the nearest whole integer.
[2]Asian, Pacific Islander, American Indian, or Alaskan native.

Table 8. Number and percent distribution of office visits and drug mentions; percent of office visits during which 1 drug or multiple drugs were used, and Drug Utilization Index, by physician identity and specialty: United States, 1985

Physician identity and specialty	Office visits		Drug mentions		Drug visits		Drug Utilization Index[1]
	Number in thousands	Percent distribution	Number in thousands	Percent distribution	1 drug or more used	2 drugs or more used	
					Percent of all visits		
All physicians	636,386	100.0	693,355	100.0	61.2	27.7	89
Professional identity							
Doctor of medicine	600,514	94.4	650,353	93.8	60.8	27.4	88
Doctor of osteopathy	35,872	5.6	43,002	6.2	68.1	32.8	101
Specialty							
General or family practice	193,995	30.5	250,119	36.1	72.7	33.6	106
Internal medicine	73,727	11.6	126,219	18.2	77.4	45.7	123
Pediatrics	72,693	11.4	68,856	9.9	66.8	21.9	89
Obstetrics and gynecology	56,642	8.9	33,832	4.9	45.1	12.2	57
Ophthalmology	40,062	6.3	25,820	3.7	40.8	16.4	57
Orthopedic surgery	31,482	4.9	12,080	1.7	27.4	7.5	35
General surgery	29,858	4.7	18,774	2.7	38.5	15.3	54
Dermatology	24,124	3.8	29,253	4.2	68.0	34.1	102
Psychiatry	17,989	2.8	14,826	2.1	46.3	4.5	51
Otolaryngology	16,097	2.5	10,761	1.6	45.5	17.0	63
Urological surgery	11,699	1.8	6,737	1.0	46.7	9.1	56
Cardiovascular disease	10,617	1.7	26,812	3.9	80.9	66.3	147
Neurology	4,992	0.8	4,664	0.7	57.4	25.1	83
All other specialties	52,408	8.2	64,602	9.3	60.7	32.7	93

[1]A composite indicator of the frequency and intensity of drug utilization, formed by adding the percent of visits with 1 drug mention or more to the percent of visits with multiple drug mentions and rounding to the nearest whole integer.

female visits at the oldest end of the age spectrum. On the other hand, from the perspective of the Drug Utilization Indexes, the gender difference in average frequency and intensity of drug utilization is not very great. To be fair, contrasts between male and female drug utilization should be based on average tendencies, should be diagnosis-specific within common age groups, and should control for agents that are unique to either sex. This subject will be explored further in future reports from the NAMCS drug data base.

Contributing to the significantly higher Drug Utilization Index for office visits by black patients (table 7) is the fact that black patients favor the general practitioner more than

their white counterparts do. General practitioners, as a reference to table 8 will reveal, utilize drug therapy with a frequency and intensity that exceeds that of most of the more specialized physicians.

Physician

In comparing the Drug Utilization Indexes, it is cle... that Doctors of Osteopathy as a group exceeded Doctors of Medicine in the average extent to which they utilized drug therapy (table 8). This may be chiefly because the clear majority of their members engage in general practice, and general

practitioners—as the specialty findings in table 8 make evi-
t—lead most of the other specialists in the tempo and
lume of their drug utilization.

Every method of measuring drug utilization offers strong
evidence of the prominent roles played by three primary care
providers: general practitioners, family physicians, and inter-
nists (table 8). As a group they account for a majority (54
percent) of all drug mentions, and their indicators of utilization
are higher than those of any other specialists except physicians
whose primary focus is limited to cardiovascular disease.

Noteworthy contrasts between 1985 and 1981 drug findings

Prior to the 1985 survey, NAMCS was last fielded in
1981. A comparison of the drug findings between the two
survey years reveals that

- Although the absolute number of drug mentions increased
  over the period in rough parallel with the increased number
  of office visits, the average utilization patterns, as
  measured by the Drug Utilization Index, did not change
  significantly (89 for 1985; 90 for 1981).
- In 1985, the proportion of combination drug mentions—20
  percent of all drug mentions—declined substantially from
  the 1981 proportion of 26 percent.
  Among age groups, the most noteworthy change in abso-
  lute number of drug mentions, an increase of about 20
  percent over the 1981 number, occurred with patients
  65 years old and over. For the first time since NAMCS
  began gathering drug data in 1980, this oldest age group
  accounted for the largest single proportion of all mentions.
- Among the drug classes the following changes in mention
  number are worthy of note:

