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# Medication Therapy in Ambulatory Medical Care: United States, 2003–04



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Centers for Disease Control and Prevention  
National Center for Health Statistics

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# Vital and Health Statistics

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Data From the National Health  
Care Survey

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Centers for Disease Control and Prevention  
National Center for Health Statistics

Hyattsville, Maryland  
December 2006  
DHHS Publication No. (PHS) 2007-1734

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## Abstract

### Objective

This report describes medication therapy at visits to physician offices, hospital outpatient departments, and emergency departments in the United States during 2003 and 2004. Office-based care is further subdivided into three categories—primary care, surgical specialties, and medical specialties.

### Methods

Data from the 2003 and 2004 National Ambulatory Medical Care Surveys (NAMCS) and National Hospital Ambulatory Medical Care Surveys (NHAMCS) were combined to produce averaged annual estimates of ambulatory medical care utilization.

### Results

An estimated 1.9 billion drugs per year were provided, prescribed, or continued at ambulatory care visits in the United States during 2003 and 2004. Two-thirds of the 1.1 billion ambulatory care visits per year included medication therapy. The rate was highest at visits to medical specialists (2.3 drugs per visit). The rate of drugs per visit increased with patient age in each ambulatory care setting.

Cardiovascular-renal was the class of drugs most frequently cited at visits to primary care physicians and medical specialists. Pain relievers were the drugs reported most often at hospital emergency and outpatient department visits. Of the 50 drugs most frequently reported overall, three-quarters of them were accounted for by six therapeutic classes—pain relievers, cardiovascular-renal agents, respiratory tract drugs, central nervous system drugs (antianxiety agents and antidepressants), hormonal agents, and antimicrobials. Ibuprofen, aspirin, atorvastatin calcium, acetaminophen, and albuterol were the five most frequently reported medications. From 1993 to 2004, the number of drugs provided, prescribed, or continued per visit increased for all settings.

**Keywords:** ambulatory care visits • drug mentions • medication therapy • pharmacotherapy • therapeutic classification

# Medication Therapy in Ambulatory Medical Care: United States, 2003–04

by Saeid Raofi, M.S., and Susan M. Schappert, M.A.,  
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## Introduction

Medication therapy, or pharmacotherapy, is the predominant treatment modality at ambulatory medical care visits, and the cost of this treatment has increased rapidly over the last decade. In 2003, prescription drug expenditures in the United States totaled \$216.4 billion, an increase of \$22.4 billion from the previous year. The rate of increase exceeded 10 percent in 2001, 2002, and 2003 (1). With such growth, an assessment of the volume and characteristics associated with medication therapy at ambulatory health care visits in the United States becomes especially important.

This report describes medication therapy at ambulatory medical care visits in the United States across five ambulatory care settings—primary care offices, surgical specialty offices, medical specialty offices, hospital outpatient departments, and hospital emergency departments. The data presented are from the 2003 and 2004 National Ambulatory Medical Care Surveys (NAMCS) and National Hospital Ambulatory Medical Care Surveys (NHAMCS), which were combined to produce averaged annual estimates of pharmacotherapy at ambulatory medical care visits in the United States. These surveys comprise the ambulatory care component of the National Health Care Surveys (NHCS), conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics. NHCS measures health care utilization across a

variety of health care providers. More information can be found at [www.cdc.gov/nchs/nhcs.htm](http://www.cdc.gov/nchs/nhcs.htm).

The report presents summary statistics based on selected data items common to NAMCS and NHAMCS, all of which are related to medication therapy. The annual summaries (2–7) and the forthcoming series report focus on general utilization data for 2003–04 (8) and contain an overview of the medical care provided in each setting as well as some general findings on medication therapy. This report provides greater detail on medication therapy both within settings and across the spectrum of ambulatory health care as a whole.

## Methods

This study is a secondary analysis of data collected in the 2003 and 2004 NAMCS and NHAMCS. The target universe for NAMCS includes visits made in the United States to the offices of nonfederally employed physicians (excluding those in the specialties of anesthesiology, pathology, and radiology) who were classified by the American Medical Association (AMA) or the American Osteopathic Association (AOA) as being primarily engaged in office-based patient care. Visits to private, nonhospital-based clinics and health maintenance organizations (HMOs) were within the scope of the survey, but those that occurred in federally operated facilities and hospital-based outpatient departments (OPD) were not. Telephone contacts and visits made outside the

ambulatory care setting were not sampled in either survey, although limited information on the numbers of such contacts was collected in NAMCS.

The target universe for NHAMCS is in-person visits made to the OPDs and emergency departments (EDs) of nonfederal, short-stay hospitals (hospitals with an average stay of less than 30 days) or those whose specialty is general (medical or surgical) or children's general, in the United States. Only OPDs under the supervision of a physician were within the scope of NHAMCS. Clinics specializing in ancillary services, treatment only (e.g., chemotherapy, dialysis, radiation, physical therapy), and ambulatory surgery were all out-of-scope for NHAMCS. Visits from sampled OPD clinics were combined to provide total estimates for OPD utilization. This includes clinics defined as general medical care (57.8 percent of the 2003–04 total), pediatrics (14.0 percent), general surgery (11.6 percent), obstetrics and gynecology (8.2 percent), and all other types (8.4 percent). (Surgery clinics differ from ambulatory surgical centers in OPDs in that the former involve visits to surgeons for diagnosis of problems requiring surgery and for postsurgery followup. Ambulatory surgery centers provide surgical procedures that do not require hospitalization.) EDs were defined as those providing 24-hour emergency care. Emergency care clinics that were open less than 24 hours per day were considered as part of the OPD.

The sampling frame for NHAMCS is based on hospitals that were listed in the April 1991 SMG Hospital Database. The original sample has been updated over the years to allow for inclusion of hospitals that opened or whose eligibility status had changed. The 2003 NHAMCS sampling frame was updated using products of Verispan L.L.C., specifically, the “Healthcare Market Index” and “Hospital Market Profiling Solution.” These products were formerly known as the SMG Hospital Database and will be referred to as the Verispan Hospital Database (VHD). For the 2003 NHAMCS only, an additional sample of 66 hospitals (identified as having an ED and either located in nonmetropolitan

statistical areas or under proprietary ownership) was selected from the 2002 VHD to provide more reliable estimates for those categories. The 2004 NHAMCS frame was updated using the 2003 VHD.

A multistage probability sample design is used in both surveys; the designs are described elsewhere (9,10). The combined 2003 and 2004 NAMCS dataset contains 50,514 encounter records from 2,779 in-scope physicians; the combined NHAMCS dataset contains 76,842 ED records and 66,275 OPD encounter forms from 428 participating hospitals in 2003 and 376 in 2004. Response rates for both surveys ranged between 65 and 89 percent across the 2-year period. See [Appendix I](#) for additional information.

Because the estimates presented are based on a sample rather than on the entire universe of ambulatory visits, they are subject to sampling variability. The “Technical Notes” in [Appendix I](#) include an explanation of sampling errors and guidelines for judging the precision of the estimates, as well as information on the tests of significance used to establish differences among survey estimates. Unless otherwise noted, the determination of statistical significance was based on the two-tailed *t*-test. The Bonferonni inequality was used to establish the critical value for statistically significant differences (0.05 level of significance) based on the number of possible comparisons within a particular variable (or variables) of interest.

Encounter data for each sampled visit are collected using a one-page questionnaire, the Patient Record form (PRF). These forms are produced in three different versions that have been carefully designed for use in each survey setting—physician offices (NAMCS), and OPDs and EDs (NHAMCS)—but which contain many data items in common. NAMCS and OPD PRFs are nearly identical, but the ED PRF differs in ways appropriate to that setting. These forms are used by medical staff to record information about patient visits. Definitions of terms relating to the survey items are found in [Appendix II](#). The PRFs are shown in [Appendix III](#) and should serve as a

reference for readers as they review the survey findings presented in this document.

In 2003 and 2004, pharmacotherapy data were collected in item 9, “Medications & Injections” of the PRF, and the same format was used in all three settings. The question asks respondents to list up to eight “Rx and OTC medications, immunizations, allergy shots, anesthetics, and dietary supplements that were ordered, supplied, administered, or continued during this visit.” (Note: Rx is prescription; OTC is over the counter.) Each entry of a medication on the form is referred to as a “drug mention” in NAMCS and NHAMCS reports, and visits with at least one drug mention are termed “drug visits.” The term, “prescribed,” as used in this report reflects the broader definition stated above.

Drug mentions were coded according to a coding system developed at NCHS. A report describing the method and instruments used to collect and process drug information is available (11). Additional sources, including the *American Drug Index*, *Drug Topics Red Book*, *Facts and Comparisons*, and the *National Drug Code Directory, 1995 edition* (NDC), were used to identify and assign drug characteristics for analytical purposes (12–15). The NDC assigns therapeutic classes for each drug using a two-tiered system. There are 21 broad therapeutic classes (2-digit level), and drugs are assigned to subclasses (4-digit level) within the broad classes. This report presents therapeutic classes using the 2- and 4-digit levels, depending upon the table.

The presentation of drug mentions in terms of their generic substances has been changed for 2003–04 compared with previous years of NAMCS and NHAMCS reports. In the past, frequency of mention estimates combined single-ingredient agents with mentions of the agent as an ingredient in a combination drug. That is, a preparation containing acetaminophen and codeine was included both in the count for acetaminophen and the count for codeine in tables of drugs by their generic components. This meant that it was possible for the number of generic



substances to exceed the number of actual drug mentions. For this report (with the exception of [Figure 5](#), which presents generic substances according to the method just described), drugs containing multiple ingredients are presented in tables of generic substances using entries that reflect combinations of ingredients. These entries are termed “generic equivalents” in the text. For example, a preparation containing only acetaminophen and codeine would no longer be listed under each separate ingredient, but would appear in the table under a new entry for “acetaminophen with codeine.”

Also of note is the fact that, since 2002, up to three therapeutic classes can be coded for each drug mention in NAMCS and NHAMCS data. Therefore, summary statistics in tables that show mentions by therapeutic class of drugs can exceed the total number of drug mentions.

[Table 11](#) compares the drugs most frequently provided, prescribed, or continued at NAMCS and NHAMCS visits in 1993–94 with those in 2003–04. It should be noted that, because only five drugs could be coded per visit during 1993–94, only the first five (out of a possible eight) drugs listed on the visit records for 2003–04 were used for the time comparison. Additional information about the analysis and presentation of drug estimates is shown in [Appendix I](#).

The PRF item, “Primary expected source of payment for this visit,” is used to define the method of payment expected by the provider for the visit. It includes the categories of private insurance, Medicare, Medicaid, Worker’s Compensation, self-pay, no charge, other, and unknown. For this report, self-pay and no charge were combined to yield estimates of uninsured visits. Worker’s Compensation, other, and unknown response categories were combined into a residual category called “Other.” Visit rates by expected pay source use population estimates of health insurance from the 2003–04 National Health Interview Surveys for the denominator (16,17). The numerator used in calculating rates for the no-insurance group comes from the PRF

self-pay and no charge categories. Although not all uninsured visits are made by uninsured persons, the number of uninsured persons is used to calculate rates of uninsured visits. For NAMCS and NHAMCS self-pay and no charge visits (uninsured visits), there is no expectation of third-party payers covering the cost.

Visits to office-based physicians, which account for 82 percent of the ambulatory care visits discussed in this report, were divided into three settings. This classification was suggested by the American Medical Association (18) and is based on physicians’ self-designated practice specialty to better portray the diversity of care that occurs in physician offices. [Table I](#) in Appendix I shows the specialties used to define each category. Self-designated practice specialty is collected from AMA and AOA as part of the initial sampling process and is confirmed with the physician at the time of the survey induction interview. For tabulation purposes, doctors of osteopathy were grouped with doctors of medicine according to specialty.

In this report, the terms, “visits to office-based physicians” and “visits to physician offices” are used interchangeably, as are the terms “visits to specialists,” “visits to specialty offices,” and “visits to specialties.”

Some tables in this report present data on population-based rates of drug mentions at ambulatory care visits. With the exception of the expected source of payment, the population figures used in calculating these rates were special tabulations of the civilian noninstitutionalized population of the United States, developed by the Population Division, U.S. Census Bureau, from the July 1, 2003, and July 1, 2004, set of state population estimates by age, sex, race, and Hispanic origin. These estimates are based on census 2000 data. Population figures are shown in [Tables II](#) and [III](#) in Appendix I.

The U.S. Census Bureau was responsible for data collection for both surveys. Constella Group, formerly Analytic Sciences, Inc., Durham, North Carolina, performed processing operations and medical coding. As part of the quality assurance procedure, a

10 percent quality control sample of survey records was independently processed. Error rates (which include coding and keying) ranged between 0.0 and 1.5 percent depending on the survey and item.

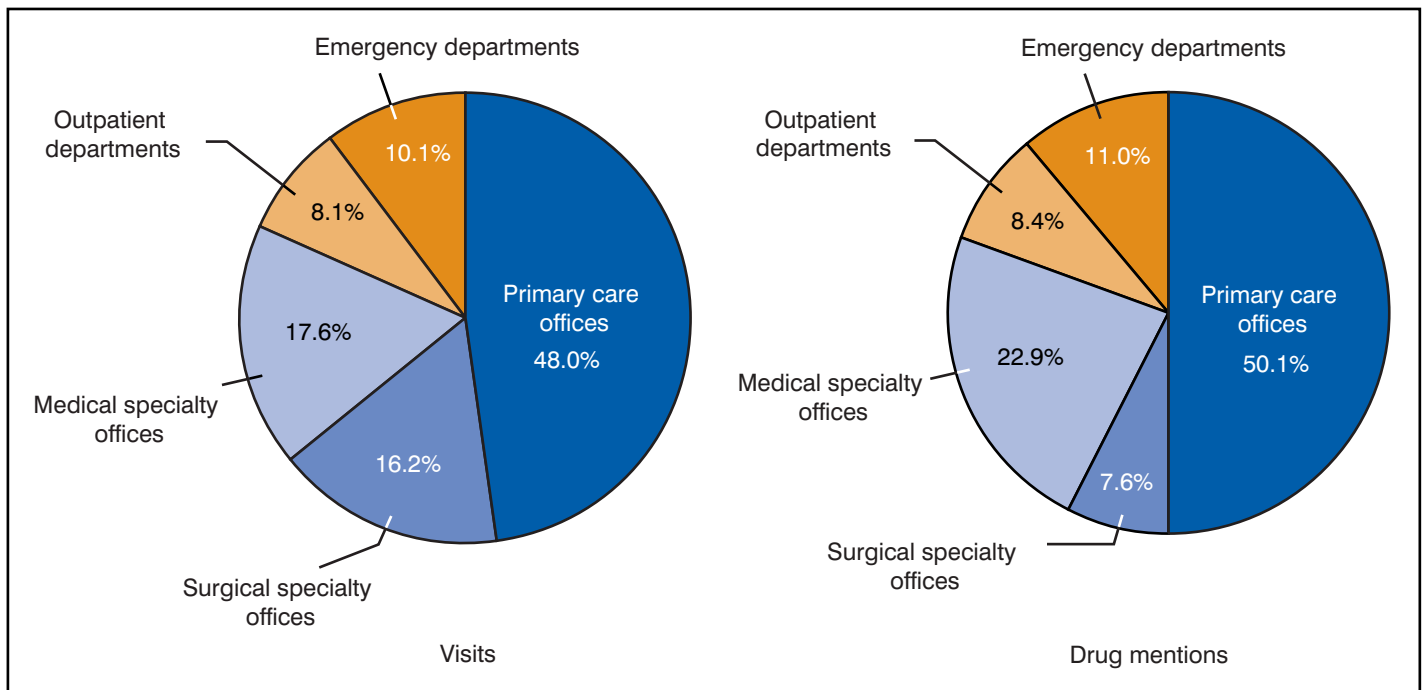
## Results

This report contains detailed data on medication therapy at ambulatory care visits by setting type ([Table 1](#)), patient and provider characteristics ([Tables 2,3](#)), drug characteristics ([Tables 4–7](#)), ranked generic substances ([Tables 8,9](#)) and population-based prescribing rates for therapeutic classes of drugs ([Tables 10,11](#)). To examine changes over time, comparisons of generic substances used in 1993–94 and 2003–04 are presented in [Table 12](#). Highlights of information found in the tables are shown below.

### Patient and Provider Characteristics

There was an annual average of 1.1 billion ambulatory care visits in 2003 and 2004. Primary care offices accounted for the largest share (48.0 percent of visits), followed by medical specialty offices (17.6 percent) and surgical specialty offices (16.2 percent). About 10 percent of visits were made to hospital emergency departments, and 8.1 percent were made to hospital OPDs ([Figure 1](#)). Two-thirds of ambulatory care visits (66.4 percent) included medication therapy ([Table 1](#)).

There were an estimated 1.9 billion drug mentions per year in 2003 and 2004. One-half (50.1 percent) of all drug mentions were accounted for by visits to primary care physicians. Although surgical specialties accounted for 16.2 percent of the visits, these visits only accounted for 7.6 percent of total drug mentions. In contrast, medical specialty offices accounted for 17.6 percent of visits, but 22.9 percent of drug mentions. Visits to hospital EDs were responsible for 11.0 percent and OPDs were responsible for 8.4 percent



**Figure 1. Percent distribution of ambulatory care visits and drug mentions at ambulatory care visits, by setting type: United States, 2003–04**

of the total drug mentions (Table 2, Figure 1).

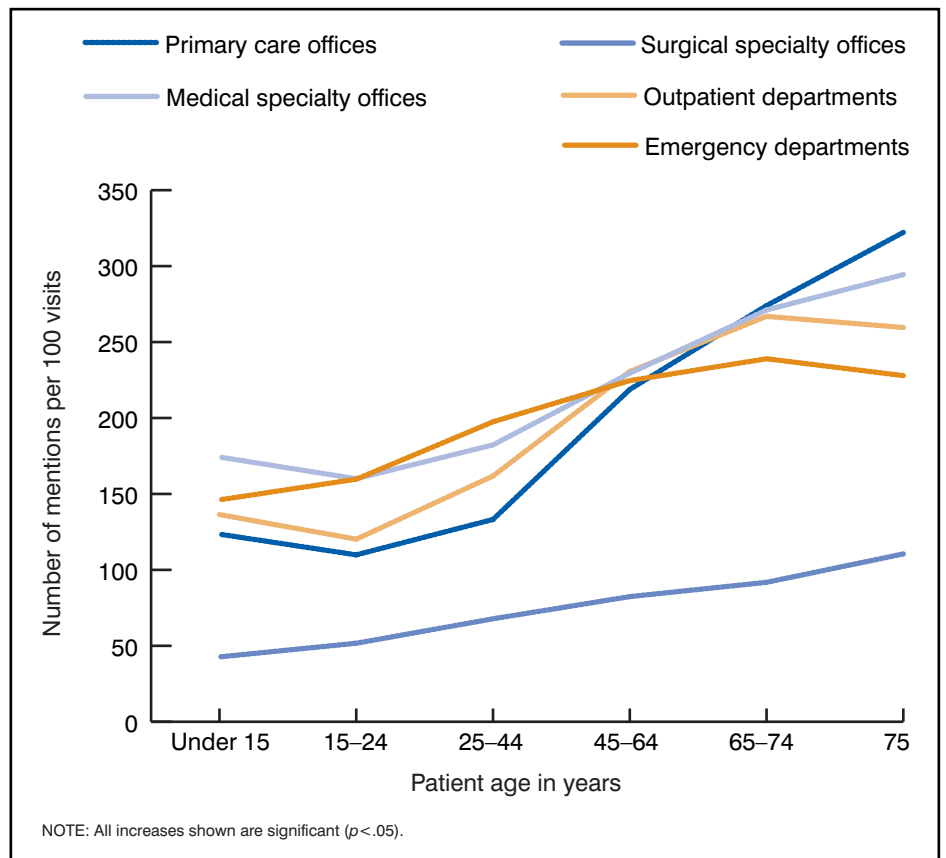
As shown in Table 3, the average number of drug mentions per 100 visits was not significantly different at visits to primary care offices, OPDs, and EDs, ranging between 183.0 and 190.9 mentions per 100 visits. The rate was higher for visits to medical specialty offices (227.7 drugs per 100 visits) compared with primary care office visits, but lower for surgical specialty visits (82.4 drugs per 100 visits).

Drug mention rates (i.e., the number of drug mentions per 100 visits) increased in general with patient age, both overall and within each ambulatory care setting. The overall rate ranged from 126.4 drugs per 100 visits by patients under 15 years of age to 251.5 drugs per 100 visits by patients 75 years and over (Figure 2). Drug mention rates for males and females were not significantly different, with one exception. The drug mention rate was higher for females (196.6 per 100 visits) than males (184.1 per 100 visits) at ED visits.

There were no significant differences in drug mention rates by race. However, at visits to medical specialties, black patients had a higher likelihood of receiving one or more

drugs (78.8 percent) than white patients (72.6 percent) or Asian patients

(72.1 percent). These differences were statistically significant ( $X^2 = 7.26$ ,



**Figure 2. Average rate of drug mentions at ambulatory care visits by setting type, according to patient age: United States, 2003–04**

$p < 0.03$ ) (Figure 3). There were no significant differences in drug mention rates by setting for Hispanic and non-Hispanic persons.

The number of medications mentioned per 100 visits was significantly higher for visits where Medicare was the primary expected source of payment regardless of setting, reflecting the age of the Medicare population. In the medical specialty setting, uninsured visits had a lower rate of drug mentions (155.2 mentions per 100 visits) compared with private insurance (205.4 mentions per 100 visits) and Medicaid visits (230.8 mentions per 100 visits). The rate was not significantly different for private insurance visits compared with Medicaid visits.

Overall, there were no statistically significant differences in drug mention rates by geographic region. However, surgical specialty visits in the West had a higher drug mention rate (116.6 mentions per 100 visits) than such visits

in other regions. ED visits in the West had a higher drug mention rate (220.7 mentions per 100 visits) than in either the Northeast or the Midwest.

With the exception of visits to primary care physicians, there were no significant differences in drug mention rates by setting for metropolitan statistical areas (MSAs) and nonmetropolitan statistical areas (non-MSAs). In non-MSAs, the drug mention rate at visits to primary care physicians was 213.3 mentions per 100 visits compared with a rate of 177.7 mentions per 100 visits in MSAs.

## Drug Characteristics

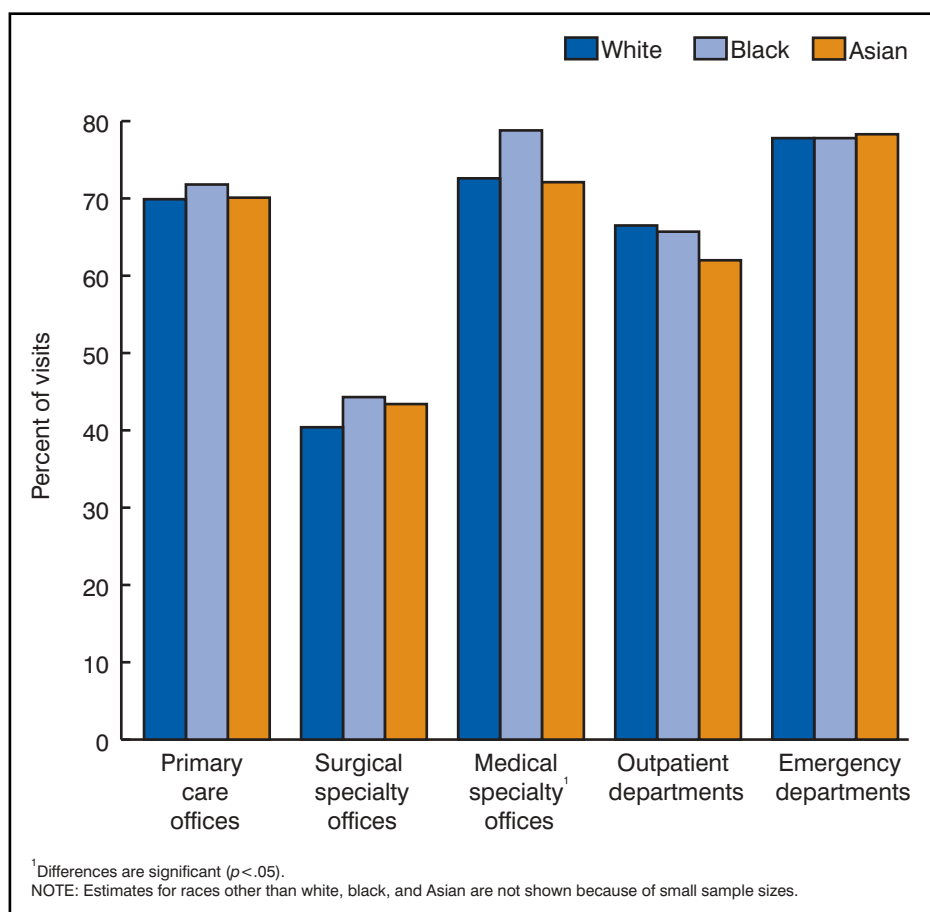
As shown in Table 4, the majority (82.7 percent) of medications reported at ambulatory care visits were prescription drugs. Nonprescription preparations accounted for 9.8 percent of mentions overall, and 7.5 percent were of undetermined status. Mentions of nonprescription products and products of

undetermined status were higher at visits to EDs than at all other settings. The former finding is likely related to the frequent utilization at ED visits of nonprescription pain relievers such as acetaminophen, and the latter finding may be related to the frequent utilization of ibuprofen, which, in itself, can be used in either an over-the-counter or prescription strength. NAMCS and NHAMCS do not collect route, dosage, or regimen for medications listed on the PRF, so those drugs that can take either form (over the counter or prescription) cannot be classified.

Table 4 also provides information on federal control status. The Controlled Substances Act, Title II of the Comprehensive Drug Abuse Prevention and Control Act of 1970, placed all substances that are regulated under existing federal law into one of five schedules, based on the substance's medicinal value, harmfulness, and potential for abuse or addiction. Schedule I is reserved for the most dangerous drugs that have no currently accepted medical use in treatment in the United States. Schedule II-V drugs all have a currently accepted medical use and decreasing potentials for abuse and addiction, ranging from high (Schedule II) to low (Schedule V). See Appendix II for details.

Schedule II and III drugs accounted for 4.5 percent of drug mentions overall. ED visits included a significantly higher proportion of schedule II drugs (7.0 percent) and schedule III drugs (6.3 percent) compared with all other settings. This is probably related to the preponderance of pain-relieving agents, including narcotic analgesics. Schedule IV drugs constituted 4.4 percent of drug mentions in the medical specialty setting. This was significantly higher than the percentages in other settings, which ranged from 2.4 to 3.4 percent.

Therapeutic class of drugs by setting is shown in Table 5, using broad classes (2-digit level of the NDC). Cardiovascular-renal drugs had the highest rate of utilization at medical specialty offices with 37.4 occurrences per 100 visits. This was significantly higher than the rate for all other settings, with the exception of primary care offices (28.9 occurrences per 100



**Figure 3. Percentage of ambulatory care visits with one or more medications prescribed, provided, or continued by patient race and setting type: United States, 2003–04**

visits). Pain relievers were utilized most often at ED visits (64.7 occurrences per 100 visits), which was significantly higher than the rate for all other settings.

The top 10 broad therapeutic classes (2-digit level of the NDC) are shown for ambulatory care visits, in general, in Figure 4. Eight of these classes are among the top 10 therapeutic classes for each setting (Table 6). These include cardiovascular-renal, pain relief, respiratory tract, central nervous system, metabolic and nutrient agents, hormones and hormonal agents, antimicrobials, and gastrointestinal agents. Ophthalmics were among the top 10 at surgical specialty visits, and otics were among the top 10 at ED visits. Skin and mucous membrane drugs were ranked among the top 10 at each type of physician office visit (primary care, surgical specialty, and medical specialty). Neurologics appeared among the top 10 at medical specialty visits as well as at OPD and ED visits. More detailed data on therapeutic class of drug mentions are shown in Table 7, using the 4-digit therapeutic class codes from the NDC. Nonsteroidal anti-inflammatory drugs (NSAIDs) (57.5 mentions per 1,000 drug mentions) and

antidepressants (45.8 mentions per 1,000 drug mentions) were the top two specific drug classes prescribed.

Figure 5 shows the 10 most frequently occurring generic substances in medications provided, prescribed, or continued at ambulatory care visits across all settings. As described previously, occurrence, in this figure only, is calculated as the sum of mentions of single-ingredient agents with mentions of the agent as an ingredient in a combination drug. Acetaminophen was the substance found most frequently, with 91.1 million mentions, reflecting 4.7 percent of total drug mentions.

Drug mentions at ambulatory care visits overall are shown by ranked generic-equivalent substances in Table 8. As noted earlier, this method produces one generic-equivalent entry for each drug and can be aggregated to the total number of drug mentions. Ibuprofen was the most frequently used substance (2.1 percent of drug mentions), followed by aspirin (2.0 percent) and atorvastatin calcium (1.7 percent). When comparing results from this table with those in Figure 5, readers should note the difference in methods used, which will produce different results. For example,

acetaminophen, when counted under its use as both a single-ingredient drug and a combination product, dominates the list of most frequently occurring generic substances in Figure 5, with an estimate of 91.5 million, or 4.7 percent of all drug mentions. When compared with results from Table 8, readers will note that acetaminophen as a single-ingredient preparation accounts for 1.6 percent of total drug mentions. The difference is related to the fact that acetaminophen is often prescribed as part of a combination product, and such products (e.g., acetaminophen with hydrocodone) are shown as separate entries in Table 8.

The top 50 drugs were dominated by six therapeutic classes, using the 2-digit NDC categories. These include pain relievers (9 drugs in the top 50), cardiovascular-renal drugs (6 drugs), respiratory tract drugs (6 drugs), central nervous system (6 drugs), hormones (6 drugs), and antimicrobials (5 drugs). Albuterol was the most frequently mentioned respiratory tract drug and accounted for 1.5 percent of mentions overall. Sertraline, used in the treatment of depression and anxiety, was the most frequently mentioned central nervous system drug. Amoxicillin was the most frequently mentioned antimicrobial drug (1.3 percent of mentions), and furosemide was the most frequently mentioned cardiovascular agent. In the hormonal class, levothyroxine was mentioned most frequently, and ibuprofen was the most frequently mentioned pain reliever. Gastrointestinal agents and metabolics and nutrients were other classes with more than one drug among the top 50.

Due to the diversity of vitamin products and lack of accurate information on the specific components of many multivitamins, they were excluded from Tables 8 and 9. This group, as a whole, accounted for 49.8 million drug mentions (2.6 percent of all drug mentions) across all settings in 2003–04.

Table 9 presents the top 10 drugs in terms of their generic composition for each ambulatory care setting. In 2003–04, the top three drugs cited at visits to primary care physicians were atorvastatin calcium (a cholesterol

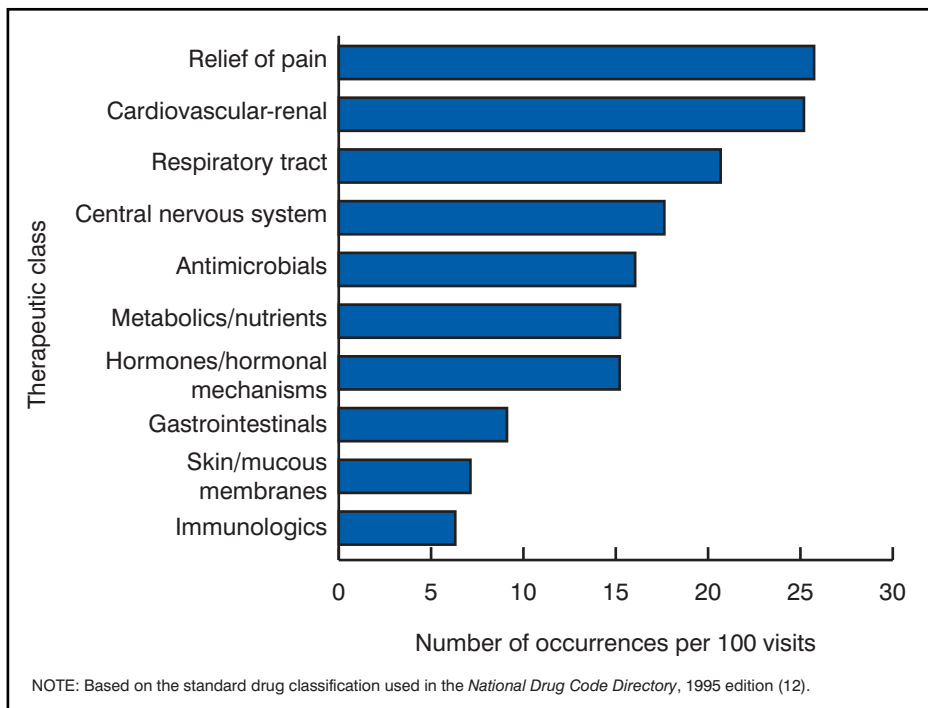
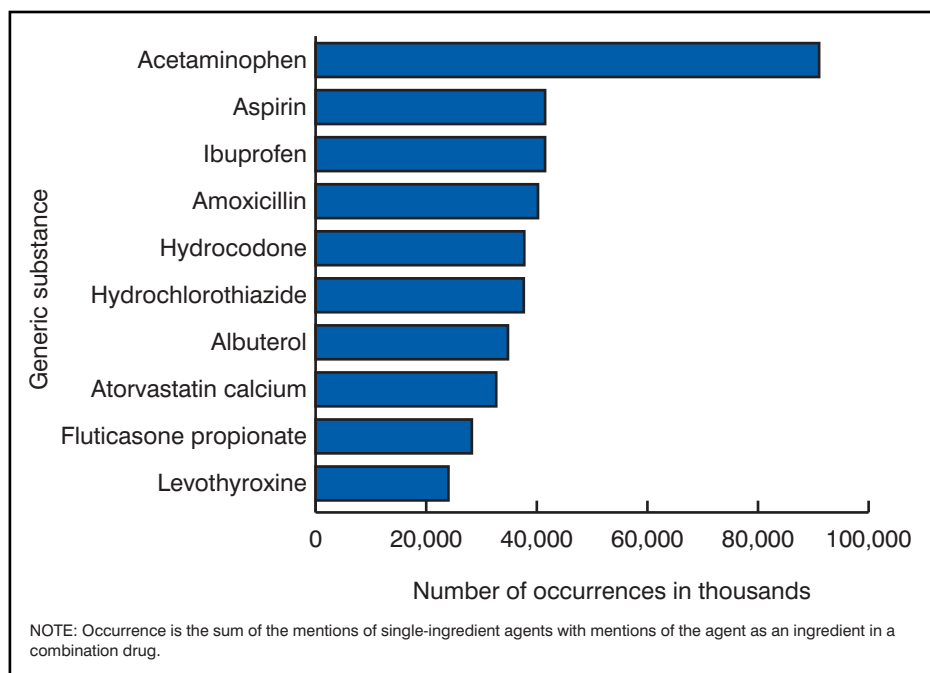


Figure 4. Annual rates of occurrence of the top 10 broad therapeutic classes of drugs provided, prescribed, or continued at ambulatory care visits: United States, 2003–04



**Figure 5. Annual number of the 10 most frequently occurring generic substances in drugs provided, prescribed, or continued at ambulatory care visits: United States, 2003–04**

lowering agent), aspirin, and amoxicillin. Among the top 10 drugs at visits to primary care physicians were three cardiovascular agents, three pain relievers, and two antibiotics. Albuterol, used in the control of asthma, and levothyroxine, used to treat thyroid disorders, were also present.

At visits to surgical specialists, among the top 10 generic substances were five pain relievers, three ophthalmic agents, and two anesthetic drugs. Prednisolone, acetaminophen with hydrocodone, and latanprost, a glaucoma medication, were listed most frequently.

Cardiovascular-renal drugs were prominent at visits to medical specialty offices, constituting 5 of the top 10 drugs in that setting. Aspirin was the drug cited most frequently, and it accounted for 2.7 percent of mentions. Although it is classified in the NDC as a nonnarcotic analgesic, aspirin therapy is increasingly being used for the prevention and management of heart disease.

Pain relief agents, cardiovascular drugs, antibiotics, and an asthma medication were all among the top 10 drugs at OPD visits. Among the pain relievers, a narcotic analgesic, acetaminophen with hydrocodone, was

also present. At ED visits, pain relievers dominated with 6 of the top 10 drugs; acetaminophen with hydrocodone accounted for 5.2 percent of mentions. Taken together, the six pain relievers account for 24.3 percent, or one-quarter of ED drug mentions. Antibiotics, cardiovascular drugs, and asthma medication rounded out the list.

Table 10 presents population-based prescribing rates for therapeutic classes (using the more detailed 4-digit NDC categories) of drugs provided, prescribed or continued at ambulatory care visits by patient age and sex. Occurrence rates for each of the 20 most commonly prescribed therapeutic classes of drugs increased with patient age, with the exception of vaccines and antisera. The rates for antidepressants and for vitamins and minerals for females were significantly higher than corresponding rates for males.

Table 11 presents population-based prescribing rates for therapeutic classes of drugs by patient race, expected source of payment for the visit, and MSA status. White persons had a much higher rate of antidepressant mentions than black persons, and black persons had a higher rate of blood glucose regulators. Persons whose expected

source of payment was Medicaid had the highest rate of penicillin mentions compared with those who had other payment sources. Those defined as uninsured had the lowest rate for all of the top 20 therapeutic classes with the exception of antidepressants, narcotic analgesics, nonnarcotic analgesics, and anticonvulsants. The mention rate for vaccines was higher in MSAs than non-MSAs.

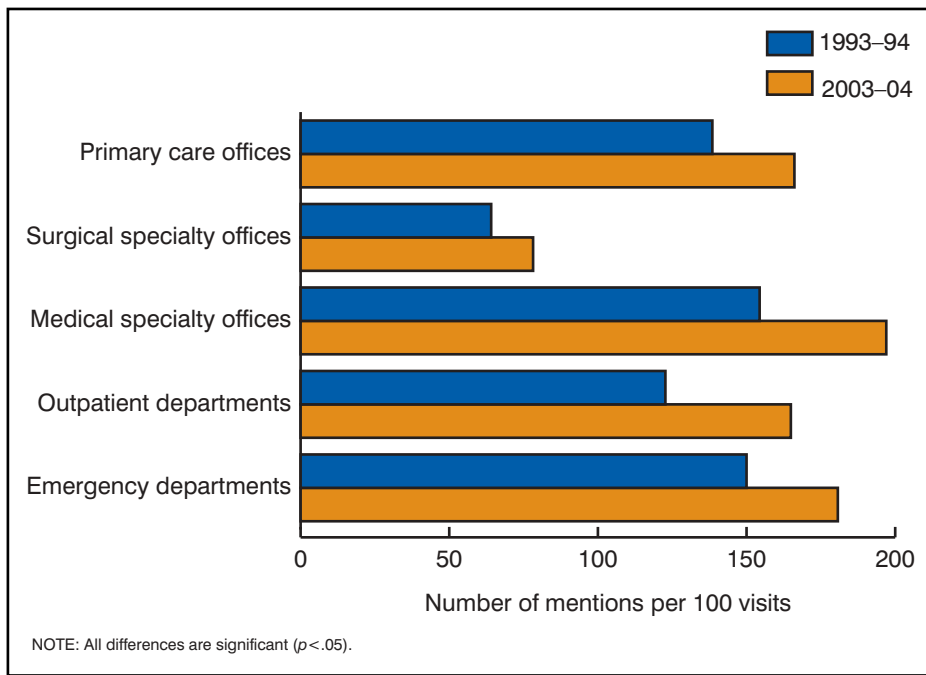
## Time Comparisons

To look at changes over time, drug mention rates (number of mentions per 100 visits) for each ambulatory care setting are compared for 1993–94 and 2003–04 in Figure 6. Because only five drugs could be reported in 1993 and 1994, the number of drugs analyzed for 2003–04 in this figure only reflects the first five listed on the PRF. In addition, data for both sets of years reflect the generic-equivalent method for displaying drug data described in the “Methods” section. Rates were higher for all settings in 2003–04 compared with 1993–94.

Further comparisons are shown in Table 12, with the most frequently mentioned generic substances in 1993–94 and 2003–04. Five of these drugs were among the top 10 in both time periods. However, aspirin use increased, from 1.1 percent of total drug mentions in 1993–94 to 1.8 percent of total drug mentions in 2003–04, while use of amoxicillin decreased. Estrogen was no longer among the most frequently mentioned drugs in 2003–04.

## Additional Information

Ambulatory care visit and drug data from NAMCS and NHAMCS are available in a variety of formats including CD-ROM and downloadable data files accessed through the Ambulatory Health Care Data homepage on the Internet at <http://www.cdc.gov/nchs/namcs.htm>. For additional information concerning NAMCS and NHAMCS data, contact the Ambulatory Care Statistics Branch at (301) 458–4600.



**Figure 6. Annual rate of drug mentions by ambulatory care setting: United States, 1993-94 and 2003-04**

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**Table 1. Annual number and percent distribution of ambulatory care visits by medication therapy, according to setting type: United States, 2003–04**

Medication therapy	Combined settings	Primary care offices	Surgical specialty offices	Medical specialty offices	Hospital outpatient departments	Hospital emergency departments
Number of visits in thousands						
All visits . . . . .	1,110,285	533,239	179,569	195,632	89,786	112,060
Was medication therapy provided or prescribed?						
Yes . . . . .	736,930	373,836	73,339	143,070	59,491	87,193
No . . . . .	373,355	159,402	106,230	52,562	30,294	24,866
Number of medications provided or prescribed						
None . . . . .	373,355	159,402	106,230	52,562	30,294	24,866
1 . . . . .	285,641	148,522	37,957	47,900	21,269	29,993
2 . . . . .	175,985	88,066	18,544	29,694	14,366	25,315
3 . . . . .	97,771	48,388	7,720	18,737	8,056	14,870
4 . . . . .	56,746	28,673	3,436	11,732	5,123	7,781
5 . . . . .	35,947	17,869	2,088	9,034	3,244	3,712
6 . . . . .	25,832	14,062	1,228	6,408	2,167	1,968
7 . . . . .	16,836	8,386	740	5,019	1,438	1,252
8 . . . . .	42,173	19,871	1,626	14,545	3,829	2,302
Standard error in thousands						
All visits . . . . .	30,603	21,112	8,898	12,670	6,534	3,920
Was medication therapy provided or prescribed?						
Yes . . . . .	20,834	15,165	4,407	9,604	4,659	3,263
No . . . . .	13,873	8,988	5,993	4,928	2,304	946
Number of medications provided or prescribed						
None . . . . .	13,873	8,988	5,993	4,928	2,304	946
1 . . . . .	8,678	6,832	2,392	3,959	1,601	1,155
2 . . . . .	5,415	4,318	1,364	2,194	1,183	990
3 . . . . .	3,599	2,822	780	1,556	706	637
4 . . . . .	2,467	1,902	541	1,082	452	389
5 . . . . .	1,863	1,387	364	924	337	211
6 . . . . .	1,629	1,336	229	753	272	149
7 . . . . .	1,284	914	147	655	178	118
8 . . . . .	3,449	2,327	313	1,996	684	313
Percent distribution						
All visits . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
Was medication therapy provided or prescribed?						
Yes . . . . .	66.4	70.1	40.8	73.1	66.3	77.8
No . . . . .	33.6	29.9	59.2	26.9	33.7	22.2
Number of medications provided or prescribed						
None . . . . .	33.6	29.9	59.2	26.9	33.7	22.2
1 . . . . .	25.7	27.9	21.1	24.5	23.7	26.8
2 . . . . .	15.9	16.5	10.3	15.2	16.0	22.6
3 . . . . .	8.8	9.1	4.3	9.6	9.0	13.3
4 . . . . .	5.1	5.4	1.9	6.0	5.7	6.9
5 . . . . .	3.2	3.4	1.2	4.6	3.6	3.3
6 . . . . .	2.3	2.6	0.7	3.3	2.4	1.8
7 . . . . .	1.5	1.6	0.4	2.6	1.6	1.1
8 . . . . .	3.8	3.7	0.9	7.4	4.3	2.1
Standard error of percent						
All visits . . . . .	...	...	...	...	...	...

See footnotes at end of table.