Drug class	Percent change 1981 to 1985
Cardiovascular drugs (especially antihypertensive agents and vasodilators)	+17
Analgesics and antipyretics (especially nonsteroidal anti-inflammatory agents)	+15
Antidepressants	+22
Anxiolytics, sedatives, and hypnotics	−17
EENT preparations (chiefly anti-infectives and miotics)	+30
Systemic corticosteroids	−18
Skin and mucous membrane agents	−15

- Movement of specific agents within the drug classes is
  apparent from the findings in tables 9 and 10. They gener-
  ally support the changes noted above for their parent
  classes; note, for example, the marked increase in mention

number found for the nonsteroidal anti-inflammatory
agents "ibuprofen" and "naproxen." In the case of the
systemic antibiotics, however, although no notable change
in total utilization occurred between 1981 and 1985, there
was dramatic movement of agents within the class. The
amoxicillins, for example, advanced prominently in men-
tion number at the expense of the other antibiotics.

Readers interested in learning more about the NAMCS
drug data base may direct their inquiries to:

Hugo Koch
National Center for Health Statistics
Center Building 2, Room 2–43
3700 East-West Highway
Hyattsville, MD 20782
Telephone: (301) 436–7132

Table 9. The 10 generic ingredients with the greatest increase in office-based utilization from 1981 to 1985: United States, 1985

[Limited to the agents listed in table 3]

Generic ingredient	Therapeutic use	Percent increase[1]
Acetaminophen	Analgesic, antipyretic	51
Amoxicillin	Antibiotic	55
Atenolol	Antihypertensive, angina pectoris	>100
Dipyridamole	Angina pectoris	>100
Estrogens	Estrogen replacement therapy, oral contraception	65
Ibuprofen	Nonsteroidal anti-inflammatory agent	58
Naproxen	Nonsteroidal anti-inflammatory agent	83
Nitroglycerin	Vasodilator	59
Norethindrone	Oral contraceptive	87
Timolol	Glaucoma	>100

[1]Based on volume of drug mentions.

Table 10. The 10 generic ingredients with the greatest decrease in office-based utilization from 1981 to 1985: United States, 1985

[Limited to the agents listed in table 3]

Generic ingredient	Therapeutic use	Percent decrease[1]
Ampicillin	Antibiotic	29
Brompheniramine	Antihistaminic	46
Methyldopa	Antihypertensive	27
Penicillin	Antibiotic	27
Phenylpropanolamine	Sympathomimetic	24
Promethazine	Antihistaminic	25
Propranolol	Arrhythmia, angina pectoris, hypertension, migraine	31
Pseudoephedrine	Sympathomimetic	25
Tetracycline	Antibiotic	33
Triamcinolone	Steroidal anti-inflammatory agent	22

[1]Based on volume of drug mentions.

Technical notes

Source of data and sample design

The information presented in this report is based on data collected by means of the 1985 National Ambulatory Medical Care Survey (NAMCS) during the period from March 1985 through February 1986. The target universe of NAMCS comprises office visits made within the coterminous United States to non-Federal 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 uses a multistage probability sample design that involves samples of primary sampling units (PSU's), physician practices within PSU's, and patient visits within physician practices. For 1985, a sample of 5,032 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 was 70.2 percent. Sampled physicians were asked to complete Patient Records (figure 1) for a systematic random sample of their office visits over a randomly assigned 1-week reporting period. Responding physicians completed 71,594 Patient Records.

Characteristics of the physician's practice, such as primary specialty and type of practice, were obtained during an induc-tion interview. NORC (formerly known as the National Opin-ion Research Center), under contract to the National Center for Health Statistics, was responsible for the survey's data collection and processing operations.

Sampling errors

The standard error is a measure of the sampling variability that occurs by chance when only a sample, rather than an entire universe, is surveyed. The relative standard error of an estimate is obtained by dividing the standard error by the estimate itself; the result is then expressed as a percent of the estimate. These measurements are applied to office visits in tables I and II; in tables III and IV they are applied to drug mentions.

Rounding of numbers

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 therefore will not necessarily agree precisely with rates or percents calculated from rounded data.