**Table 1. Annual number and percent distribution of ambulatory care visits by medication therapy, according to setting type: United States, 2003–04—Con.**

Medication therapy	Combined settings	Primary care offices	Surgical specialty offices	Medical specialty offices	Hospital outpatient departments	Hospital emergency departments
Was medication therapy provided or prescribed?		Standard error of percent				
Yes . . . . .	0.7	1.1	1.5	1.7	1.3	0.6
No . . . . .	0.7	1.1	1.5	1.7	1.3	0.6
Number of medications provided or prescribed						
None . . . . .	0.7	1.1	1.5	1.7	1.3	0.6
1 . . . . .	0.4	0.7	0.8	1.2	0.7	0.5
2 . . . . .	0.3	0.4	0.6	0.6	0.6	0.3
3 . . . . .	0.2	0.4	0.4	0.5	0.4	0.2
4 . . . . .	0.2	0.3	0.3	0.4	0.3	0.2
5 . . . . .	0.1	0.2	0.2	0.4	0.3	0.1
6 . . . . .	0.1	0.2	0.1	0.3	0.2	0.1
7 . . . . .	0.1	0.2	0.1	0.3	0.2	0.1
8 . . . . .	0.3	0.4	0.2	0.9	0.6	0.3

... Category not applicable.

NOTES: Numbers may not add to totals due to rounding. Figures are annual averages.



**Table 2. Annual number and percent distribution of drug mentions at ambulatory care visits by setting type, according to selected patient and provider characteristics: United States, 2003–04**

Characteristic	Combined settings	Primary care offices	Surgical specialty offices	Medical specialty offices	Hospital outpatient departments	Hospital emergency departments
Number of mentions in thousands						
All drug mentions . . . . .	1,947,870	975,895	147,946	445,540	164,578	213,909
Patient age						
Under 15 years . . . . .	241,084	146,852	5,387	26,317	27,698	34,830
Under 1 year . . . . .	43,626	32,093	*262	*838	5,020	5,412
1–4 years . . . . .	79,213	49,127	1,663	*5,530	9,107	13,786
5–14 years . . . . .	118,244	65,632	3,461	19,949	13,571	15,632
15–24 years . . . . .	120,800	53,850	4,983	20,580	12,903	28,484
25–44 years . . . . .	364,590	167,024	22,377	73,861	37,119	64,209
45–64 years . . . . .	597,672	298,796	48,258	150,498	52,387	47,732
65–74 years . . . . .	279,779	135,358	27,952	81,495	18,997	15,977
75 years and over . . . . .	343,945	174,016	38,989	92,789	15,474	22,677
Patient sex						
Female . . . . .	1,148,849	599,064	81,696	248,689	100,537	118,863
Male . . . . .	799,021	376,832	66,250	196,852	64,041	95,046
Patient race <sup>1</sup>						
White . . . . .	1,614,647	817,980	128,031	387,891	119,991	160,755
Black or African American . . . . .	249,623	113,179	13,167	40,478	36,729	46,071
Asian . . . . .	64,623	35,103	5,291	*14,601	5,299	4,328
Native Hawaiian or other Pacific Islander . . . . .	6,838	4,223	*591	*	493	850
American Indian or Alaska Native . . . . .	6,738	*2,314	*579	*1,510	902	1,434
More than one race reported . . . . .	5,400	3,097	*	*	*1,164	472
Patient ethnicity <sup>1</sup>						
Hispanic or Latino . . . . .	202,480	107,021	13,798	30,719	24,252	26,689
Not Hispanic or Latino . . . . .	1,745,390	868,874	134,148	414,821	140,326	187,220
Primary expected source of payment						
Private insurance . . . . .	920,614	515,199	66,738	204,730	57,421	76,526
Medicare . . . . .	570,885	269,288	56,782	169,850	34,124	40,841
Medicaid . . . . .	243,226	109,263	7,629	32,284	48,582	45,469
Uninsured . . . . .	105,732	45,141	10,798	20,776	10,175	18,841
Other . . . . .	107,413	37,004	6,000	17,900	14,277	32,233
Geographic region of provider						
Northeast . . . . .	393,710	192,292	25,339	86,304	49,587	40,187
Midwest . . . . .	438,332	227,202	25,579	94,034	45,141	46,376
South . . . . .	698,911	344,673	53,410	166,881	50,642	83,305
West . . . . .	416,917	211,728	43,618	98,322	19,208	44,042
MSA <sup>2</sup> status of provider						
MSA . . . . .	1,664,627	807,305	132,188	413,631	131,330	180,173
Not MSA . . . . .	283,242	168,590	15,758	31,909	*33,249	33,736
Percent distribution						
All visits . . . . .	100.0	50.1	7.6	22.9	8.4	11.0
Patient age						
Under 15 years . . . . .	100.0	60.9	2.2	10.9	11.5	14.4
Under 1 year . . . . .	100.0	73.6	0.6	1.9	11.5	12.4
1–4 years . . . . .	100.0	62.0	2.1	7.0	11.5	17.4
5–14 years . . . . .	100.0	55.5	2.9	16.9	11.5	13.2
15–24 years . . . . .	100.0	44.6	4.1	17.0	10.7	23.6
25–44 years . . . . .	100.0	45.8	6.1	20.3	10.2	17.6
45–64 years . . . . .	100.0	50.0	8.1	25.2	8.8	8.0
65–74 years . . . . .	100.0	48.4	10.0	29.1	6.8	5.7
75 years and over . . . . .	100.0	50.6	11.3	27.0	4.5	6.6

See footnotes at end of table.

**Table 2. Annual number and percent distribution of drug mentions at ambulatory care visits by setting type, according to selected patient and provider characteristics: United States, 2003–04—Con.**

Characteristic	Combined settings	Primary care offices	Surgical specialty offices	Medical specialty offices	Hospital outpatient departments	Hospital emergency departments
Patient sex		Percent distribution				
Female . . . . .	100.0	52.1	7.1	21.6	8.8	10.3
Male . . . . .	100.0	47.2	8.3	24.6	8.0	11.9
Patient race <sup>1</sup>						
White . . . . .	100.0	50.7	7.9	24.0	7.4	10.0
Black or African American . . . . .	100.0	45.3	5.3	16.2	14.7	18.5
Asian . . . . .	100.0	54.3	8.2	22.6	8.2	6.7
Native Hawaiian or other Pacific Islander . . . . .	100.0	61.8	8.6	*	7.2	12.4
American Indian or Alaska Native . . . . .	100.0	34.3	8.6	22.4	13.4	21.3
More than one race reported . . . . .	100.0	57.3	*	*	21.6	8.7
Patient ethnicity <sup>1</sup>						
Hispanic or Latino . . . . .	100.0	52.9	6.8	15.2	12.0	13.2
Not Hispanic or Latino . . . . .	100.0	49.8	7.7	23.8	8.0	10.7
Primary expected source of payment						
Private insurance . . . . .	100.0	56.0	7.2	22.2	6.2	8.3
Medicare . . . . .	100.0	47.2	9.9	29.8	6.0	7.2
Medicaid . . . . .	100.0	44.9	3.1	13.3	20.0	18.7
Uninsured . . . . .	100.0	42.7	10.2	19.7	9.6	17.8
Other . . . . .	100.0	34.5	5.6	16.7	13.3	30.0
Geographic region of provider						
Northeast . . . . .	100.0	48.8	6.4	21.9	12.6	10.2
Midwest . . . . .	100.0	51.8	5.8	21.5	10.3	10.6
South . . . . .	100.0	49.3	7.6	23.9	7.2	11.9
West . . . . .	100.0	50.8	10.5	23.6	4.6	10.6
MSA <sup>2</sup> status of provider						
MSA . . . . .	100.0	48.5	7.9	24.8	7.9	10.8
Not MSA . . . . .	100.0	59.5	5.6	11.3	11.7	11.9

\* Figure does not meet standard of reliability or precision.

<sup>1</sup>Persons of Hispanic or Latino origin may be of any race or combination of races. Similarly, the category "Not Hispanic or Latino" refers to all persons who are not of Hispanic or Latino origin, regardless of race. Starting with data year 1999, race-specific estimates have been tabulated according to the 1997 standards for federal data on race and Hispanic or Latino origin and are not strictly comparable with estimates for earlier years. See Appendix I for details.

<sup>2</sup>MSA is Metropolitan Statistical Area.

NOTES: Numbers may not add to totals due to rounding. Figures are annual averages.

**Table 3. Annual rate of drug mentions at ambulatory care visits, by setting type and selected patient and provider characteristics: United States, 2003–04**

Characteristic	Combined settings	Primary care offices	Surgical specialty offices	Medical specialty offices	Hospital outpatient departments	Hospital emergency departments
Number of mentions per 100 visits <sup>1</sup>						
All visits . . . . .	175.4	183.0	82.4	227.7	183.3	190.9
Patient age						
Under 15 years . . . . .	126.4	123.5	42.7	174.3	136.4	146.1
Under 1 year . . . . .	127.4	127.5	*29.5	*110.6	142.1	138.8
1–4 years . . . . .	130.9	127.1	49.1	*172.3	142.6	155.3
5–14 years . . . . .	123.2	119.2	41.6	179.1	130.6	141.3
15–24 years . . . . .	120.7	109.9	51.7	160.0	120.2	159.7
25–44 years . . . . .	143.3	133.2	67.8	182.3	161.8	197.5
45–64 years . . . . .	196.2	218.8	82.4	229.5	230.6	224.6
65–74 years . . . . .	226.1	274.0	91.8	271.1	266.9	239.0
75 years and over . . . . .	251.5	322.2	110.5	294.4	259.6	227.9
Patient sex						
Female . . . . .	176.3	181.8	83.1	229.1	183.5	196.6
Male . . . . .	174.2	185.1	81.5	226.1	182.9	184.1
Patient race <sup>2</sup>						
White . . . . .	174.4	183.9	80.6	224.9	182.1	191.8
Black or African American . . . . .	183.9	185.3	90.2	262.1	185.9	185.6
Asian . . . . .	169.9	163.5	106.5	*218.3	188.9	206.8
Native Hawaiian or other Pacific Islander . . . . .	189.3	196.0	*136.4	*	167.7	199.4
American Indian or Alaska Native . . . . .	193.2	*172.3	*121.1	*289.2	196.0	209.3
More than one race reported . . . . .	146.2	126.6	*	*	*202.4	197.4
Patient ethnicity <sup>2</sup>						
Hispanic or Latino . . . . .	160.0	160.6	86.2	206.4	166.2	185.0
Not Hispanic or Latino . . . . .	177.4	186.2	82.0	229.5	186.6	191.8
Primary expected source of payment						
Private insurance . . . . .	157.7	160.3	75.7	205.4	168.4	189.4
Medicare . . . . .	240.6	290.3	101.3	294.4	261.4	230.5
Medicaid . . . . .	172.0	163.6	75.3	230.8	186.4	186.0
Uninsured . . . . .	151.1	168.1	58.5	155.2	151.5	180.4
Other . . . . .	138.0	149.6	72.3	162.9	142.3	162.1
Geographic region of provider						
Northeast . . . . .	173.4	188.5	71.3	205.1	203.2	174.4
Midwest . . . . .	181.5	196.7	66.9	260.9	175.9	178.3
South . . . . .	167.3	172.6	78.1	213.1	178.3	193.5
West . . . . .	186.3	182.6	116.6	250.8	169.7	220.7
MSA <sup>3</sup> status of provider						
MSA . . . . .	172.9	177.7	82.7	229.4	176.6	192.0
Not MSA . . . . .	191.7	213.3	79.5	208.6	*215.6	185.1
Standard error of rate						
All visits . . . . .	4.6	7.0	4.8	12.2	8.3	4.1
Patient age						
Under 15 years . . . . .	3.2	4.1	4.9	14.1	5.3	3.6
Under 1 year . . . . .	5.7	7.5	9.0	41.8	8.4	4.4
1–4 years . . . . .	4.1	5.7	7.1	20.6	6.2	4.8
5–14 years . . . . .	3.5	4.1	5.1	13.1	6.8	3.5
15–24 years . . . . .	2.8	4.7	4.3	7.5	5.2	3.0
25–44 years . . . . .	3.6	5.3	5.4	9.0	7.3	3.7
45–64 years . . . . .	6.3	10.8	5.3	12.8	12.5	6.0
65–74 years . . . . .	8.3	13.6	6.7	19.6	18.9	9.8
75 years and over . . . . .	10.2	17.8	8.8	21.7	23.8	10.4

See footnotes at end of table.

**Table 3. Annual rate of drug mentions at ambulatory care visits, by setting type and selected patient and provider characteristics: United States, 2003–04—Con.**

Characteristic	Combined settings	Primary care offices	Surgical specialty offices	Medical specialty offices	Hospital outpatient departments	Hospital emergency departments
Patient sex		Standard error of rate				
Female . . . . .	5.0	7.6	5.3	13.1	8.9	4.7
Male . . . . .	4.7	7.5	4.8	12.9	8.2	3.6
Patient race <sup>2</sup>						
White . . . . .	4.8	7.5	4.8	12.1	10.1	4.2
Black or African American . . . . .	7.2	11.9	8.3	19.6	7.4	5.0
Asian . . . . .	14.1	20.3	18.6	36.1	26.0	10.5
Native Hawaiian or other Pacific Islander . . . . .	14.8	25.9	30.1	*	19.7	11.7
American Indian or Alaska Native . . . . .	18.1	28.9	26.4	69.9	22.6	20.7
More than one race reported . . . . .	12.8	15.4	*	*	18.2	20.0
Patient ethnicity <sup>2</sup>						
Hispanic or Latino . . . . .	7.4	15.6	11.5	24.6	9.2	5.0
Not Hispanic or Latino . . . . .	4.9	7.0	4.7	12.1	9.2	4.3
Primary expected source of payment						
Private insurance . . . . .	4.6	6.2	4.7	11.1	9.7	3.7
Medicare . . . . .	9.0	16.0	7.5	19.8	16.4	9.5
Medicaid . . . . .	5.7	9.5	7.9	21.6	9.6	4.7
Uninsured . . . . .	5.1	8.9	12.3	11.7	8.7	2.8
Other . . . . .	5.9	11.1	10.6	18.3	6.7	5.2
Geographic region of provider						
Northeast . . . . .	12.9	17.1	8.7	27.7	22.4	8.7
Midwest . . . . .	8.5	13.5	6.2	27.4	13.2	5.8
South . . . . .	7.1	11.2	7.8	17.3	9.2	7.3
West . . . . .	9.1	14.4	13.8	30.0	16.0	10.4
MSA <sup>3</sup> status of provider						
MSA . . . . .	5.0	7.7	5.2	12.7	6.8	4.2
Not MSA . . . . .	11.8	14.3	7.6	35.2	32.1	12.2

\* Figure does not meet standard of reliability or precision.

<sup>1</sup>Number of drug mentions divided by total number of visits multiplied by 100.<sup>2</sup>Persons of Hispanic or Latino origin may be of any race or combination of races. Similarly, the category "Not Hispanic or Latino" refers to all persons who are not of Hispanic or Latino origin, regardless of race. Starting with data year 1999, race-specific estimates have been tabulated according to the 1997 standards for federal data on race and Hispanic or Latino origin and are not strictly comparable with estimates for earlier years. See Appendix I for details.<sup>3</sup>MSA is Metropolitan Statistical Area.

NOTE: Figures are annual averages.

**Table 4. Number and percent distribution of drug mentions at ambulatory care visits with corresponding standard errors, by selected drug characteristics according to setting type: United States, 2003–04**

Characteristic	Combined settings	Primary care offices	Surgical specialty offices	Medical specialty offices	Hospital outpatient departments	Hospital emergency departments
All drug mentions . . . . .	1,947,870	975,895	147,946	445,540	164,578	213,909
Prescription status	Number of mentions in thousands					
Prescription . . . . .	1,611,601	818,055	122,314	379,071	132,797	159,363
Non-prescription <sup>1</sup> . . . . .	191,145	91,188	14,268	35,288	19,523	30,877
Undetermined status . . . . .	145,124	66,652	11,364	31,181	12,258	23,669
Federal control status <sup>2</sup>						
Schedule II . . . . .	43,513	13,569	1,909	9,230	3,921	14,884
Schedule III . . . . .	44,801	18,633	4,799	4,750	3,077	13,543
Schedule IV . . . . .	60,154	24,764	3,557	19,482	5,049	7,301
Schedule V . . . . .	7,058	4,700	*	1,018	566	671
No control . . . . .	1,724,512	885,181	131,296	388,161	147,682	172,193
Undetermined . . . . .	67,832	29,049	6,282	22,900	4,283	5,317
	Standard error in thousands					
All drug mentions . . . . .	72,398	50,268	10,949	36,163	15,408	9,218
Prescription status						
Prescription . . . . .	59,393	42,136	9,218	30,251	12,535	6,904
Non-prescription <sup>1</sup> . . . . .	8,957	6,267	1,465	3,825	1,986	1,496
Undetermined status . . . . .	7,549	4,875	1,081	4,039	1,124	1,153
Federal control status <sup>2</sup>						
Schedule II . . . . .	2,031	1,173	352	1,066	602	690
Schedule III . . . . .	2,562	1,849	681	874	393	700
Schedule IV . . . . .	3,035	1,999	652	1,854	743	325
Schedule V . . . . .	654	609	...	235	86	56
No control . . . . .	65,532	46,018	9,657	32,427	13,877	7,672
Undetermined . . . . .	4,507	2,406	740	3,467	417	393
	Percent distribution					
All drug mentions . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
Prescription status						
Prescription . . . . .	82.7	83.8	82.7	85.1	80.7	74.5
Non-prescription <sup>1</sup> . . . . .	9.8	9.3	9.6	7.9	11.9	14.4
Undetermined status . . . . .	7.5	6.8	7.7	7.0	7.4	11.1
Federal control status <sup>2</sup>						
Schedule II . . . . .	2.2	1.4	1.3	2.1	2.4	7.0
Schedule III . . . . .	2.3	1.9	3.2	1.1	1.9	6.3
Schedule IV . . . . .	3.1	2.5	2.4	4.4	3.1	3.4
Schedule V . . . . .	0.4	0.5	*	0.2	0.3	0.3
No control . . . . .	88.5	90.7	88.7	87.1	89.7	80.5
Undetermined . . . . .	3.5	3.0	4.2	5.1	2.6	2.5
	Standard error of percent					
All drug mentions . . . . .	...	...	...	...	...	...
Prescription status						
Prescription . . . . .	0.4	0.6	0.9	0.8	0.6	0.5
Non-prescription <sup>1</sup> . . . . .	0.2	0.4	0.7	0.4	0.4	0.3
Undetermined status . . . . .	0.2	0.3	0.5	0.7	0.3	0.3

See footnotes at end of table.

**Table 4. Number and percent distribution of drug mentions at ambulatory care visits with corresponding standard errors, by selected drug characteristics according to setting type: United States, 2003–04—Con.**

Characteristic	Combined settings	Primary care offices	Surgical specialty offices	Medical specialty offices	Hospital outpatient departments	Hospital emergency departments
Federal control status <sup>2</sup>			Standard error of percent			
Schedule II . . . . .	0.1	0.1	0.2	0.2	0.3	0.2
Schedule III . . . . .	0.1	0.2	0.4	0.2	0.2	0.2
Schedule IV . . . . .	0.1	0.1	0.4	0.3	0.3	0.1
Schedule V . . . . .	0.0	0.1	...	0.1	0.0	0.0
No control . . . . .	0.3	0.3	0.7	0.9	0.7	0.4
Undetermined . . . . .	0.2	0.2	0.4	0.7	0.1	0.1

\* Figure does not meet standard of reliability or precision.

... Not applicable.

0.0 Quantity more than zero, but less than 0.05.

<sup>1</sup>Nonprescription preparations include over-the-counter (OTC) products. Drug characteristics are defined in Appendix II.

<sup>2</sup>See Appendix II for an explanation of federal control status.

**Table 5. Annual rate of broad therapeutic classes of drug mentions at ambulatory care visits, by setting type: United States, 2003–04**

Broad therapeutic class <sup>1</sup>	Combined settings	Primary care offices	Surgical specialty offices	Medical specialty offices	Hospital outpatient departments	Hospital emergency departments
Number of occurrences per 100 visits						
Anesthetics and adjuncts . . . . .	1.9	1.0	2.6	1.8	2.8	4.5
Antidotes . . . . .	0.2	*0.0	*0.2	0.4	*0.2	0.4
Antimicrobial agents . . . . .	16.0	18.8	7.8	8.9	18.0	27.2
Hematologic agents . . . . .	3.9	3.5	1.1	7.8	4.7	2.9
Cardiovascular-renal drugs . . . . .	25.2	28.9	9.2	37.4	23.0	13.8
Central nervous system . . . . .	17.6	15.4	3.0	36.9	18.5	17.5
Contrast media and radiopharmaceuticals . . . . .	0.1	*0.1	*0.0	*0.3	*0.1	0.1
Gastrointestinal agents . . . . .	9.1	9.9	2.9	11.4	9.6	11.0
Metabolics and nutrients . . . . .	15.2	18.1	4.2	21.8	15.0	8.1
Hormones and hormonal mechanisms . . . . .	15.2	18.8	6.1	17.4	15.5	8.7
Immunologics . . . . .	6.3	8.5	*0.4	6.8	8.2	3.0
Skin/mucous membranes . . . . .	7.1	5.9	3.8	14.8	6.6	5.4
Neurologic drugs . . . . .	5.5	4.2	1.8	11.6	6.7	5.9
Oncolytics . . . . .	1.2	0.4	0.7	4.1	1.9	0.1
Ophthalmics . . . . .	4.4	1.5	17.8	1.6	3.3	2.8
Otics . . . . .	2.7	2.0	0.8	1.5	2.6	11.5
Relief of pain . . . . .	25.7	22.8	14.0	21.6	27.2	64.7
Antiparasitics . . . . .	0.8	0.9	0.2	0.6	1.2	0.8
Respiratory tract . . . . .	20.7	24.1	6.2	22.1	21.6	24.3
Unclassified and miscellaneous . . . . .	3.7	3.4	2.3	5.1	3.1	5.3
Homeopathic products . . . . .	0.6	0.7	0.4	0.8	0.4	0.1
Standard error of rate						
Anesthetics and adjuncts . . . . .	0.1	0.2	0.5	0.3	0.4	0.2
Antidotes . . . . .	0.0	0.0	0.1	0.1	0.1	0.0
Antimicrobial agents . . . . .	0.5	0.8	0.5	1.3	1.1	0.6
Hematologic agents . . . . .	0.2	0.3	0.2	0.9	0.5	0.2
Cardiovascular-renal drugs . . . . .	1.2	1.9	1.2	3.7	1.9	0.8
Central nervous system . . . . .	0.6	0.9	0.5	2.3	1.5	0.6
Contrast media and radiopharmaceuticals . . . . .	0.0	0.0	0.0	0.1	0.0	0.0
Gastrointestinal agents . . . . .	0.4	0.5	0.4	1.2	0.7	0.4
Metabolics and nutrients . . . . .	0.8	1.2	0.5	2.4	1.3	0.5
Hormones and hormonal mechanisms . . . . .	0.6	0.9	0.6	1.9	1.0	0.4
Immunologics . . . . .	0.4	0.7	0.2	1.4	0.7	0.1
Skin and mucous membranes . . . . .	0.2	0.3	0.4	1.0	0.4	0.2
Neurologic drugs . . . . .	0.2	0.3	0.4	0.8	0.5	0.2
Oncolytics . . . . .	0.2	0.1	0.1	0.9	0.3	0.0
Ophthalmics . . . . .	0.3	0.1	1.9	0.4	0.4	0.1
Otics . . . . .	0.1	0.2	0.1	0.2	0.2	0.3
Relief of pain . . . . .	0.7	1.2	1.4	1.8	1.6	1.0
Antiparasitics . . . . .	0.1	0.1	0.0	0.1	0.1	0.0
Respiratory tract . . . . .	0.8	1.1	0.6	3.2	1.3	0.5
Unclassified and miscellaneous . . . . .	0.3	0.4	0.3	0.6	0.3	0.4
Homeopathic products . . . . .	0.1	0.1	0.1	0.2	0.1	0.0

\* Figure does not meet standard of reliability or precision.

0.0 Quantity is greater than zero but less than 0.05.

<sup>1</sup>Based on the standard drug classification used in the *National Drug Code Directory*, 1995 edition (NDC) (12). In the NDC, therapeutic classes are assigned to drugs using 21 broad categories (2-digit level), and into specific categories (4-digit level) within each broad group. In NAMCS and NHAMCS, up to three therapeutic classes can be coded for each drug. Drugs are counted in each class in which they occur.

NOTE: Figures are annual averages.

**Table 6. Annual rate of the top 10 broad therapeutic classes of drugs provided, prescribed, or continued at ambulatory care visits, with corresponding standard errors, by setting type: United States, 2003–04**

Setting type and broad therapeutic class <sup>1</sup>	Number of occurrences per 100 visits	Standard error of rate
<b>Primary care offices</b>		
Cardiovascular-renal . . . . .	28.9	1.9
Respiratory tract . . . . .	24.1	1.1
Relief of pain . . . . .	22.8	1.2
Hormones and hormonal mechanisms . . . . .	18.8	0.9
Antimicrobial agents . . . . .	18.8	0.8
Metabolics and nutrients . . . . .	18.1	1.2
Central nervous system . . . . .	15.4	0.9
Gastrointestinal agents . . . . .	9.9	0.5
Immunologics . . . . .	8.5	0.7
Skin and mucous membranes . . . . .	5.9	0.3
<b>Surgical specialty offices</b>		
Ophthalmics . . . . .	17.8	1.9
Relief of pain . . . . .	14.0	1.4
Cardiovascular-renal . . . . .	9.2	1.2
Antimicrobial agents . . . . .	7.8	0.5
Respiratory tract . . . . .	6.2	0.6
Hormones and hormonal mechanisms . . . . .	6.1	0.6
Metabolics and nutrients . . . . .	4.2	0.5
Skin and mucous membranes . . . . .	3.8	0.4
Central nervous system . . . . .	3.0	0.5
Gastrointestinal agents . . . . .	2.9	0.4
<b>Medical specialty offices</b>		
Cardiovascular-renal . . . . .	37.4	3.7
Central nervous system . . . . .	36.9	2.3
Respiratory tract . . . . .	22.1	3.2
Metabolics and nutrients . . . . .	21.8	2.4
Relief of pain . . . . .	21.6	1.8
Hormones and hormonal mechanisms . . . . .	17.4	1.9
Skin and mucous membranes . . . . .	14.8	1.0
Neurologics . . . . .	11.6	0.8
Gastrointestinal agents . . . . .	11.4	1.2
Antimicrobial agents . . . . .	8.9	1.3
<b>Hospital outpatient departments</b>		
Relief of pain . . . . .	27.2	1.6
Cardiovascular-renal . . . . .	23.0	1.9
Respiratory tract . . . . .	21.6	1.3
Central nervous system . . . . .	18.5	1.5
Antimicrobial agents . . . . .	18.0	1.1
Hormones and hormonal mechanisms . . . . .	15.5	1.0
Metabolics and nutrients . . . . .	15.0	1.3
Gastrointestinal agents . . . . .	9.6	0.7
Immunologics . . . . .	8.2	0.7
Neurologics . . . . .	6.7	0.5
<b>Hospital emergency departments</b>		
Relief of pain . . . . .	64.7	1.0
Antimicrobial agents . . . . .	27.2	0.6
Respiratory tract . . . . .	24.3	0.5
Central nervous system . . . . .	17.5	0.6
Cardiovascular-renal . . . . .	13.8	0.8
Otics . . . . .	11.5	0.3
Gastrointestinal agents . . . . .	11.0	0.4
Hormones and hormonal mechanisms . . . . .	8.7	0.4
Metabolics and nutrients . . . . .	8.1	0.5
Neurologics . . . . .	5.9	0.2

<sup>1</sup>Based on the standard drug classification used in the *National Drug Code Directory*, 1995 edition (NDC) (12). In the NDC, therapeutic classes are assigned to drugs using 21 broad categories (2-digit level), and into specific categories (4-digit level) within each broad group. In NAMCS and NHAMCS, up to three therapeutic classes can be coded for each drug. Drugs are counted in each class in which they occur.

NOTE: Figures are annual averages.



**Table 7. Annual number and rate of therapeutic classes of drugs provided, prescribed, or continued at ambulatory care visits, with percent distribution by setting type and corresponding standard errors: United States, 2003–2004**

Therapeutic class <sup>1</sup>	Number of occurrences in thousands <sup>2</sup>	Number of occurrences per 1,000 drug mentions <sup>3</sup>	Total	Primary care offices	Surgical specialty offices	Medical specialty offices	Hospital outpatient departments	Hospital emergency departments	Percent distribution					
All occurrences . . . . .	2,240,800	1,150.4	100.0	49.7	7.4	22.5	8.4	12.0						
Anesthetics and adjuncts . . . . .	20,929	10.7	100.0	24.5	22.4	17.1	11.9	24.0						
Anesthetics, local (injectable) . . . . .	13,034	6.7	100.0	23.5	30.5	16.9	9.3	19.8						
Anesthetics, general . . . . .	*1,162	*0.6	100.0	*	*	*	*47.6	*16.9						
Adjuncts to anesthesia and analeptics . . . . .	3,488	1.8	100.0	*	*	*18.5	8.6	54.6						
Medicinal gases . . . . .	1,643	0.8	100.0	*	*	*	*8.6	40.4						
Anesthetics, topical . . . . .	1,696	0.9	100.0	*	*	42.4	10.3	15.3						
Anesthetics, rectal . . . . .	522	0.3	100.0	*	*	*	*12.5	13.0						
Antidotes . . . . .	1,820	0.9	100.0	*	*	42.1	*10.6	23.3						
Antidotes, specific . . . . .	681	0.3	100.0	*	*	*	*20.8	37.5						
Antidotes, general . . . . .	590	0.3	100.0	*	*	*	*	27.6						
Antitoxins or antivenins . . . . .	551	0.3	100.0	*	*	*35.4	*	*						
Antimicrobial agents . . . . .	178,179	91.5	100.0	56.2	7.9	9.8	9.1	17.1						
Penicillins . . . . .	44,824	23.0	100.0	65.4	3.8	4.1	10.6	16.1						
Cephalosporins . . . . .	30,104	15.5	100.0	52.1	7.9	4.1	7.9	28.0						
Lincosamides and macrolides . . . . .	31,362	16.1	100.0	63.3	3.7	8.6	8.7	15.7						
Tetracyclines . . . . .	8,564	4.4	100.0	49.2	6.3	30.7	6.4	7.4						
Aminoglycosides . . . . .	2,024	1.0	100.0	43.7	*	*	10.6	18.1						
Sulfonamides and trimethoprim . . . . .	9,566	4.9	100.0	54.8	5.0	13.2	9.6	17.5						
Urinary tract antiseptics . . . . .	4,495	2.3	100.0	50.6	19.1	11.5	9.3	9.5						
Miscellaneous antibacterial agents . . . . .	11,495	5.9	100.0	36.2	31.0	11.1	6.8	14.9						
Antimycobacterial and anti-leprosy agents . . . . .	347	0.2	100.0	*	*	*	*18.3	*						
Quinolones and derivatives . . . . .	19,787	10.2	100.0	54.3	12.1	5.7	6.8	21.1						
Antifungals . . . . .	4,304	2.2	100.0	62.4	*	20.7	12.0	2.6						
Antiviral agents . . . . .	10,440	5.4	100.0	44.4	*	*33.7	12.7	5.6						
Hematologic agents . . . . .	43,571	22.4	100.0	43.4	4.5	35.0	9.7	7.4						
Deficiency anemias . . . . .	17,971	9.2	100.0	51.2	2.0	33.9	10.0	2.8						
Anticoagulants and thrombolytics . . . . .	25,022	12.8	100.0	38.2	6.4	35.5	9.6	10.2						
Blood components and substitutes . . . . .	*174	*0.1	100.0	*	*	*	*	*25.2						
Hemostatics . . . . .	358	0.2	100.0	*	*	*	*8.6	31.7						
Cardiovascular-renal drugs . . . . .	279,710	143.6	100.0	55.0	5.9	26.2	7.4	5.5						
Cardiac glycosides . . . . .	7,907	4.1	100.0	45.6	5.8	36.4	6.8	5.4						
Antiarrhythmic agents . . . . .	4,624	2.4	100.0	37.2	*	40.1	5.4	13.2						
Antianginal agents . . . . .	12,596	6.5	100.0	35.7	3.4	33.7	5.3	21.8						
Vascular disorders, cerebral and peripheral . . . . .	7,841	4.0	100.0	59.0	18.3	*16.6	5.5	0.6						
Agents used to treat shock and hypotension . . . . .	1,211	0.6	100.0	*	*	*	*9.1	44.4						
Antihypertensive agents . . . . .	69,625	35.7	100.0	61.5	5.6	24.1	6.0	2.7						
Diuretics . . . . .	50,605	26.0	100.0	54.1	4.4	27.0	8.4	6.0						
Coronary vasodilators . . . . .	693	0.4	100.0	*	*	*	*8.0	37.9						
Relaxants and stimulants, urinary tract . . . . .	4,746	2.4	100.0	57.6	22.9	10.7	6.2	2.6						
Calcium channel blockers . . . . .	37,156	19.1	100.0	57.8	4.7	25.5	7.6	4.4						
Carbonic anhydrase inhibitors . . . . .	480	0.2	100.0	*	*	*	*10.0	*						
Beta blockers . . . . .	46,478	23.9	100.0	53.5	4.9	29.1	8.4	4.1						
Alpha agonists and alpha blockers . . . . .	24,320	12.5	100.0	45.4	10.4	30.3	7.0	6.9						
ACE <sup>4</sup> inhibitors . . . . .	49,721	25.5	100.0	61.8	4.5	22.5	8.1	3.1						
Central nervous system . . . . .	195,747	100.5	100.0	41.9	2.7	36.9	8.5	10.0						
Sedatives and hypnotics . . . . .	34,523	17.7	100.0	37.1	3.6	19.6	9.2	30.5						
Antianxiety agents . . . . .	32,505	16.7	100.0	41.1	4.3	34.6	6.5	13.5						
Antipsychotics and antimanics . . . . .	17,382	8.9	100.0	20.2	*	59.7	12.3	7.2						
Antidepressants . . . . .	89,218	45.8	100.0	47.2	2.7	38.8	8.6	2.7						
Anorexiant and CNS <sup>5</sup> stimulants . . . . .	13,195	6.8	100.0	54.5	*	37.2	6.8	1.2						
CNS, miscellaneous . . . . .	3,180	1.6	100.0	34.3	*	52.0	7.1	2.1						
Alzheimer-type dementia . . . . .	3,286	1.7	100.0	56.7	*	34.7	3.5	3.6						
Antiemetics . . . . .	2,629	1.3	100.0	*	*	53.2	*8.8	23.9						
Contrast media and radiopharmaceuticals . . . . .	1,195	0.6	100.0	*	*	46.3	*8.4	12.7						
Diagnostics, radiopaque and nonradioactive . . . . .	870	0.4	100.0	*	*	44.4	*10.6	17.2						
Gastrointestinal agents . . . . .	101,157	51.9	100.0	52.1	5.1	22.0	8.5	12.2						
Disorders, acid and peptic . . . . .	68,140	35.0	100.0	54.2	4.6	22.6	8.5	10.0						
Antidiarrheals . . . . .	5,585	2.9	100.0	53.3	*	19.9	7.5	16.3						
Laxatives . . . . .	13,494	6.9	100.0	47.6	*8.6	22.4	11.0	10.4						

See footnotes at end of table.

**Table 7. Annual number and rate of therapeutic classes of drugs provided, prescribed, or continued at ambulatory care visits, with percent distribution by setting type and corresponding standard errors: United States, 2003–2004—Con.**

Therapeutic class <sup>1</sup>	Number of occurrences in thousands <sup>2</sup>	Number of occurrences per 1,000 drug mentions <sup>3</sup>	Total	Primary care offices	Surgical specialty offices	Medical specialty offices	Hospital outpatient departments	Hospital emergency departments	Percent distribution	
Gastrointestinal agents—Con.										
Miscellaneous gastrointestinals . . . . .	7,561	3.9	100.0	49.2	*5.1	24.4	4.3	17.0		
Antispasmodics and anticholinergics . . . . .	3,341	1.7	100.0	44.6	8.0	*	7.4	23.8		
Antacids . . . . .	3,662	1.9	100.0	40.2	*	15.8	9.6	32.4		
Metabolics and nutrients . . . . .										
Hyperlipidemia . . . . .	69,358	35.6	100.0	61.7	4.2	25.1	6.9	2.0		
Vitamins and minerals . . . . .	49,789	25.6	100.0	59.4	5.2	22.2	10.1	3.0		
Nutrition, enteral and parenteral . . . . .	3,561	1.8	100.0	49.3	*	27.0	9.5	13.6		
Replenishers, regulators of electrolytes and water balance . . . . .										
Calcium metabolism . . . . .	13,929	7.2	100.0	61.6	3.1	28.2	6.0	1.1		
Hematopoietic growth factors . . . . .	2,968	1.5	100.0	*	*	75.9	*9.6	*2.3		
Hormones and hormonal mechanisms . . . . .										
Adrenal corticosteroids . . . . .	40,653	20.9	100.0	43.6	11.2	23.5	8.0	13.7		
Androgens and anabolic steroids . . . . .	4,940	2.5	100.0	60.1	17.4	17.2	4.4	*0.9		
Estrogens and progestins . . . . .	22,849	11.7	100.0	70.4	4.6	15.4	7.7	1.8		
Anterior pituitary and hypothalamic function . . . . .	324	0.2	100.0	*	*	*	*25.0	*		
Blood glucose regulators . . . . .	59,559	30.6	100.0	60.7	4.2	21.3	9.3	4.4		
Thyroid and antithyroid . . . . .	26,168	13.4	100.0	60.9	5.0	24.8	6.5	2.8		
Antidiuretics . . . . .	183	0.1	100.0	*	*	*	*	*		
Relaxants and stimulants, uterine . . . . .	*391	*0.2	100.0	*	*	*	*18.4	*11.1		
Contraceptives . . . . .	14,472	7.4	100.0	83.8	*	4.8	8.1	1.7		
Growth hormone secretion disorders . . . . .	967	0.5	100.0	*	42.2	*	*12.3	*		
Immunologics . . . . .										
Vaccines and antisera . . . . .	55,085	28.3	100.0	79.3	*	*2.7	11.8	6.0		
Immunomodulators . . . . .	3,753	1.9	100.0	*	*	64.1	16.6	3.0		
Allergenic extracts . . . . .	10,785	5.5	100.0	*9.2	*4.8	84.2	*1.7	*		
Immune serums . . . . .	881	0.5	100.0	*	*	*	*9.6	21.4		
Skin and mucous membranes . . . . .										
Antiseptics and disinfectants . . . . .	4,966	2.5	100.0	22.8	*8.5	52.1	5.5	11.1		
Dermatologics, miscellaneous . . . . .	23,400	12.0	100.0	47.0	3.4	36.9	7.6	5.0		
Keratolytics . . . . .	541	0.3	100.0	*	*	58.7	*9.7	*		
Topical steroids . . . . .	20,998	10.8	100.0	36.3	14.2	35.7	6.8	7.0		
Burn and sunburn, sunscreen and suntan products . . . . .										
Acne products . . . . .	420	0.2	100.0	*	*	72.4	*	*		
Topical anti-infectives . . . . .	5,672	2.9	100.0	16.9	*	76.5	4.6	*		
Anorectal products . . . . .	12,398	6.4	100.0	50.0	5.3	27.5	9.6	7.7		
Dermatitis and antipruritics . . . . .	*136	*0.1	100.0	*	*	*	*	*		
Topical analgesics . . . . .	1,563	0.8	100.0	*	*	38.6	8.5	5.6		
Neurologic drugs . . . . .										
Extrapyramidal movement disorders . . . . .	9,910	5.1	100.0	38.1	18.7	16.9	8.4	18.0		
Myasthenia gravis . . . . .	60,978	31.3	100.0	36.9	5.3	37.1	9.8	10.9		
Skeletal muscle hyperactivity . . . . .	4,137	2.1	100.0	*	*	59.0	9.5	4.9		
Anticonvulsants . . . . .	*86	*0.0	100.0	*	*	*	*	*		
Oncolytics . . . . .	23,781	12.2	100.0	50.4	7.9	15.7	8.2	17.8		
Antineoplastics, miscellaneous . . . . .	37,664	19.3	100.0	30.3	4.1	46.7	10.6	8.4		
Hormonal and biological response modulators . . . . .	13,119	6.7	100.0	15.4	9.3	61.1	12.9	1.2		
Antimetabolites . . . . .	4,658	2.4	100.0	*	*5.0	70.1	11.4	1.3		
Antibiotics, alkaloids, and enzymes . . . . .	3,822	2.0	100.0	*	22.5	47.1	8.9	1.6		
DNA damaging drugs . . . . .	2,434	1.2	100.0	*	*	56.8	13.8	*		
Ophthalmics . . . . .	432	0.2	100.0	*	*	68.3	*21.6	*		
Glaucoma . . . . .	1,588	0.8	100.0	*	*	69.0	*24.3	*		
Cycloplegics and mydriatics . . . . .	49,201	25.3	100.0	16.3	65.1	6.3	6.1	6.3		
Ocular anti-infective and anti-inflammatory . . . . .	12,516	6.4	100.0	7.9	80.8	4.6	5.8	0.9		
Miscellaneous ophthalmics . . . . .	2,884	1.5	100.0	*	61.5	*	12.8	20.9		
Decongestants and antiallergy agents . . . . .	21,341	11.0	100.0	22.4	57.7	*6.7	6.2	7.0		
Otics . . . . .	9,784	5.0	100.0	12.3	69.7	*	4.5	8.0		
Otic, topical (miscellaneous) . . . . .	2,039	1.0	100.0	40.4	32.1	*	*3.4	2.8		
Vertigo, motion sickness, and vomiting . . . . .	30,101	15.5	100.0	34.9	4.9	9.7	7.7	42.8		
Relief of pain . . . . .	4,923	2.5	100.0	57.8	15.5	*	10.2	14.3		
General analgesics . . . . .	25,179	12.9	100.0	30.4	*2.8	11.2	7.3	48.4		
Narcotic analgesics . . . . .	285,792	146.7	100.0	42.5	8.8	14.8	8.5	25.4		
General analgesics . . . . .	5,813	3.0	100.0	48.5	11.6	23.9	5.8	10.3		
Narcotic analgesics . . . . .	78,516	40.3	100.0	30.5	9.8	13.0	7.7	39.0		

See footnotes at end of table.