Definitions of terms used in this report

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

A *drug mention* is the physician's entry of a pharmaceuti-cal agent prescribed or provided—by any route of administra-tion—for prevention, diagnosis, or treatment. Generic names as well as brand-name drugs are included, as are nonprescrip-tion 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 I. Approximate relative standard errors of estimated numbers of office visits based on all physician specialties: NAMCS, 1985

Estimated number of office visits in thousands	Relative standard error in percent
200	37.8
500	24.1
1,000	17.2
2,000	12.5
5,000	8.5
10,000	6.6
20,000	5.4
50,000	4.5
100,000	4.2
600,000	3.9

Example of use of table: An aggregate estimate of 15,000,000 visits has a relative standard error of 6.0 percent, or a standard error of 900,000 visits (6.0 percent of 15,000,000).

Table II. Approximate standard errors of percents of estimated numbers of office visits based on all physician specialties: NAMCS, 1985

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 percentage points					
200	3.7	8.2	11.3	15.0	17.2	18.8
500	2.4	5.2	7.1	9.5	10.9	11.9
1,000	1.7	3.7	5.0	6.7	7.7	8.4
2,000	1.2	2.6	3.6	4.8	5.4	5.9
5,000	0.7	1.6	2.3	3.0	3.4	3.8
10,000	0.5	1.2	1.6	2.1	2.4	2.7
20,000	0.4	0.8	1.1	1.5	1.7	1.9
50,000	0.2	0.5	0.7	1.0	1.1	1.2
100,000	0.2	0.4	0.5	0.7	0.8	0.8
600,000	0.1	0.1	0.2	0.3	0.3	0.3

Example of use of table: An estimate of 20 percent based on an aggregate estimate of 15,000,000 visits has a standard error of 1.8 percent, or a relative standard error of 9.0 percent (1.8 percent ÷ 20 percent).

Table III. Approximate relative standard errors of estimated numbers of drug mentions based on all physician specialties: NAMCS, 1985

Estimated number of drug mentions in thousands	Relative standard error in percent
300	39.8
500	30.9
1,000	22.1
2,000	15.9
5,000	10.6
10,000	8.1
20,000	6.5
50,000	5.3
100,000	4.9
600,000	4.4

Example of use of table: An aggregate estimate of 15,000,000 drug mentions has a relative standard error of 7.3 percent, or a standard error of 1,095,000 drug mentions (7.3 percent of 15,000,000 drug mentions).

Table IV. Approximate standard errors of percents of estimated numbers of drug mentions based on all physician specialties: NAMCS, 1985

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					
	3.9	8.6	11.9	15.8	18.1	19.8
	3.0	6.7	9.2	12.3	14.0	15.3
,000	2.2	4.7	6.5	8.7	9.9	10.8
2,000	1.5	3.3	4.6	6.1	7.0	7.7
5,000	1.0	2.1	2.9	3.9	4.4	4.8
10,000	0.7	1.5	2.1	2.7	3.1	3.4
20,000	0.5	1.1	1.5	1.9	2.2	2.4
50,000	0.3	0.7	0.9	1.2	1.4	1.5
100,000	0.2	0.5	0.6	0.9	1.0	1.1
600,000	0.1	0.2	0.3	0.4	0.4	0.4

Example of use of table: An estimate of 20 percent based on an aggregate estimate of 7,500,000 drug mentions has a standard error of 3.3 percentage points, or a relative standard error of 16.5 percent (3.3 percent ÷ 20 percent).

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

Recent Issues of *Advance Data From Vital and Health Statistics*

No. 133. Aging in the Eighties: Functional Limitations of Individuals Aged 65 and Over (Issue date forthcoming)

No. 132. Acute Conditions and Restricted Activity During the 1985–86 Influenza Season (Issued March 27, 1987)

No. 131. Nursing Home Characteristics, Preliminary Data From the 1985 National Nursing Home Survey (Issued March 27, 1987)

No. 130. Prevalence of Known Diabetes Among Black Americ (Issue date forthcoming)

No. 129. Visits to Office-Based Physicians by Hispanic Persons: United States, 1980–81 (Issued February 11, 1987)

```
BULK RATE
POSTAGE & FEES PAID
PHS/NCHS
PERMIT NO. G-281
```