**Table 7. Annual number and rate of therapeutic classes of drugs provided, prescribed, or continued at ambulatory care visits, with percent distribution by setting type and corresponding standard errors: United States, 2003–2004—Con.**

Therapeutic class <sup>1</sup>	Number of occurrences in thousands <sup>2</sup>	Number of occurrences per 1,000 drug mentions <sup>3</sup>	Total	Primary care offices	Surgical specialty offices	Medical specialty offices	Hospital outpatient departments	Hospital emergency departments	Percent distribution			
Relief of pain—Con.												
Nonnarcotic analgesics . . . . .	76,480	39.3	100.0	46.3	4.0	19.5	10.0	20.2				
Antimigraine and other headaches . . . . .	6,741	3.5	100.0	70.0	*	16.1	7.2	4.5				
Antiarthritics . . . . .	66,733	34.3	100.0	50.3	11.7	24.0	7.5	6.5				
Antigout . . . . .	5,110	2.6	100.0	51.2	*	36.7	4.9	3.5				
NSAID <sup>6</sup> . . . . .	111,974	57.5	100.0	46.7	11.0	11.0	8.6	22.7				
Antipyretics . . . . .	69,924	35.9	100.0	46.0	3.7	19.4	10.1	20.8				
Antiparasitics . . . . .	8,382	4.3	100.0	58.3	4.2	15.0	12.4	10.0				
Antiprotozoals . . . . .	6,213	3.2	100.0	60.6	3.3	11.8	12.5	11.8				
Scabicides and pediculicides . . . . .	*309	*0.2	100.0	*	*	*	*	*				
Antimalarials . . . . .	2,179	1.1	100.0	52.5	*	28.4	10.0	3.1				
Respiratory tract . . . . .	229,591	117.9	100.0	56.0	4.9	18.8	8.4	11.8				
Antiasthmatics and bronchodilators . . . . .	79,790	41.0	100.0	51.8	3.1	26.1	7.9	11.1				
Nasal decongestants . . . . .	17,284	8.9	100.0	66.7	9.0	5.5	11.0	7.9				
Antitussives, expectorants, and mucolytics . . . . .	30,186	15.5	100.0	68.7	4.4	7.8	10.5	8.6				
Antihistamines . . . . .	79,432	40.8	100.0	53.2	4.2	17.0	7.7	17.8				
Cold remedies . . . . .	8,201	4.2	100.0	74.1	*3.7	*	8.2	7.1				
Corticosteroid - inhalation and nasal . . . . .	30,950	15.9	100.0	58.8	10.0	20.5	8.8	1.9				
Unclassified and miscellaneous . . . . .	40,782	20.9	100.0	44.1	9.9	24.5	6.8	14.7				
Unclassified . . . . .	34,543	17.7	100.0	48.1	10.2	26.4	6.6	8.8				
Pharmaceutical aids . . . . .	4,386	2.3	100.0	*	*2.6	*	7.1	63.0				
Surgical aids . . . . .	1,832	0.9	100.0	*	*	*	*4.7	68.5				
Homeopathic products . . . . .	6,521	3.3	100.0	58.4	10.3	25.3	4.9	1.1				
	Standard error in thousands	Standard error of rate					Standard error of percent					
All drug mentions . . . . .	72,398	2.6	...	1.6	0.5	1.5	0.8	0.6				
Anesthetics and adjuncts . . . . .	1,482	0.8	...	3.8	3.6	2.9	1.9	1.8				
Anesthetics, local (Injectable) . . . . .	1,240	0.6	...	5.8	5.1	3.5	1.5	2.0				
Anesthetics, general . . . . .	360	0.2	...	...	...	...	15.1	5.4				
Adjuncts to anesthesia and analeptics . . . . .	326	0.2	...	...	...	5.6	2.1	4.9				
Medicinal gases . . . . .	267	0.1	...	...	...	...	3.7	7.1				
Anesthetics, topical . . . . .	345	0.2	...	...	...	12.0	2.8	3.6				
Anesthetics, rectal . . . . .	118	0.1	...	...	...	...	3.9	3.4				
Antidotes . . . . .	256	0.1	...	...	...	7.7	4.2	3.3				
Antidotes, specific . . . . .	118	0.1	...	...	...	...	9.1	6.8				
Antidotes, general . . . . .	167	0.1	...	...	...	...	...	7.7				
Antitoxins or antivenins . . . . .	161	0.1	...	...	...	12.2	...	...				
Antimicrobial agents . . . . .	6,998	3.4	...	1.8	0.6	1.4	0.9	0.9				
Penicillins . . . . .	2,459	1.2	...	2.0	0.6	0.9	1.3	1.1				
Cephalosporins . . . . .	1,633	0.8	...	2.4	1.2	0.7	1.0	1.7				
Lincosamides and macrolides . . . . .	1,759	0.9	...	2.2	0.6	1.2	1.1	1.1				
Tetracyclines . . . . .	759	0.4	...	3.8	1.3	3.1	1.1	0.8				
Aminoglycosides . . . . .	231	0.1	...	6.6	...	...	2.4	2.3				
Sulfonamides and trimethoprim . . . . .	808	0.4	...	4.4	0.9	3.8	1.2	1.9				
Urinary tract antiseptics . . . . .	343	0.2	...	3.8	2.4	2.7	1.3	1.0				
Miscellaneous antibacterial agents . . . . .	793	0.4	...	3.8	3.6	1.6	0.8	1.3				
Antimycobacterial and anti-leprosy agents . . . . .	103	0.1	...	...	...	...	7.5	...				
Quinolones and derivatives . . . . .	911	0.5	...	2.3	1.2	0.9	0.8	1.2				
Antifungals . . . . .	461	0.2	...	5.1	...	5.0	2.9	0.5				
Antiviral agents . . . . .	1,902	1.0	...	8.4	...	11.3	3.6	1.2				
Hematologic agents . . . . .	2,771	1.0	...	3.0	0.9	3.2	1.3	0.7				
Deficiency anemias . . . . .	1,706	0.7	...	4.6	0.5	5.1	1.4	0.4				
Anticoagulants and thrombolytics . . . . .	1,599	0.6	...	3.2	1.3	2.9	1.6	0.9				
Blood components and substitutes . . . . .	107	0.1	...	...	...	...	...	16.0				
Hemostatics . . . . .	89	0.0	...	...	...	...	3.5	8.3				
Cardiovascular-renal drugs . . . . .	15,315	4.0	...	2.3	0.8	2.2	0.9	0.5				
Cardiac glycosides . . . . .	611	0.3	...	4.1	1.7	3.9	1.3	0.7				
Antiarrhythmic agents . . . . .	433	0.2	...	4.8	...	4.3	1.5	1.6				
Antianginal agents . . . . .	981	0.4	...	3.1	1.0	3.2	0.9	2.0				

See footnotes at end of table.

**Table 7. Annual number and rate of therapeutic classes of drugs provided, prescribed, or continued at ambulatory care visits, with percent distribution by setting type and corresponding standard errors: United States, 2003–2004—Con.**

Therapeutic class <sup>1</sup>	Number of occurrences in thousands <sup>2</sup>	Number of occurrences per 1,000 drug mentions <sup>3</sup>	Total	Primary care offices	Surgical specialty offices	Medical specialty offices	Hospital outpatient departments	Hospital emergency departments
	Standard error in thousands	Standard error of rate						
Cardiovascular-renal drugs—Con.								
Vascular disorders, cerebral and peripheral . . .	801	0.4	...	4.9	2.6	5.7	1.0	0.2
Agents used to treat shock and hypotension . . .	230	0.1	...	...	...	...	2.7	8.6
Antihypertensive agents . . . . .	4,320	1.4	...	2.9	0.9	2.6	0.8	0.3
Diuretics . . . . .	3,025	1.0	...	2.9	0.8	2.9	1.0	0.6
Coronary vasodilators . . . . .	102	0.1	...	...	...	...	3.0	6.1
Relaxants and stimulants, urinary tract . . . . .	455	0.2	...	4.2	2.7	2.5	1.2	0.5
Calcium channel blockers . . . . .	2,381	0.8	...	2.6	1.0	2.4	1.0	0.5
Carbonic anhydrase inhibitors . . . . .	100	0.1	...	...	...	...	4.2	...
Beta blockers . . . . .	2,762	0.9	...	2.5	0.8	2.4	1.2	0.4
Alpha agonists and alpha blockers . . . . .	1,428	0.5	...	2.7	1.2	2.5	1.0	0.6
ACE <sup>4</sup> inhibitors . . . . .	3,007	0.9	...	2.5	0.8	2.2	1.0	0.4
Central nervous system . . . . .	8,530	2.7	...	1.9	0.4	2.0	1.0	0.6
Sedatives and hypnotics . . . . .	1,852	0.7	...	2.3	0.9	1.8	1.4	1.7
Antianxiety agents . . . . .	1,714	0.6	...	2.6	0.8	2.7	1.0	0.8
Antipsychotics and antimanics . . . . .	1,460	0.7	...	2.8	...	3.5	1.8	0.8
Antidepressants . . . . .	4,106	1.4	...	2.1	0.4	2.2	1.1	0.3
Anorexiant and CNS <sup>5</sup> stimulants . . . . .	1,418	0.7	...	4.9	...	4.6	1.3	0.3
CNS, miscellaneous . . . . .	383	0.2	...	5.7	...	5.9	1.4	0.5
Alzheimer-type dementia . . . . .	545	0.3	...	7.4	...	6.4	1.0	0.9
Antiemetics . . . . .	561	0.3	...	...	...	10.1	3.0	5.8
Contrast media and radiopharmaceuticals . . . . .	219	0.1	...	...	...	10.3	3.5	3.4
Diagnostics, radiopaque and nonradioactive . . .	147	0.1	...	...	...	10.6	4.6	4.6
Gastrointestinal agents . . . . .	5,429	1.5	...	2.2	0.7	2.3	1.0	0.7
Disorders, acid and peptic . . . . .	3,759	1.0	...	2.3	0.6	2.4	1.0	0.7
Antidiarrheals . . . . .	547	0.2	...	4.0	...	3.3	1.4	1.9
Laxatives . . . . .	1,292	0.6	...	4.9	3.0	5.1	1.7	1.0
Miscellaneous gastrointestinal . . . . .	705	0.3	...	3.5	1.7	3.3	0.7	1.8
Antispasmodics and anticholinergics . . . . .	306	0.1	...	4.8	2.0	...	1.4	2.4
Antacids . . . . .	344	0.2	...	4.8	...	3.4	1.7	3.0
Metabolics and nutrients . . . . .	9,842	2.7	...	2.5	0.6	2.4	1.0	0.4
Hyperlipidemia . . . . .	4,440	1.3	...	2.6	0.7	2.3	1.0	0.3
Vitamins and minerals . . . . .	3,383	1.2	...	2.8	0.8	2.5	1.3	0.4
Nutrition, enteral and parenteral . . . . .	411	0.2	...	5.7	...	5.7	1.9	1.8
Replenishers, regulators of electrolytes and water balance . . . . .	1,931	0.7	...	3.1	0.9	3.4	1.1	1.5
Calcium metabolism . . . . .	1,281	0.5	...	4.6	0.7	4.5	1.3	0.2
Hematopoietic growth factors . . . . .	814	0.4	...	...	...	7.5	3.4	0.8
Hormones and hormonal mechanisms . . . . .	8,421	2.4	...	2.2	0.7	2.2	0.9	0.4
Adrenal corticosteroids . . . . .	2,122	0.9	...	2.6	1.4	3.1	0.8	1.0
Androgens and anabolic steroids . . . . .	946	0.5	...	7.7	3.8	5.0	1.1	0.3
Estrogens and progestins . . . . .	1,730	0.7	...	2.7	1.0	2.3	1.2	0.3
Anterior pituitary and hypothalamic function . . .	97	0.0	...	...	...	...	8.4	...
Blood glucose regulators . . . . .	4,134	1.6	...	3.1	0.8	3.1	1.2	0.4
Thyroid and antithyroid . . . . .	1,861	0.7	...	3.4	1.1	3.6	1.0	0.4
Antidiuretics . . . . .	47	0.0	...	...	...	...	...	...
Relaxants and stimulants, uterine . . . . .	182	0.1	...	...	...	...	11.1	6.0
Contraceptives . . . . .	1,271	0.6	...	2.0	...	1.2	1.3	0.3
Growth hormone secretion disorders . . . . .	164	0.1	...	...	7.7	...	5.2	...
Immunologics . . . . .	4,622	2.3	...	3.7	0.4	3.7	1.4	0.4
Vaccines and antisera . . . . .	3,608	1.9	...	2.1	...	0.9	1.7	0.5
Immunomodulators . . . . .	751	0.4	...	...	...	8.2	4.3	0.8
Allergenic extracts . . . . .	2,971	1.5	...	5.1	2.9	6.4	0.6	...
Immune serums . . . . .	202	0.1	...	...	...	...	3.2	5.6
Skin and mucous membrane . . . . .	3,265	1.5	...	1.9	1.1	2.0	0.7	0.5
Antiseptics and disinfectants . . . . .	494	0.2	...	3.6	3.0	4.7	1.6	1.5
Dermatologics, miscellaneous . . . . .	1,287	0.6	...	2.4	0.9	2.3	0.8	0.4
Keratolytics . . . . .	91	0.0	...	...	...	8.5	3.2	...
Topical steroids . . . . .	1,306	0.6	...	3.0	2.7	2.9	0.9	0.6

See footnotes at end of table.

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Therapeutic class <sup>1</sup>	Number of occurrences in thousands <sup>2</sup>	Number of occurrences per 1,000 drug mentions <sup>3</sup>	Total	Primary care offices	Surgical specialty offices	Medical specialty offices	Hospital outpatient departments	Hospital emergency departments
	Standard error in thousands	Standard error of rate						
Skin and mucous membrane—Con.								
Burn and sunburn, sunscreen and suntan products . . . . .	108	0.1	...	...	...	9.6	...	...
Acne products . . . . .	540	0.3	...	4.0	...	4.2	0.9	...
Topical anti-infectives . . . . .	740	0.3	...	3.1	0.9	2.7	1.0	0.8
Anorectal products . . . . .	49	0.0	...	...	...	...	...	...
Dermatitis and antipruritics . . . . .	215	0.1	...	...	...	5.4	2.2	1.4
Topical analgesics . . . . .	1,059	0.5	...	6.4	3.4	3.7	1.5	2.1
Neurologic drugs . . . . .	2,793	1.0	...	2.0	1.1	2.2	1.0	0.7
Extrapyramidal movement disorders . . . . .	452	0.2	...	...	...	4.9	1.7	0.9
Myasthenia gravis . . . . .	32	0.0	...	...	...	...	...	...
Skeletal muscle hyperactivity . . . . .	1,245	0.6	...	2.8	2.2	2.3	1.2	1.2
Anticonvulsants . . . . .	2,093	0.8	...	2.1	0.7	2.5	1.2	0.6
Oncolytics . . . . .	2,079	1.0	...	3.7	1.7	6.4	2.7	0.3
Antineoplastics, miscellaneous . . . . .	1,078	0.5	...	...	1.6	7.5	3.1	0.4
Hormonal and biological response modulators . . . . .	563	0.3	...	...	4.0	7.5	1.9	0.5
Antimetabolites . . . . .	484	0.2	...	...	...	9.6	3.6	...
Antibiotics, alkaloids, and enzymes . . . . .	103	0.1	...	...	...	8.8	7.0	...
DNA damaging drugs . . . . .	396	0.2	...	...	...	8.9	7.5	...
Ophthalmics . . . . .	3,828	1.9	...	1.8	3.3	1.6	1.0	0.6
Glaucoma . . . . .	1,387	0.7	...	2.1	3.0	1.3	1.3	0.2
Cycloplegics and mydriatics . . . . .	434	0.2	...	...	6.0	...	3.8	3.3
Ocular anti-infective and anti-inflammatory . . . . .	1,739	0.9	...	2.7	4.0	2.3	1.0	0.7
Miscellaneous ophthalmics . . . . .	1,476	0.7	...	2.7	4.9	...	1.2	1.4
Decongestants and antiallergy agents . . . . .	354	0.2	...	8.4	8.7	...	1.2	0.8
Otics . . . . .	1,326	0.6	...	2.3	0.8	1.7	0.9	1.9
Otic, topical (miscellaneous) . . . . .	419	0.2	...	3.4	2.0	...	1.6	1.4
Vertigo, motion sickness, and vomiting . . . . .	1,141	0.5	...	2.4	0.8	2.0	0.9	2.1
Relief of pain . . . . .	10,853	2.9	...	1.7	0.9	1.5	0.8	1.1
General analgesics . . . . .	672	0.3	...	4.8	2.9	4.8	1.1	1.4
Narcotic analgesics . . . . .	3,214	1.4	...	1.8	1.2	1.9	1.0	1.5
Non-narcotic analgesics . . . . .	4,118	1.3	...	2.4	0.6	1.7	1.1	1.3
Antimigraine and other headaches . . . . .	518	0.3	...	3.1	...	2.3	1.4	0.5
Antiarthritics . . . . .	4,078	1.3	...	2.8	1.3	2.3	1.0	0.6
Antigout . . . . .	547	0.2	...	5.2	...	5.3	1.1	0.6
NSAID <sup>6</sup> . . . . .	4,519	1.6	...	2.0	1.1	1.5	0.8	1.2
Antipyretics . . . . .	3,948	1.3	...	2.4	0.6	1.7	1.1	1.3
Antiparasitics . . . . .	618	0.3	...	3.4	0.8	2.7	1.6	0.9
Antiprotozoals . . . . .	551	0.3	...	3.8	0.8	2.5	1.7	1.2
Scabicides and pediculicides . . . . .	113	0.1	...	...	...	...	...	...
Antimalarials . . . . .	267	0.1	...	6.5	...	6.6	2.7	0.7
Respiratory tract . . . . .	11,629	4.1	...	2.3	0.5	2.6	0.9	0.7
Antiasthmatics and bronchodilators . . . . .	5,085	2.1	...	3.0	0.5	3.6	1.0	0.8
Nasal decongestants . . . . .	1,511	0.7	...	3.1	1.7	1.5	1.5	0.9
Antitussives, expectorants, and mucolytics . . . . .	2,140	1.0	...	2.5	1.0	1.3	1.6	0.8
Antihistamines . . . . .	4,110	1.5	...	2.4	0.5	2.4	0.8	1.0
Cold remedies . . . . .	1,185	0.6	...	4.3	1.2	...	1.9	1.2
Corticosteroid - inhalation and nasal . . . . .	2,160	0.9	...	3.2	1.3	3.6	1.2	0.2
Unclassified and miscellaneous . . . . .	2,795	1.2	...	2.7	1.3	2.4	0.8	1.2
Unclassified . . . . .	2,662	1.2	...	2.9	1.4	2.7	0.8	1.0
Pharmaceutical aids . . . . .	448	0.2	...	...	1.3	...	1.4	5.5
Surgical aids . . . . .	353	0.2	...	...	...	...	1.5	11.9
Homeopathic products . . . . .	757	0.3	...	5.3	2.3	4.7	1.3	0.3

\* Figure does not meet standard of reliability or precision. . . . . Category not applicable. 0.0 Quantity more than zero, but less than 0.05.  
<sup>1</sup>Based on the standard drug classification used in the *National Drug Code Directory*, 1995 edition (12). In the NDC, therapeutic classes are assigned to drugs using 21 broad categories (2-digit level), and into specific categories (4-digit level) within each broad group. In NAMCS and NHAMCS, up to three therapeutic classes can be coded for each drug. Drugs are counted in each class in which they occur.  
<sup>2</sup>Total of all therapeutic classes will exceed total number of drug mentions because up to three classes may be coded for each drug.  
<sup>3</sup>Based on an estimated annual average of 1,947,870,000 drug mentions at ambulatory care visits in 2003–04.  
<sup>4</sup>ACE is angiotensin converting enzyme.  
<sup>5</sup>CNS is central nervous system.  
<sup>6</sup>NSAID is nonsteroidal anti-inflammatory drug.  
 NOTES: Numbers may not add to totals because of rounding and because subcategories with fewer than 30 records were omitted. Figures are annual averages.

**Table 8. Annual number and percent distribution of the 50 most frequently occurring generic equivalents at ambulatory care visits, with therapeutic class and corresponding standard errors: United States, 2003–04**

Generic substance	Number of mentions in thousands	Standard error in thousands	Percent distribution	Standard error of percent	Specific therapeutic class <sup>1</sup>
All drug mentions . . . . .	1,947,870	72,398	100.0	...	...
Ibuprofen . . . . .	41,039	2,152	2.1	0.1	NSAID <sup>2</sup>
Aspirin . . . . .	39,597	3,268	2.0	0.1	Non-narcotic analgesics; antiarthritics; antipyretics
Atorvastatin calcium . . . . .	32,643	2,422	1.7	0.1	Hyperlipidemia
Acetaminophen . . . . .	31,694	1,878	1.6	0.1	Non-narcotic analgesics; antipyretics
Albuterol . . . . .	30,039	1,858	1.5	0.1	Antiasthmatics and bronchodilators
Acetaminophen with hydrocodone . . . . .	28,984	1,515	1.5	0.1	Narcotic analgesics
Amoxicillin . . . . .	25,964	1,741	1.3	0.1	Penicillins
Levothyroxine . . . . .	24,019	1,705	1.2	0.1	Thyroid and antithyroid
Furosemide . . . . .	22,289	1,638	1.1	0.1	Diuretics
Metoprolol . . . . .	22,063	1,440	1.1	0.1	Beta blockers
Lisinopril . . . . .	19,992	1,632	1.0	0.1	ACE <sup>3</sup> inhibitors
Azithromycin . . . . .	19,427	1,283	1.0	0.1	Lincosamides and macrolides
Hydrochlorothiazide . . . . .	18,604	1,262	1.0	0.0	Diuretics
Atenolol . . . . .	18,106	1,429	0.9	0.1	Beta blockers
Prednisone . . . . .	16,616	1,638	0.9	0.1	Adrenal corticosteroids
Metformin . . . . .	15,685	1,199	0.8	0.0	Blood glucose regulators
Fluticasone propionate . . . . .	15,568	1,108	0.8	0.0	Topical steroids; corticosteroid - inhalation and nasal
Amlodipine . . . . .	15,060	1,072	0.8	0.0	Calcium channel blockers
Naproxen . . . . .	14,975	899	0.8	0.0	NSAID <sup>2</sup>
Simvastatin . . . . .	14,891	1,246	0.8	0.0	Hyperlipidemia
Promethazine . . . . .	14,378	821	0.7	0.0	Antihistamines; vertigo, motion sickness, and vomiting; sedatives and hypnotics
Amoxicillin with clavulanate . . . . .	14,136	1,040	0.7	0.1	Penicillins
Warfarin sodium . . . . .	13,858	1,114	0.7	0.0	Anticoagulants and thrombolytics
Cetirizine . . . . .	13,778	1,390	0.7	0.1	Antihistamines
Celecoxib . . . . .	13,236	944	0.7	0.0	Antiarthritics; NSAID <sup>2</sup>
Lansoprazole . . . . .	12,905	974	0.7	0.0	Acid and peptic disorders
Cephalexin . . . . .	12,755	695	0.7	0.0	Cephalosporins
Fluticasone with salmeterol . . . . .	12,682	1,162	0.7	0.1	Antiasthmatics and bronchodilators
Rofecoxib . . . . .	12,515	941	0.6	0.0	NSAID <sup>2</sup>
Sertraline . . . . .	12,416	816	0.6	0.0	Antidepressants
Alprazolam . . . . .	12,307	877	0.6	0.0	Antianxiety agents
Fexofenadine . . . . .	12,113	1,044	0.6	0.0	Antihistamines
Montelukast sodium . . . . .	11,952	1,222	0.6	0.1	Antiasthmatics and bronchodilators
Triamcinolone . . . . .	11,664	874	0.6	0.0	Topical steroids; corticosteroid - nasal and inhalation; antiasthmatics and bronchodilators
Paroxetine hydrochloride . . . . .	11,394	758	0.6	0.0	Antidepressants
Escitalopram oxalate . . . . .	11,151	879	0.6	0.0	Antidepressants
Influenza virus vaccine . . . . .	10,478	1,787	0.5	0.1	Vaccines and antisera
Esomeprazole magnesium . . . . .	10,280	978	0.5	0.0	Acid and peptic disorders
Fluoxetine hydrochloride . . . . .	10,064	676	0.5	0.0	Antidepressants
Lidocaine . . . . .	9,969	1,114	0.5	0.1	Anesthetics, topical; anesthetics, local (injectable); antiarrhythmic agents
Pantoprazole sodium . . . . .	9,932	931	0.5	0.0	Acid and peptic disorders
Potassium replacement solutions . . . . .	9,924	805	0.5	0.0	Replenishers and regulators of electrolytes and water balance
Methylprednisolone . . . . .	9,783	737	0.5	0.0	Adrenal corticosteroids
Insulin . . . . .	9,453	853	0.5	0.0	Blood glucose regulators
Acetaminophen with oxycodone . . . . .	9,401	749	0.5	0.0	Narcotic analgesics
Ketorolac tromethamine . . . . .	9,203	519	0.5	0.0	NSAID <sup>2</sup>
Bupropion . . . . .	9,203	642	0.5	0.0	Antidepressants; pharmaceutical aids
Estrogens . . . . .	9,106	825	0.5	0.0	Estrogens and progestins
Diphenhydramine . . . . .	8,988	611	0.5	0.0	Antihistamines
Sulfamethoxazole with trimethoprim . . . . .	8,856	765	0.5	0.0	Sulfonamides and trimethoprim
All other . . . . .	1,142,735	41,636	58.7	0.0	...

... Category not applicable.

0.0 Quantity more than zero, but less than 0.05.

<sup>1</sup>Based on the standard drug classification used in the *National Drug Code Directory*, 1995 edition (NDC) (12). In the NDC, therapeutic classes are assigned to drugs using 21 broad categories (2-digit level), and into specific categories (4-digit level) within each broad group. In NAMCS and NHAMCS, up to three therapeutic classes can be coded for each drug. Drugs are counted in each class in which they occur.

<sup>2</sup>NSAID is nonsteroidal anti-inflammatory drug.

<sup>3</sup>ACE is angiotensin converting enzyme.

NOTES: Numbers may not add to totals due to rounding. Figures are annual averages.

**Table 9. Annual number and percent distribution of the generic equivalents most frequently provided, prescribed, or continued at ambulatory care visits, by setting type, with corresponding standard errors: United States, 2003–04**

Selected characteristic	Number of drug mentions in thousands	Standard error in thousands	Percent distribution	Standard error of percent	Specific therapeutic class <sup>1</sup>
<b>Primary care offices</b>					
All drug mentions . . . . .	975,895	50,268	100.0	. . .	. . .
Atorvastatin calcium . . . . .	20,630	1,912	2.1	0.1	Hyperlipidemia
Aspirin . . . . .	19,084	2,503	2.0	0.2	Non-narcotic analgesics; antiarthritics; antipyretics
Amoxicillin . . . . .	18,026	1,569	1.8	0.1	Penicillins
Ibuprofen . . . . .	16,940	1,633	1.7	0.1	NSAID <sup>2</sup>
Albuterol . . . . .	15,866	1,297	1.6	0.1	Antiasthmatics and bronchodilators
Levothyroxine . . . . .	14,847	1,226	1.5	0.1	Thyroid and antithyroid
Acetaminophen . . . . .	13,426	1,614	1.4	0.2	Non-narcotic analgesics; antipyretics
Azithromycin . . . . .	12,783	1,216	1.3	0.1	Lincosamides and macrolides
Lisinopril . . . . .	12,737	1,398	1.3	0.1	ACE <sup>3</sup> inhibitors
Hydrochlorothiazide . . . . .	12,077	1,082	1.2	0.1	Diuretics
All other . . . . .	819,479	41,805	84.1	0.4	. . .
<b>Surgical specialty offices</b>					
All drug mentions . . . . .	147,946	10,949	100.0	. . .	. . .
Prednisolone . . . . .	4,255	703	2.9	0.4	Adrenal corticosteroids; ocular anti-infective and anti-inflammatory
Acetaminophen with hydrocodone . . . . .	3,835	652	2.6	0.4	Narcotic analgesics
Latanoprost . . . . .	2,663	391	1.8	0.2	Glaucoma
Celecoxib . . . . .	2,563	411	1.7	0.2	Antiarthritics; NSAID <sup>2</sup>
Rofecoxib . . . . .	2,214	344	1.5	0.2	NSAID <sup>2</sup>
Dexamethasone with tobramycin . . . . .	2,022	456	1.4	0.3	Ocular anti-infective and anti-inflammatory
Aspirin . . . . .	1,924	361	1.3	0.2	Non-narcotic analgesics; antiarthritics; antipyretics
Naproxen . . . . .	1,918	360	1.3	0.2	NSAID <sup>2</sup>
Lidocaine . . . . .	1,899	291	1.3	0.2	Anesthetics, topical; anesthetics, local (injectable); antiarrhythmic agents
Brimonidine . . . . .	1,813	329	1.2	0.2	Unclassified
All other . . . . .	122,841	9,169	83.0	0.8	. . .
<b>Medical specialty offices</b>					
All drug mentions . . . . .	445,540	36,163	100.0	. . .	. . .
Aspirin . . . . .	12,028	1,275	2.7	0.2	Non-narcotic analgesics; antiarthritics; antipyretics
Furosemide . . . . .	7,743	1,065	1.7	0.2	Diuretics
Atorvastatin calcium . . . . .	7,593	988	1.7	0.1	Hyperlipidemia
Metoprolol . . . . .	7,297	814	1.6	0.1	Beta blockers
Levothyroxine . . . . .	5,757	1,035	1.3	0.2	Thyroid and antithyroid
Prednisone . . . . .	5,528	1,336	1.2	0.3	Adrenal corticosteroids
Albuterol . . . . .	5,385	1,193	1.2	0.2	Antiasthmatics and bronchodilators
Warfarin sodium . . . . .	5,262	683	1.2	0.1	Anticoagulants and thrombolytics
Sertraline . . . . .	4,692	477	1.1	0.1	Antidepressants
Atenolol . . . . .	4,680	648	1.1	0.1	Beta blockers
All others . . . . .	379,575	30,240	85.2	0.7	. . .
<b>Hospital outpatient departments</b>					
All drug mentions . . . . .	164,578	15,408	100.0	. . .	. . .
Ibuprofen . . . . .	4,542	487	2.8	0.2	NSAID <sup>2</sup>
Acetaminophen . . . . .	4,011	452	2.4	0.2	Non-narcotic analgesics; antipyretics
Albuterol . . . . .	3,216	362	2.0	0.1	Antiasthmatics and bronchodilators
Aspirin . . . . .	3,147	536	1.9	0.2	Non-narcotic analgesics; antiarthritics; antipyretics
Amoxicillin . . . . .	2,861	390	1.7	0.2	Penicillins
Atorvastatin calcium . . . . .	2,347	371	1.4	0.1	Hyperlipidemia
Hydrochlorothiazide . . . . .	2,109	253	1.3	0.1	Diuretics
Acetaminophen with hydrocodone . . . . .	1,967	286	1.2	0.1	Narcotic analgesics
Metoprolol . . . . .	1,938	276	1.2	0.1	Beta blockers
Azithromycin . . . . .	1,730	209	1.1	0.1	Lincosamides and macrolides
All other . . . . .	136,710	12,960	83.0	0.6	. . .

See footnotes at end of table.

**Table 9. Annual number and percent distribution of the generic equivalents most frequently provided, prescribed, or continued at ambulatory care visits, by setting type, with corresponding standard errors: United States, 2003–04—Con.**

Selected characteristic	Number of drug mentions in thousands	Standard error in thousands	Percent distribution	Standard error of percent	Specific therapeutic class <sup>1</sup>
Hospital emergency departments					
All drug mentions . . . . .	213,909	9,218	100.0	. . .	. . .
Ibuprofen . . . . .	15,199	786	7.1	0.2	NSAID <sup>2</sup>
Acetaminophen . . . . .	11,340	592	5.3	0.2	Non-narcotic analgesics; antipyretics
Acetaminophen with hydrocodone . . . . .	11,050	601	5.2	0.2	Narcotic analgesics
Promethazine . . . . .	8,547	443	4.0	0.2	Antihistamines; vertigo, motion sickness and vomiting; sedatives and hypnotics
Ketorolac tromethamine . . . . .	6,293	292	2.9	0.1	NSAID <sup>2</sup>
Albuterol . . . . .	5,030	253	2.4	0.1	Antiasthmatics and bronchodilators
Morphine . . . . .	4,662	252	2.2	0.1	Narcotic analgesics
Amoxicillin . . . . .	3,626	246	1.7	0.1	Penicillins
Azithromycin . . . . .	3,473	197	1.6	0.1	Lincosamides and macrolides
Aspirin . . . . .	3,415	239	1.6	0.1	Non-narcotic analgesics; antiarthritics; antipyretics
All other . . . . .	141,275	6,441	66.0	0.5	. . .

. . . Category not applicable.

<sup>1</sup> Based on the standard drug classification used in the *National Drug Code Directory*, 1995 edition (NDC) (12). In the NDC, therapeutic classes are assigned to drugs using 21 broad categories (2-digit level), and into specific categories (4-digit level) within each broad group. In NAMCS and NHAMCS, up to three therapeutic classes can be coded for each drug. Drugs are counted in each class in which they occur.

<sup>2</sup>NSAID is nonsteroidal anti-inflammatory drug.

<sup>3</sup>ACE is angiotensin converting enzyme.

NOTES: Numbers may not add to totals due to rounding. Figures are annual averages.



**Table 10. Annual population rates for the top 20 specific therapeutic classes of drug mentions at ambulatory care visits, by patient age and sex: United States, 2003–04**

Specific therapeutic class <sup>1</sup>	Patient age in years							Sex	
	Total	Under 15	15–24	25–44	45–64	65–74	75 or more	Female	Male
Number of occurrences per 1,000 persons <sup>2</sup>									
NSAID <sup>3</sup>	390.3	242.1	259.4	349.3	482.6	696.0	742.2	440.3	337.9
Antidepressants	310.9	65.4	175.4	310.8	492.4	492.7	587.3	410.4	206.8
Antiasthmatics and bronchodilators	278.0	335.8	126.2	155.8	336.4	510.1	548.2	311.8	242.6
Antihistamines	276.9	301.4	199.5	243.9	302.7	390.5	307.1	339.2	211.6
Narcotic analgesics	273.5	36.9	185.8	332.7	389.1	391.1	451.5	317.6	227.4
Non-narcotic analgesics	266.6	223.9	90.5	114.7	294.8	690.5	1,034.0	280.1	252.3
Antipyretics	243.7	222.6	84.0	92.8	255.8	644.6	980.6	248.6	238.6
Antihypertensive agents	242.5	*2.6	*11.6	65.4	406.2	848.0	1,230.0	273.4	210.3
Hyperlipidemia	241.7	*3.7	*4.8	50.0	429.3	983.6	1,058.0	238.4	245.1
Acid and peptic disorders	237.4	41.5	53.3	146.5	359.3	676.1	876.1	271.1	202.3
Antiarthritics	232.6	*6.4	26.6	95.4	354.8	829.8	1,094.0	243.7	221.0
Blood glucose regulators	207.5	*11.2	20.2	69.1	374.4	760.3	775.0	216.1	198.5
Vaccines and antisera	192.0	601.3	59.1	55.0	73.4	179.6	205.4	188.3	195.9
Diuretics	176.4	4.8	*5.3	40.4	243.8	628.2	1,134.0	207.6	143.6
Vitamins and minerals	173.5	54.3	95.4	117.0	199.6	424.7	704.6	236.4	107.6
ACE <sup>4</sup> inhibitors	173.2	*4.1	*4.0	47.7	273.5	636.1	912.8	175.6	170.8
Beta blockers	161.9	4.5	11.4	42.1	234.0	625.7	901.2	180.6	142.4
Penicillins	156.3	382.5	119.0	99.3	83.5	81.8	85.0	160.9	151.4
Adrenal corticosteroids	141.7	125.4	65.2	95.2	173.3	294.7	320.5	150.8	132.1
Anticonvulsants	131.3	38.2	69.2	138.1	193.8	214.0	239.2	154.8	106.7
Standard error of rate									
NSAID <sup>3</sup>	15.7	23.7	14.7	16.0	25.8	52.3	57.8	18.6	15.3
Antidepressants	14.3	8.2	13.2	15.9	26.7	51.3	53.5	20.0	11.7
Antiasthmatics and bronchodilators	17.7	29.5	11.5	15.0	28.1	53.7	60.4	21.1	17.4
Antihistamines	14.3	26.9	14.8	14.7	18.3	37.5	34.7	18.6	12.0
Narcotic analgesics	11.2	3.0	11.8	15.8	18.5	35.5	32.3	13.7	10.1
Non-narcotic analgesics	14.4	23.6	5.8	6.7	22.3	55.1	84.6	14.7	15.9
Antipyretics	13.8	23.8	5.6	6.4	21.1	51.6	80.3	13.8	15.4
Antihypertensive agents	15.1	1.0	4.1	6.1	30.9	64.3	102.9	18.3	15.0
Hyperlipidemia	15.5	1.4	2.0	5.4	29.4	70.5	96.7	16.6	17.4
Acid and peptic disorders	13.1	6.9	5.5	8.7	23.3	54.8	74.7	15.7	12.9
Antiarthritics	14.2	2.1	3.8	6.7	27.6	60.1	89.8	14.0	16.4
Blood glucose regulators	14.4	4.5	4.9	7.9	30.1	80.7	68.2	17.5	15.5
Vaccines and antisera	12.6	51.2	6.3	6.6	9.0	35.8	39.1	14.4	14.2
Diuretics	10.5	1.3	1.7	4.0	17.2	48.3	89.1	14.0	9.9
Vitamins and minerals	11.8	9.2	18.1	13.3	19.5	47.3	75.3	17.7	8.4
ACE <sup>4</sup> inhibitors	10.5	1.3	1.2	5.4	19.5	46.8	70.4	11.6	11.2
Beta blockers	9.6	1.1	2.8	4.1	17.5	46.4	70.1	10.7	10.4
Penicillins	8.6	27.7	10.2	7.3	7.3	14.6	13.5	9.2	9.4
Adrenal corticosteroids	7.4	10.5	6.3	8.2	13.3	29.4	32.6	8.8	8.1
Anticonvulsants	7.3	6.4	6.7	9.6	13.5	26.9	27.2	9.5	6.9

\* Figure does not meet standard of reliability or precision.

<sup>1</sup>Based on the standard drug classification used in the *National Drug Code Directory*, 1995 edition (NDC) (12). In the NDC, therapeutic classes are assigned to drugs using 21 broad categories (2-digit level), and into specific categories (4-digit level) within each broad group. In NAMCS and NHAMCS, up to three therapeutic classes can be coded for each drug. Drugs are counted in each class in which they occur.

<sup>2</sup>Estimates of the civilian noninstitutionalized population used in computing visit rates by age and sex are from special tabulations developed by the Population Division, U.S. Census Bureau, using the July 1, 2003, and July 1, 2004, sets of state population estimates and reflect Census 2000 data.

<sup>3</sup>NSAID is non-steroidal anti-inflammatory drug.

<sup>4</sup>ACE is angiotensin converting enzyme.

NOTES: Figures are annual averages.

**Table 11. Annual population rates for the top 20 specific therapeutic classes of drug mentions at ambulatory care visits, by selected patient and provider characteristics: United States, 2003–04**

Specific therapeutic class <sup>1</sup>	Total	Patient race		Expected source of payment				MSA <sup>2</sup> status	
		White	Black	Private insurance	Medicare	Medicaid	Uninsured	MSA	Not MSA
Number of occurrences per 1,000 persons <sup>3</sup>									
NSAID <sup>4</sup> . . . . .	390.3	392.1	474.1	289.7	616.8	535.9	186.0	392.2	379.4
Antidepressants . . . . .	310.9	344.5	270.0	237.7	564.8	345.9	174.1	318.9	269.0
Antiasthmatics and bronchodilators . . . . .	278.0	284.1	306.1	211.1	517.1	451.3	89.1	285.8	237.6
Antihistamines . . . . .	276.9	283.7	275.0	244.2	332.9	389.4	107.0	282.4	246.2
Narcotic analgesics . . . . .	273.5	284.1	299.4	179.5	445.5	400.3	201.8	268.7	299.2
Non-narcotic analgesics . . . . .	266.6	266.8	315.3	158.3	737.9	400.2	93.3	260.7	296.9
Antipyretics . . . . .	243.7	242.6	293.5	144.8	683.7	365.0	81.3	240.2	262.0
Antihypertensive agents . . . . .	242.5	241.2	306.7	157.0	877.9	117.1	52.3	245.1	228.6
Hyperlipidemia . . . . .	241.7	248.7	227.9	165.2	823.0	135.9	36.4	246.8	214.1
Acid and peptic disorders . . . . .	237.4	240.1	234.9	156.5	677.1	254.5	73.2	237.1	238.8
Antiarthritics . . . . .	232.6	238.4	250.2	142.3	803.1	157.1	48.8	228.6	254.3
Blood glucose regulators . . . . .	207.5	199.1	287.5	129.5	661.8	205.5	56.4	204.5	222.7
Vaccines and antisera . . . . .	192.0	195.3	175.9	158.0	162.3	443.2	42.8	206.4	117.2
Diuretics . . . . .	176.4	176.2	236.3	83.4	755.2	119.7	43.4	173.9	188.6
Vitamins and minerals . . . . .	173.5	181.8	151.3	116.7	490.2	203.1	45.4	177.1	156.3
ACE <sup>5</sup> inhibitors . . . . .	173.2	175.5	202.5	102.3	641.7	119.5	38.7	172.2	178.0
Beta blockers . . . . .	161.9	164.0	186.8	93.1	630.3	91.3	30.7	165.1	144.4
Penicillins . . . . .	156.3	155.0	164.2	137.7	101.6	312.2	67.8	159.1	141.6
Adrenal corticosteroids . . . . .	141.7	147.4	144.2	109.4	268.2	180.2	52.5	144.5	127.1
Anticonvulsants . . . . .	131.3	140.3	116.2	79.0	261.5	227.5	75.4	134.4	115.5
Standard error of rate									
NSAID <sup>4</sup> . . . . .	15.7	17.8	27.9	13.8	39.7	44.5	13.3	17.0	46.0
Antidepressants . . . . .	14.3	16.4	19.2	12.9	43.4	30.8	21.0	16.7	33.5
Antiasthmatics and bronchodilators . . . . .	17.7	19.7	29.5	17.3	47.8	37.8	8.5	20.5	28.7
Antihistamines . . . . .	14.3	16.0	21.3	14.5	26.0	35.2	8.1	16.7	30.3
Narcotic analgesics . . . . .	11.2	12.9	16.0	9.4	27.8	28.0	11.4	12.6	34.2
Non-narcotic analgesics . . . . .	14.4	15.6	26.7	10.8	51.4	40.5	8.2	15.3	43.9
Antipyretics . . . . .	13.8	14.8	27.9	10.4	48.9	38.1	7.1	14.7	41.4
Antihypertensive agents . . . . .	15.1	16.7	35.1	12.1	66.3	18.3	6.8	17.1	38.6
Hyperlipidemia . . . . .	15.5	17.3	27.4	13.1	60.8	17.5	6.2	17.7	32.1
Acid and peptic disorders . . . . .	13.1	14.7	18.7	10.8	50.2	23.9	8.2	14.9	36.1
Antiarthritics . . . . .	14.2	16.3	24.1	11.7	54.0	17.7	6.3	14.7	48.1
Blood glucose regulators . . . . .	14.4	15.4	32.4	10.8	58.4	28.8	7.5	15.1	45.9
Vaccines and antisera . . . . .	12.6	13.9	18.4	13.2	29.3	50.0	5.8	14.2	22.6
Diuretics . . . . .	10.5	11.4	22.5	6.9	54.9	13.6	6.4	11.6	30.9
Vitamins and minerals . . . . .	11.8	13.5	18.6	9.7	46.2	29.2	6.5	13.4	26.9
ACE <sup>5</sup> inhibitors . . . . .	10.5	12.0	20.1	8.5	45.5	14.9	5.7	11.4	30.0
Beta blockers . . . . .	9.6	10.7	17.8	6.7	45.5	11.3	4.0	11.1	20.4
Penicillins . . . . .	8.6	9.0	14.6	8.8	13.5	28.1	6.3	9.7	19.8
Adrenal corticosteroids . . . . .	7.4	8.4	11.7	8.2	19.9	15.7	6.1	8.7	17.4
Anticonvulsants . . . . .	7.3	8.4	11.3	5.4	20.1	22.4	10.3	8.3	17.9

<sup>1</sup>Based on the standard drug classification used in the *National Drug Code Directory*, 1995 edition (NDC) (12). In the NDC, therapeutic classes are assigned to drugs using 21 broad categories (2-digit level), and into specific categories (4-digit level) within each broad group. In NAMCS and NHAMCS, up to three therapeutic classes can be coded for each drug. Drugs are counted in each class in which they occur.

<sup>2</sup>MSA is metropolitan statistical area.

<sup>3</sup>Estimates of the civilian noninstitutionalized population used in computing rates by race are from special tabulations developed by the Population Division, U.S. Census Bureau, using the July 1, 2003, and July 1, 2004, sets of state population estimates and reflect Census 2000 data. Denominators for primary expected source of payment rates are from the 2003 and 2004 estimates of health coverage from the National Health Interview Survey, NCHS, adjusted to Census 2000-based population estimates. Denominators for metropolitan and nonmetropolitan statistical area rates are based on data from the 2003 and 2004 National Health Interview Survey, NCHS, adjusted to the U.S. Census Bureau definition of core-based statistical areas as of December 2003.

<sup>4</sup>NSAID is nonsteroidal anti-inflammatory drug.

<sup>5</sup>ACE is angiotensin converting enzyme.

NOTES: Figures are annual averages. Races other than white and black are not shown because of small sample sizes.

**Table 12. Annual percent distribution and rate of the generic-equivalents most frequently provided, prescribed, or continued at ambulatory care visits: United States, 1993–94 and 2003–04**

1993–94	Percent distribution	Number of mentions per 100 visits	Specific therapeutic class <sup>1</sup>
All drugs . . . . .	100.0	128.8	...
Amoxicillin . . . . .	3.3	4.3	Penicillins
Ibuprofen . . . . .	2.2	2.8	NSAID <sup>2</sup>
Acetaminophen . . . . .	2.1	2.7	Non-narcotic analgesics; antipyretics
Albuterol . . . . .	1.8	2.4	Antiasthmatics and bronchodilators
Furosemide . . . . .	1.3	1.6	Diuretics
Erythromycin . . . . .	1.2	1.5	Lincosamides and macrolides
Aspirin . . . . .	1.1	1.5	Non-narcotic analgesics; antiarthritics; antipyretics
Prednisone . . . . .	1.1	1.4	Adrenal corticosteroids
Estrogens . . . . .	1.1	1.4	Estrogens and progestins
Digoxin . . . . .	1.0	1.3	Cardiac glycosides
All other . . . . .	83.8	107.9	...
2003–04			
All drugs . . . . .	100.0	158.7	...
Ibuprofen . . . . .	2.3	3.6	NSAID <sup>2</sup>
Aspirin . . . . .	1.8	2.8	Non-narcotic analgesics; antiarthritics; antipyretics
Acetaminophen . . . . .	1.7	2.7	Non-narcotic analgesics; antipyretics
Atorvastatin calcium . . . . .	1.6	2.5	Hyperlipidemia
Acetaminophen with hydrocodone . . . . .	1.6	2.5	Narcotic analgesics
Albuterol . . . . .	1.5	2.5	Antiasthmatics and bronchodilators
Amoxicillin . . . . .	1.5	2.3	Penicillins
Levothyroxine . . . . .	1.2	1.9	Thyroid and antithyroid
Azithromycin . . . . .	1.1	1.7	Lincosamides and macrolides
Metoprolol . . . . .	1.1	1.7	Beta blockers
All other . . . . .	84.6	134.5	...

... Category not applicable.

<sup>1</sup>Based on the standard drug classification used in the *National Drug Code Directory*, 1995 edition (NDC) (12). In the NDC, therapeutic classes are assigned to drugs using 21 broad categories (2-digit level), and into specific categories (4-digit level) within each broad group. In NAMCS and NHAMCS, up to three therapeutic classes can be coded for each drug. Drugs are counted in each class in which they occur.

<sup>2</sup>NSAID is nonsteroidal anti-inflammatory drug.

NOTE: For this table, 2003–04 data were limited to the first five out of eight possible drug entries for each sampled visit. This was done in order to be consistent with the 1993–94 data collection, in which a maximum of five drugs could be coded.

# Appendix I

## Technical Notes

### Data collection

The National Ambulatory Medical Care Survey (NAMCS) and National Hospital Ambulatory Medical Care Survey (NHAMCS) data collection is authorized under Section 308(d) of the Public Health Service Act (42 United States Code Section 306 [242k]. Participation is voluntary.

For the 2003 NAMCS, 3,000 physicians were selected from the masterfiles of the American Medical Association and American Osteopathic Association. Of these, 2,007 were in-scope, or eligible to participate in the survey. Sampled physicians were asked to complete Patient Record forms (PRFs) for a systematic random sample of office visits occurring during a randomly assigned 1-week reporting period. A total of 1,407 physicians participated in the survey, 65 of them minimally (defined as submitting fewer than 50 percent of their expected number of PRFs). The physician response rate was 67 percent, and 25,288 PRFs were submitted. Data were collected from December 30, 2002, through December 30, 2003. It should be noted that response rates for both NAMCS and NHAMCS do not include minimal responders.

For the 2004 NAMCS, 1,961 physicians of the 3,000 sampled were in-scope; 1,372 of them participated, 103 of them at a minimal level. The physician response rate was 65 percent, and 25,286 PRFs were submitted; data collection occurred from December 29, 2003, through December 26, 2004.

NHAMCS utilizes a fixed panel of 600 hospitals. To preclude hospitals participating during the same time period each year, the sample was randomly divided into 16 subsets of approximately equal size. Each subset was assigned to 1 of 16 4-week reporting periods beginning December 2, 1991, which continue to rotate across each survey year. Therefore, the entire

sample does not participate in a given year, and each hospital is inducted approximately once every 15 months. Hospital staff were asked to complete PRFs for a systematic random sample of patient visits occurring during a randomly assigned 4-week reporting period.

The 2003 NHAMCS collected data from December 30, 2002, through December 28, 2003, and consisted of a sample of 546 hospitals, of which 443 had eligible EDs. Of these, 406 EDs participated, 1 of them minimally, for an unweighted ED participation rate of 91 percent. Of the 506 emergency service areas (ESAs) selected from the emergency departments, 475 provided data, 3 of them at a minimal level. The ESA response rate was 93 percent, and the overall ED response rate was 85 percent. In all, 40,253 ED PRFs were collected.

Of the 546 hospitals sampled in 2003, 272 had eligible outpatient departments. Of these 236 participated, 10 at a minimal level, for an unweighted OPD participation rate of 83 percent. Of the 1,087 clinics selected from the in-scope OPDs, 983 participated, 35 at a minimal level. The clinic response rate was 87 percent, for an overall OPD response rate of 73 percent. In all, 34,492 OPD PRFs were collected.

The 2004 NHAMCS collected data from December 29, 2003, through December 26, 2004, and consisted of a sample of 464 hospitals, of which 397 were in scope and had eligible EDs. Of these, 365 EDs participated, for an unweighted ED response rate of 92 percent. Of the 467 ESAs selected from the EDs, 457 provided data, 5 of them minimally, and 1 ESA saw no patients during the reporting period but was counted as a respondent. The ESA response rate was 97 percent, and the overall ED response rate was 89 percent. In all, 36,589 ED PRFs were collected.

Of the 464 hospitals sampled in 2004, 250 had eligible OPDs, of which 217 participated, for an unweighted OPD participation rate of 87 percent. Of the 1,108 clinics selected from the OPDs, 984 provided data, 29 of them at a minimal level. An additional 6 responding clinics saw no patients

during the reporting period. The clinic response rate was 87 percent, for an overall OPD response rate of 75 percent. In all, 31,783 OPD PRFs were collected.

The U.S. Census Bureau, acting as the data collection agent for both surveys, provided training to field representatives (FRs) throughout the Nation who, in turn, oversaw data collection at physician offices and hospitals. FRs contacted physicians and hospitals for induction into the surveys after NCHS mailed an advance letter notifying the providers of their selection in the survey. For the NAMCS, medical staff most often provided the information requested on the PRFs ([Appendix III](#)); however, in some cases, FRs performed data abstraction from medical records. For the NHAMCS, FR abstraction was the predominant method of data collection. Neither the patient's name nor address was collected. Confidentiality of the data collected in the survey is protected under the Privacy Act, Public Health Service Act, and Title 42 of the United States Code, Section 242m(d).

### Estimation

Estimates from the 2003 and 2004 NAMCS and NHAMCS were derived by multistage estimation procedures that produce essentially unbiased estimates. The estimation for NAMCS has four basic components: 1) inflation by reciprocals of the probabilities of selection; 2) adjustment for nonresponse; 3) a ratio adjustment to fixed totals; and 4) weight smoothing. These are described in more detail elsewhere (20,21). However, certain changes were made to the NAMCS and NHAMCS nonresponse adjustments in 2003 and 2004; these changes are described below.

Estimates from NAMCS data are typically adjusted to account for sample physicians who were in scope but did not participate in the study. This adjustment is calculated to minimize the impact of nonresponse on final estimates. The weights of visits for physicians similar to the nonrespondent physicians are inflated to account for visits represented by the nonrespondent

physicians. For this purpose, physicians were judged similar if they had the same specialty designation and practiced in the same primary sampling unit (2).

Beginning with 2003 data, the adjustment for nonresponding physicians differs from the adjustment used in prior years. Previously the adjustment accounted for nonresponse by physician specialty, geographic region, and metropolitan statistical area status. The revised nonresponse adjustment also accounts for nonresponse from physicians by practice size, as measured by number of weekly visits, and for variability in number of weeks that participating physicians saw patients during the year.

Previously, these characteristics were assumed to be the same for physicians providing patient encounter information and those not providing such information. However, research done for the first time with 2003 data showed that these two assumptions are not always true. In general, the weekly visit volume for non-PRF physicians was larger than for PRF physicians. Also, physicians who saw no patients during their sample week tended to see patients fewer weeks annually than did physicians who saw patients during their week. To minimize understatement (and in some cases, overstatement) of visits, the nonresponse adjustment factor was revised to include information on the number of weeks physicians actually practiced during a typical year and the number of visits physicians reported during a week. Both data items were collected for responding and nonresponding physicians during the induction interview starting with the 2001 survey.

The 2003 weight with the revised nonresponse adjustment increased the overall visit estimate by 12 percent over the same estimate obtained using the original weight. For this reason, 2003 and 2004 visit estimates are not comparable to visit estimates computed using the previous weighting strategy. For more information, including recommendations for researchers analyzing trend data, please see the 2003 NAMCS summary (2).

Beginning with 2004 data, changes were made to the nonresponse

adjustment factor to account for the seasonality of the reporting period. Extra weights for nonresponding physicians were shifted to responding physicians in reporting periods within the same quarter of the year. The shift in nonresponse adjustment did not significantly affect any of the overall annual estimates.

The estimation for NHAMCS has three basic components: 1) inflation by reciprocals of the sampling selection probabilities; 2) adjustment for nonresponse; and 3) a population weighting ratio adjustment. The population weighting ratio adjustment for OPD estimates was replaced by an adjustment which controls for effects of rotating hospital sample panels into and out of the sample each year. (The full NHAMCS hospital sample is partitioned into 16 panels that are rotated into the sample over 16 periods of 4 weeks each so that only 13 panels are used in any single year.) The sampling weights of some OPDs were permanently trimmed to prevent single OPDs from contributing more than 15 percent of their region's total to OPD visit estimates.

NHAMCS data were adjusted to account for two types of nonresponse. The first type occurred when a hospital refused to provide information about its ED or OPD that was publicly known to exist. In this case, the weights of visits to hospitals similar to the nonrespondent hospitals were inflated to account for visits represented by the nonrespondent hospitals. Beginning with 1998 data, hospitals were judged to be similar if they were in the same region and, except in the West, if they had the same MSA status (in an MSA vs. not in an MSA). Similarity of hospitals also required being in the same ownership control group (voluntary nonprofit compared with other). This adjustment was made separately by department type.

The second type of nonresponse occurred when a sample ESA within a respondent hospital failed to provide completed PRFs for a sample of patient visits. In the ED, the weights of visits from responding ESAs were inflated to account for visits to similar nonresponding ESAs, where ESAs were

judged to be similar if they were in the same region. Except in the West, ESA similarity also required having the same MSA status, and, in MSAs, being in the same ownership control group (voluntary nonprofit vs. other).

For the OPD, weights of visits from responding OPD clinics were inflated to account for visits to similar nonresponding OPD clinics, where OPD clinics were judged to be similar if they were in the same region, clinic type, and ownership control group (voluntary nonprofit vs. other). There were six OPD clinic types: general medicine, pediatrics, surgery, obstetrics and gynecology, alcohol and/or substance abuse, and other OPD clinic. Beginning with 1998 data, formation of groups of similar clinics also considered the MSA status of the clinic (in an MSA or not in an MSA) with the following two exceptions: in the West, MSA status was not considered; and in non-MSA clinics in the other three regions, ownership control group (voluntary nonprofit compared with other) was not considered.

Beginning with 2004 data, changes were made to the nonresponse adjustment factor to account for the seasonality of the reporting period. Extra weights for nonresponding hospital OPDs and EDs were shifted to responding OPDs and EDs in reporting periods within the same quarter of the year. The shift in nonresponse adjustment did not significantly affect any of the overall annual estimates.

## Sampling Errors

The standard error is primarily a measure of the sampling variability that occurs by chance when only a sample, rather than an entire universe, is surveyed. The standard error also reflects part of the measurement error, but does not measure any systematic biases in the data. The chances are 95 out of 100 that an estimate from the sample differs from the value that would be obtained from a complete census by less than twice the standard error.

The standard errors used in tests of significance for this report were calculated using SUDAAN software.

SUDAAN computes standard errors by using a first-order Taylor approximation of the deviation of estimates from their expected values. A description of the software and the approach it uses has been published (19). The relative standard error (RSE) 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.

It is recommended that statistical software (such as SUDAAN, SAS, SPSS, or Stata) be used to compute variances for complex survey data. When it is not feasible to use statistical software, one may calculate approximate RSEs for aggregate estimates using generalized variance curve parameters as described in the NAMCS and NHAMCS public use file documentation (20,21). These publications contain information for computing approximate RSEs for single years of NAMCS and NHAMCS data from 2003 and 2004. For estimates based on two or more years of data, or when combining data from multiple settings across one or more years, please consult the Ambulatory Care Statistics Branch at 301-458-4600 for more information about approximating RSEs using generalized variance curves.

## Nonsampling errors

As in any survey, results are subject to both sampling and nonsampling errors. Nonsampling errors include reporting and processing errors, as well as biases due to nonresponse and incomplete response. The magnitude of the nonsampling errors cannot be computed. However, these errors were kept to a minimum by procedures built into the operation of the survey. To eliminate ambiguities and encourage uniform reporting, attention was given to the phrasing of questions, terms, and definitions. Also, most data items and survey procedures were pretested. Quality control procedures and consistency and edit checks reduced errors in data coding and processing. The error rate (which includes coding and keying errors) ranged from 0.0 to 1.5 for both surveys.

Adjustments for item nonresponse include the following: Missing data for several of the items mentioned in this

report were imputed by randomly assigning a value from a PRF with similar characteristics. These items include patient's birth date (used to determine age), sex, race, and ethnicity. In the NAMCS, imputations were based on physician specialty, geographic region, and 3-digit ICD-9-CM code for primary diagnosis. In the NHAMCS, imputations for ED data were based on ED size, geographic region, immediacy with which patient should be seen, and 3-digit ICD-9-CM code for primary diagnosis. For OPD data, imputations were based on geographic region, OPD size by clinic, and 3-digit ICD-9-CM code for primary diagnosis. Beginning in 2004, the imputation for ethnicity was revised to take into account state rather than region.

## Tests of Significance

In this report, the determination of statistical inference is based on the  $X^2$  test and the two-tailed  $t$ -test. The Bonferroni inequality was used to establish the critical value for statistically significant differences (0.05 level of significance) based on the number of possible comparisons within a particular variable (or combination of variables) of interest. Terms relating to differences such as "greater than" or "less than" indicate that the difference is statistically significant. A lack of comment regarding the difference between any two estimates does not mean that the difference was tested and found to be not significant. Chi-square tests were performed using the SUDAAN routine PROC CROSSTAB, which takes into account the complex sample designs used in the NAMCS and NHAMCS.

A weighted least-squares regression analysis was used to determine the significance of the relationship between age and drug mention rates. In this modified least-squares regression, each estimate is weighted by the inverse of the standard error (22).

## Published and Flagged Estimates

Estimates are not presented unless a reasonable assumption regarding their

probability distributions is possible on the basis of the Central Limit Theorem. The Central Limit Theorem states that, given a sufficiently large sample size, the sample estimate approximates the population estimate and, upon repeated sampling, its distribution would be approximately normal.

In this report, estimates are not presented if they are based on fewer than 30 cases in the sample data; only an asterisk (\*) appears in the tables. Estimates based on 30 or more cases are asterisked only if the RSE of the estimate exceeds 30 percent.

In addition, estimates in this report have been rounded to the nearest thousand. Consequently, summed figures may not always add to totals. Rates and percentages were calculated from original unrounded figures and do not necessarily agree with percentages calculated from rounded data.

## Physician specialty groupings

Information on physician specialty is obtained from the American Medical Association (AMA) and the American Osteopathic Association (AOA) as part of the initial sampling process and is verified with the physician at the time of the induction interview. For tabulation purposes, doctors of osteopathy are grouped with doctors of medicine according to their self-designated practice specialty.

In this report, office visit data are divided into three settings, according to the self-designated practice specialty of the sampled physician. These data are presented in terms of visits to the offices of primary care physicians, surgical specialists, and medical specialists, using a classification suggested by the AMA (18). [Table I](#) shows the specialties used to define each category.

## Race and ethnicity

The 2003–04 NAMCS and NHAMCS collected race data according to standards issued by the Office of Management and Budget in 1999 to promote comparability of data among federal data sources and so that more than one race could be recorded per

**Table I. Reclassification of physician specialty for use with National Ambulatory Medical Care Survey data**

Physician specialty group	Physician specialty
Primary care specialties . . . . .	Family practice, geriatric medicine (family practice), sports medicine (family practice), general practice, internal medicine, internal medicine (pediatrics), adolescent medicine (internal medicine), geriatric medicine (internal medicine), adolescent medicine, pediatrics, pediatric sports medicine, gynecology, maternal and fetal medicine, obstetrics and gynecology, obstetrics.
Surgical specialties . . . . .	General surgery, gynecological oncology, critical care medicine (obstetrics and gynecology), hand surgery (orthopedic surgery), adult reconstructive orthopedics, foot and ankle orthopedics, musculoskeletal oncology, pediatric orthopedics, orthopedic surgery, sports medicine (orthopedic surgery), orthopedic surgery of the spine, orthopedic trauma, urology, pediatric urology, ophthalmology, pediatric ophthalmology, otology-neurotology, otology, otolaryngology, pediatric otolaryngology, abdominal surgery, cardiovascular surgery, colon and rectal surgery, cardiothoracic surgery, craniofacial surgery, critical care surgery, dermatologic surgery, facial plastic surgery, head and neck surgery, hand surgery (plastic surgery), hand surgery (surgery), critical care (neurological surgery), neurological surgery, pediatric surgery (neurology), pediatric cardiothoracic surgery, pediatric surgery, plastic surgery, surgical oncology, thoracic surgery, transplant surgery, traumatic surgery, vascular surgery.
Medical specialties . . . . .	Critical care pediatrics, developmental-behavioral pediatrics, neurodevelopmental disabilities, neonatal-perinatal medicine, pediatric allergy, pediatric cardiology, pediatric endocrinology, pediatric infectious diseases, pediatric pulmonology, medical toxicology (pediatrics), pediatric emergency medicine, pediatric gastroenterology, pediatric hematology/oncology, pediatric nephrology, pediatric rehabilitation medicine, pediatric rheumatology, reproductive endocrinology, cardiovascular diseases, dermatology, psychiatry, addiction psychiatry, child psychiatry, forensic psychiatry, psychoanalysis, geriatric psychiatry, neurology, child neurology, clinical neurophysiology, neurology (diagnostic radiology), addiction medicine, aerospace medicine, allergy, allergy and immunology, allergy and immunology/diagnostic laboratory immunology, cardiac electrophysiology, clinical genetics, clinical biochemical genetics, clinical cytogenetics, clinical molecular genetics, critical care medicine, dermatological immunology/diagnostic laboratory immunology, diabetes, emergency medicine, epidemiology, endocrinology, gastroenterology, general preventive medicine, hematology, hepatology, hematology/oncology, infectious diseases, internal medicine/diagnostic laboratory immunology, immunology, interventional cardiology, legal medicine, medical management, medical genetics, medical toxicology (emergency medicine), medical toxicology (preventive medicine), medical oncology, nephrology, nutrition, occupational medicine, osteopathic manipulative medicine, pain medicine, palliative medicine, pediatric emergency medicine (emergency medicine), pediatric/diagnostic laboratory immunology, pharmaceutical medicine, public health, public health and general preventive medicine, clinical pharmacology, physical medicine and rehabilitation, pulmonary critical care medicine, pulmonary diseases, sports medicine (emergency medicine), sports medicine (physical medicine and rehabilitation), rheumatology, spinal cord injury, sleep medicine, undersea medicine, vascular medicine.

person (23). Respondents could check multiple categories for each patient from these groups: White, Black or African American, Asian, Native Hawaiian or other Pacific Islander, and American Indian or Alaska Native. Estimates for specific race categories reflect visits where only a single race was reported. For this report, estimates for the six race categories (White, Black or African American, Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, and persons of multiple race) are presented in [Tables 2 and 3](#), while data for some of these race groups are presented in [Figure 3](#) and [Table 11](#). Data for all six race groups are not shown in [Figure 3](#) and [Table 11](#) because of small sample sizes. Because of the difference between single- and multiple-race reporting, race-specific estimates prior to 1999 are not strictly comparable with those from 1999 and subsequent years, when this method of collecting race data was implemented in NAMCS and NHAMCS. However, from 1999 to the present, only a small proportion of records had multiple races indicated.

Race and Hispanic origin are collected separately in NAMCS and NHAMCS in accordance with OMB standards. Consequently, all race categories include visits by persons of Hispanic and not Hispanic origin. Persons of Hispanic origin may be of any race.

### Population Figures and Rate Calculation

The population figures used in calculating 2003–04 visit rates by age, sex, race, ethnicity, geographic region, MSA status, and insurance status are shown in [Tables II and III](#). The estimates of age, sex, race, ethnicity, and geographic region reflect Census 2000–based postcensal estimates of the civilian noninstitutional population of the United States. They are special tabulations developed by the Population Division, U.S. Census Bureau, from the July 1, 2003, and July 1, 2004, set of state population estimates. Population estimates of MSA status and insurance status are based on data from the 2003 and 2004 National Health Interview

Surveys, National Center for Health Statistics (NCHS), which also reflect the civilian noninstitutional population of the United States. NHIS estimates for 2003 and 2004 were developed using Census 2000–based data. All population estimates shown are 2-year averages for 2003 and 2004.

### Changes to Ambulatory Care Drug Database and Therapeutic Class of Drugs

Since drug data were first collected in 1980, NCHS has provided drug characteristics, including therapeutic class of drug based on the National Drug Code Directory (12), for each drug entered on the Patient Record form (PRF). Through 2001, only a single therapeutic class was included for each drug, although drugs may have multiple therapeutic classes, and it was not necessarily the case that the class listed for a particular drug was also the same as its intended therapeutic purpose at the medical visit. Because of the complexities involved with assigning therapeutic classes for drugs, the

**Table II. Population estimates used in computing annual visit rates for the National Ambulatory Medical Care Survey and National Hospital Ambulatory Medical Care Survey, by age, race, sex, and ethnicity: United States, 2003–04**

Characteristic	All ages	Under 15 years	15–24 years	25–44 years	45–64 years	65–74 years	75 years and over
Sex		Population estimate <sup>1</sup>					
All races . . . . .	286,947,862	60,728,632	40,369,442	82,178,384	69,205,345	18,156,364	16,309,696
Male . . . . .	140,207,808	31,067,772	20,367,117	40,591,327	33,573,892	8,276,136	6,331,565
Female . . . . .	146,740,054	29,660,861	20,002,325	41,587,057	35,631,453	9,880,228	9,978,131
Race							
White . . . . .	231,403,767	46,394,226	31,477,464	65,550,953	57,805,580	15,649,327	14,526,219
Male . . . . .	114,009,790	23,790,255	16,018,126	32,926,785	28,379,706	7,211,861	5,683,059
Female . . . . .	117,393,977	22,603,971	15,459,338	32,624,168	29,425,875	8,437,466	8,843,160
Black or African American . . . . .	35,925,710	9,422,169	5,851,792	10,338,647	7,441,684	1,661,432	1,209,987
Male . . . . .	16,655,223	4,778,919	2,822,881	4,610,956	3,338,062	686,668	417,738
Female . . . . .	19,270,487	4,643,250	3,028,911	5,727,692	4,103,622	974,764	792,249
American Indian or Alaska Native . . . . .	2,751,939	709,761	498,565	820,285	551,280	105,277	66,773
Male . . . . .	1,362,563	360,245	251,991	409,156	266,089	48,539	26,545
Female . . . . .	1,389,376	349,516	246,575	411,129	285,191	56,738	40,228
Asian . . . . .	12,053,839	2,346,471	1,674,587	4,318,682	2,705,796	600,992	407,313
Male . . . . .	5,821,792	1,195,789	845,725	2,091,077	1,257,866	265,448	165,889
Female . . . . .	6,232,047	1,150,682	828,862	2,227,605	1,447,930	335,544	241,424
Native Hawaiian or other Pacific Islander . . . . .	491,382	123,083	88,609	163,095	89,004	17,338	10,254
Male . . . . .	247,233	62,948	45,180	82,661	44,025	8,216	4,205
Female . . . . .	244,149	60,136	43,429	80,435	44,979	9,122	6,049
More than one race reported . . . . .	4,321,227	1,732,924	778,426	986,723	612,003	122,000	89,152
Male . . . . .	2,111,208	879,617	383,216	470,694	288,146	55,405	34,131
Female . . . . .	2,210,019	853,307	395,211	516,029	323,857	66,595	55,021
Ethnicity							
Hispanic or Latino . . . . .	40,089,664	11,832,596	6,887,270	13,271,387	6,030,483	1,234,804	833,124
Male . . . . .	20,526,263	6,047,788	3,635,107	7,018,747	2,949,268	547,280	328,074
Female . . . . .	19,563,402	5,784,809	3,252,163	6,252,640	3,081,216	687,524	505,051
Not Hispanic or Latino . . . . .	246,858,198	48,896,036	33,482,172	68,906,997	63,174,862	16,921,560	15,476,572
Male . . . . .	119,681,546	25,019,984	16,732,010	33,572,580	30,624,625	7,728,856	6,003,492
Female . . . . .	127,176,652	23,876,052	16,750,162	35,334,417	32,550,238	9,192,704	9,473,080

<sup>1</sup>Estimates are of the civilian noninstitutionalized population and are from special tabulations developed by the Population Division, U.S. Census Bureau, using July 1, 2003, and July 1, 2004, sets of state population estimates and reflect Census 2000 data.

decision was made, beginning with the 2002 data release, to include up to three therapeutic classes for each drug entry on the PRF.

For this report, the drug characteristics updated for use with 2004 data were applied to 1993–94 data as well so that comparisons could be made between the two time periods, 1993–94 and 2003–04. As a consequence, the totals shown in [Table 6](#) exceed the actual sum of drugs provided, prescribed, or continued at ambulatory care visits since each drug may be assigned as many as three therapeutic classes.

Researchers doing trend analysis with NAMCS and NHAMCS drug data are advised to download the Drug Characteristics file, available at the

Ambulatory Health Care Data website (<http://www.cdc.gov/nchs/namcs.htm>). The characteristics from this file can be applied by matching drug codes to previous years of data to get the most accurate results when doing analysis of drug trends. A file layout and sample SAS code for applying drug characteristics from the file to previous years of public use data is also available for downloading.

The current Drug Characteristics file contains a number of updates and revisions. Over the last few years, many drugs had ingredient lists reviewed, and non active ingredients were removed. Duplicate codes caused by misspellings or other variant entries were eliminated, and incorrect codes (for example, for non medications) were removed. The

Drug Characteristics file is updated annually, and is generally available following the release of public-use files for the survey year in question.

[Tables 8, 9, and 12](#) which show ranked generic substances occurring in drugs provided, prescribed, or continued at ambulatory care visits, utilize a format for generic substances that is slightly modified from the results one would get using the current Drug Characteristics file. In the ambulatory care drug database (and the Drug Characteristics file), certain substances can appear in both generic and salt forms, such as albuterol and albuterol sulfate, or in forms such as hydrocodone and hydrocodone bitartrate. With the advent of the 2002 Drug Characteristics file, the drug database staff also



**Table III. Population estimates used in computing annual visit rates for the National Ambulatory Medical Care Survey and National Hospital Ambulatory Medical Care Survey, by geographic region, metropolitan statistical area status, and insurance status: United States, 2003–04**

Characteristic	Population estimate
Geographic region <sup>1</sup>	
Northeast . . . . .	53,663,348
Midwest . . . . .	64,541,714
South . . . . .	102,917,535
West . . . . .	65,825,265
MSA status <sup>2</sup>	
MSA . . . . .	240,805,071
Non-MSA . . . . .	46,142,791
Insurance status <sup>3</sup>	
Private insurance . . . . .	193,071,855
Medicare . . . . .	35,595,073
Medicaid . . . . .	30,284,147
Uninsured . . . . .	41,496,808

<sup>1</sup>Estimates are of the civilian noninstitutionalized population of the United States and are from special tabulations developed by the Population Division, U.S. Census Bureau, using July 1, 2003, and July 1, 2004, sets of state population estimates and reflect Census 2000 data.

<sup>2</sup>MSA is metropolitan statistical area. Estimates are based on data from the 2003 and 2004 National Health Interview Surveys, NCHS, adjusted to the U.S. Census Bureau definition of core-based statistical areas as of December 2003.

<sup>3</sup>Estimates are from the 2003 and 2004 National Health Interview Surveys, NCHS, adjusted to Census 2000–based population estimates.

formulated a list of generic codes which collapses different formulations for generic substances into aggregate categories. Therefore, in [Tables 8, 9, and 12](#), albuterol is displayed but actually reflects a combination of albuterol and albuterol sulfate in the original survey data. The aggregated format for generic substances is also available at the Ambulatory Health Care Data website. For more information, contact the Ambulatory Care Statistics Branch.

## Appendix II

### Definition of Terms

**Drug mention**—A drug mention is the physician’s entry on the Patient Record form of a pharmaceutical agent—by any route of administration—for prevention, diagnosis, or treatment. Generic as well as brand-name drugs are included, as are nonprescription and prescription drugs. Along with all new drugs, the physician also records continued medications if the patient was specifically instructed during the visit to continue the medication. Physicians may report up to eight medications per visit.

**Drug mention rate**—For this report, a drug mention rate is the number of drug mentions per 100 office visits. It allows one to compare prescribing rates while holding the number of visits constant.

**Drug visit**—A drug visit is a visit at which medication was prescribed or provided by the physician.

**Emergency department (ED)**—An ED is a hospital facility that provides unscheduled outpatient services to patients whose conditions require immediate care and that is staffed 24 hours a day. If an ED provided emergency services in different areas of the hospital, all of these areas were selected with certainty into the sample. Off-site emergency departments that are open less than 24 hours are included if staffed by the hospital’s emergency department.

**Emergency service area**—An emergency service area is the smallest administrative unit of an ED where separate patient statistics are kept. It may be located on hospital grounds or operated off site by the hospital.

**Federal control status**—Federal control status refers to the classification of a substance according to the Controlled Substances Act (CSA), Title II of the Comprehensive Drug Abuse Prevention and Control Act of 1970. CSA places all substances that are regulated under existing federal law into one of five schedules. This placement is based on the substance’s medicinal

value, harmfulness, and potential for abuse or addiction. The schedules are as follows:

- **Schedule I:** (A) The drug or other substance has a high potential for abuse. (B) The drug or other substance has no currently accepted medical use in treatment in the United States. (C) There is a lack of accepted safety for use of the drug or other substance under medical supervision.

- **Schedule II:** (A) The drug or other substance has a high potential for abuse. (B) The drug or other substance has a currently accepted use in treatment in the United States or a currently accepted medical use with severe restrictions. (C) Abuse of the drug or other substance may lead to severe psychological or physical dependence.

- **Schedule III:** (A) The drug or other substance has a potential for abuse less than the drugs or other substances on schedules I and II. (B) The drug or other substance has a currently accepted medical use in treatment in the United States. (C) Abuse of the drug or other substance may lead to moderate or low physical dependence or high psychological dependence.

- **Schedule IV:** (A) The drug or other substance has a low potential for abuse relative to the drugs or other substances in schedule III. (B) The drug or other substance has a currently accepted medical use in treatment in the United States. (C) Abuse of the drug or other substance may lead to limited physical dependence or psychological dependence relative to the drugs or other substances in schedule III.

- **Schedule V:** (A) The drug or other substance has a low potential for abuse relative to the drugs or other substances in schedule IV. (B) The drug or other substance has a currently accepted medical use in treatment in the United States. (C) Abuse of the drug or other substance may lead to limited physical dependence or psychological dependence relative to the drugs or other substances in schedule IV.

**Geographic region**—The 50 states and the District of Columbia are grouped for statistical purposes by the U.S. Census Bureau into the following four geographic regions:

<i>Region</i>	<i>States included</i>
Northeast	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania;
Midwest	Ohio, Indiana, Illinois, Michigan, 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, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas;
West	Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, and Hawaii.

**Hospital**—A hospital is eligible for inclusion in NHAMCS if it has an average length of stay for all patients of less than 30 days (short-stay) or if it has a specialty of general (medical or surgical) or children’s general. The survey excludes federal hospitals, hospital units of institutions, and hospitals with less than six beds staffed for patient use.

**Metropolitan status**—Providers are classified by their location in a metropolitan statistical area or nonmetropolitan statistical area as follows:

- **Metropolitan statistical area (MSA)**—As defined by the U.S. Office of Management and Budget, the definition of an individual MSA involves two considerations: first, a city or cities of specified population that constitute the central city and identify the county in which it is located as the central county; second, economic and social relationships with “contiguous” counties that are metropolitan in character so that the periphery of the specific

metropolitan area may be determined. MSAs may cross state lines. In New England, MSAs consist of cities and towns rather than counties.

- *Non-MSA*—Non-MSA areas are those not defined as MSAs.

*Office*—An office is the space identified by a physician as a location for his or her ambulatory practice. Offices customarily include consultation, examination, or treatment spaces that patients associate with the particular physician.

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

*Outpatient department (OPD)*—An OPD is a hospital facility where nonurgent and ambulatory medical care is provided under the supervision of a physician.

*Population rate*—The population rate is a basic measure of service utilization for event-based surveys. In this report, the numerator is the number of occurrences of therapeutic classes of drugs prescribed, provided, or continued at ambulatory care visits and the denominator is the corresponding U.S. population estimate for those who could have made the visits. The interpretation is that for every person in the population, there are  $x$  occurrences of therapeutic classes of drugs prescribed, provided, or continued at ambulatory care visits. It does not mean that  $x$  percentage of the population was prescribed drugs of particular classes at ambulatory care visits because some persons in the population make no visits while others make multiple visits within a given year, and some persons make visits at which no drugs are prescribed. The population rate is best used to compare amounts of utilization across

various subgroups of interest such as age, race, or geographic region (e.g., the rate of antihistamine drug classes for drugs reported at U.S. ambulatory care visits in 2003–04 was 339.2 per 1,000 females and 211.6 per 1,000 males).

*Prescription status*—Prescription status refers to whether a drug is available by prescription only or as an over-the-counter (nonprescription) preparation. Drugs that are available as either prescription or over-the-counter preparations (for example, ibuprofen) are classed in an “undetermined” category in NAMCS and NHAMCS.

*Primary expected source of payment*—The primary expected source of payment is the source that, to the best of the provider’s knowledge, describes how charges incurred during this visit will be paid.

- *Private insurance*—This category includes charges paid in part or in full by a private insurance company, health maintenance organization (HMO) plan, or other prepayment plan, including independent practice associations (IPAs) and preferred provider organizations (PPOs).
- *Medicare*—This category includes charges paid in part or in full by a Medicare plan, including payments made directly to the hospital as well as payments to the patient.
- *Medicaid/SCHIP*—This category includes charges paid in part or in full by Medicaid or a State Children’s Health Insurance Plan (SCHIP), including payments made directly to the hospital as well as payments to the patient. SCHIP, enacted as part of the Balanced Budget Act of 1997, gave states the opportunity to provide free or low-cost insurance coverage to low-income children not otherwise eligible to be covered by Medicaid. States began enrolling children in 1998 using Medicaid or state-specific programs separate from Medicaid, or both. By 2000, all

states had implemented their SCHIP programs.

- *Worker’s compensation*—This category includes programs designed to enable employees injured on the job to receive financial compensation regardless of fault.
- *Self-pay*—This category includes charges that are billed directly to the patient and will not be reimbursed by a third party. Self-pay does not include prepaid plans for which a copayment is charged.
- *No charge*—No fee is charged for these visits. This category does not include visits paid for as part of a total care package (e.g., postoperative visits included in a surgical fee, pregnancy visits for which a flat fee was charged, and HMO and prepaid systems).
- *Other*—This category includes other sources of payment not in the preceding categories, including charges paid under CHAMPUS, state and local governments, private charitable organizations, and other liability insurance.
- *Unknown*—This category includes cases for which none of the previous sources of payment categories was checked.

For this report, visits were designated “uninsured” if either self-pay or no charge was indicated. “Other” sources included worker’s compensation, other, and unknown.

*Visit*—For NAMCS, a visit is a direct personal exchange between an ambulatory patient and a physician or a staff member working under the physician’s supervision for the purpose of seeking care and rendering personal health services. The NAMCS sample excludes visits where medical care was not provided (e.g., visits made to drop off specimens, pay bills, make appointments, and walkouts). For NHAMCS, a visit is a direct, personal exchange between a patient and a physician or other health care provider working under the physician’s supervision for the purpose of seeking care and receiving personal health services.

# Appendix III

## Survey Instruments

Form Approved OMB No. 0605-0234 Exp. Date 04/30/2005 CDC 54 148

Form <b>NAMCS-30</b> (10-7-2004)	U.S. DEPARTMENT OF COMMERCE Economic and Statistics Administration U.S. CENSUS BUREAU OFFICE OF DATA COLLECTION ADMINISTRATION FOR THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES Centers for Disease Control and Prevention National Center for Health Statistics	
NATIONAL AMBULATORY MEDICAL CARE SURVEY 2004 PATIENT RECORD		
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 purpose of the survey and will not be disclosed or released to other persons or used for any other purpose without consent of the individual or the establishment in accordance with section 3006(c) of the Public Health Service Act (42 USC 242m).		

1. PATIENT INFORMATION		2. REASON FOR VISIT		
<b>a. Date of visit</b> Month: [ ] Day: [ ] Year: [ ]	<b>a. Ethnicity</b> <input type="checkbox"/> Hispanic or Latino <input type="checkbox"/> Not Hispanic or Latino	<b>Patient's complaint(s), symptom(s), or other reason(s) for this visit - Use patient's own words.</b> (1) Most important:  (2) Other:  (3) Other:		
<b>b. ZIP code</b> [ ] [ ] [ ] [ ] [ ] [ ]	<b>1. Race - Mark (X) one or more.</b> <input type="checkbox"/> White <input type="checkbox"/> Native Hawaiian/ Other Pacific Islander <input type="checkbox"/> Black/African American <input type="checkbox"/> American Indian/ Alaska Native <input type="checkbox"/> Asian			
<b>c. Date of birth</b> Month: [ ] Day: [ ] Year: [ ]	<b>2. Does patient use tobacco?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown			
<b>d. Sex</b> <input type="checkbox"/> Female <input type="checkbox"/> Male	<b>3. Primary expected source of payment for this visit - Mark (X) one.</b> <input type="checkbox"/> Private insurance <input type="checkbox"/> Self-pay <input type="checkbox"/> Medicare <input type="checkbox"/> No charge/Charity <input type="checkbox"/> Medicaid/SCHIP <input type="checkbox"/> Other <input type="checkbox"/> Worker's Compensation <input type="checkbox"/> Unknown			
3. CONTINUITY OF CARE				
<b>a. Are you the patient's primary care physician?</b> <input type="checkbox"/> Yes - SKIP to item 3b. <input type="checkbox"/> No <input type="checkbox"/> Unknown Was patient referred for this visit? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	<b>b. Have you or anyone in your practice seen this patient before?</b> <input type="checkbox"/> Yes, established patient - How many past visits in the last 12 months? Exclude this visit. <input type="checkbox"/> None <input type="checkbox"/> 1-2 <input type="checkbox"/> 3-5 <input type="checkbox"/> 6+ <input type="checkbox"/> Unknown <input type="checkbox"/> No, new patient	<b>c. Major reason for this visit</b> <input type="checkbox"/> Acute problem (<3 mos. onset) <input type="checkbox"/> Chronic problem, routine <input type="checkbox"/> Chronic problem, flare-up <input type="checkbox"/> Pre-/Post-surgery <input type="checkbox"/> Preventive care (e.g., routine prenatal, general exam, well-baby, screening, insurance exam)	<b>Episode of care</b> <input type="checkbox"/> Initial visit for problem <input type="checkbox"/> Follow-up visit for problem <input type="checkbox"/> Unknown	<b>d. Do other physicians share patient's care for this problem or diagnosis?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
4. INJURY/POISONING/ADVERSE EFFECT		5. PHYSICIAN'S DIAGNOSIS FOR THIS VISIT		
<b>a. Is this visit related to an injury, or poisoning, or adverse effect of medical treatment?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No - SKIP to item 5.	<b>b. Cause of injury, poisoning, or adverse effect - Describe the event, intensity, and events that preceded the injury, poisoning, or adverse effect (e.g., allergy to penicillin, see string, pedestrian hit by car driven by drunk driver, walk against wet floor by restaurant, heroin overdose, infected shunt, etc.)</b> _____ _____	As specifically as possible, list diagnoses related to the visit including chronic conditions. (1) Primary diagnosis:  (2) Other:  (3) Other:		
6. DIAGNOSTIC/SCREENING SERVICES				
Mark (X) all ordered or provided at this visit.				
<input type="checkbox"/> NONE <input type="checkbox"/> General medical exam <input type="checkbox"/> Other exam - Specify site (e.g., breast, rectal) _____ <input type="checkbox"/> Temperature Specify _____	<input type="checkbox"/> Blood pressure - Specify _____ <input type="checkbox"/> Urinalysis (UX) <input type="checkbox"/> Urine culture <input type="checkbox"/> PAP test <input type="checkbox"/> Cervical/Urethral culture <input type="checkbox"/> PSA (prostate specific antigen) <input type="checkbox"/> Hematocrit/Hemoglobin	<input type="checkbox"/> CBC (complete blood count) <input type="checkbox"/> Lipids/Cholesterol <input type="checkbox"/> Glucose <input type="checkbox"/> HgA1C (glycohemoglobin) <input type="checkbox"/> Electrolytes <input type="checkbox"/> Other blood test _____ <input type="checkbox"/> EKG/ECG (electrocardiogram) <input type="checkbox"/> Throat culture/Rapid strep test <input type="checkbox"/> Stool culture <input type="checkbox"/> X-ray	<input type="checkbox"/> Mammography <input type="checkbox"/> Other imaging _____ <input type="checkbox"/> Scope procedure (e.g., colonoscopy) - Specify _____ <input type="checkbox"/> Other type of test or service - Specify _____	
7. COUNSELING/EDUCATION/THERAPY		8. SURGICAL PROCEDURES		
Mark (X) all ordered or provided at this visit. Exclude medications.		List up to 2 surgical procedures ordered, scheduled, or performed at this visit.		
<input type="checkbox"/> NONE <input type="checkbox"/> Asthma education <input type="checkbox"/> Diet/Nutrition <input type="checkbox"/> Exercise <input type="checkbox"/> Growth/Development <input type="checkbox"/> Mental health/Stress management	<input type="checkbox"/> Physiotherapy <input type="checkbox"/> Psychotherapy <input type="checkbox"/> Tobacco use/exposure <input type="checkbox"/> Weight reduction <input type="checkbox"/> Other	<input type="checkbox"/> NONE (1) SKIP to item 9. <input type="checkbox"/> _____ <input type="checkbox"/> _____	<input type="checkbox"/> Ordered/Scheduled <input type="checkbox"/> Performed  <input type="checkbox"/> Ordered/Scheduled <input type="checkbox"/> Performed	
9. MEDICATIONS & INJECTIONS		10. VISIT DISPOSITION	11. PROVIDERS SEEN	
<b>a. What is the total number of drugs prescribed or provided at this visit?</b> _____ Number of drugs Include Rx and OTC medications, immunizations, allergy shots, anesthetics, and dietary supplements that were ordered, supplied, administered or consumed during the visit.		Mark (X) all that apply. <input type="checkbox"/> No follow-up planned <input type="checkbox"/> Return if needed, PRN <input type="checkbox"/> Refer to other physician <input type="checkbox"/> Return at specified time <input type="checkbox"/> Telephone follow-up planned <input type="checkbox"/> Admit to hospital <input type="checkbox"/> Other	Mark (X) all that apply. <input type="checkbox"/> Physician <input type="checkbox"/> RN <input type="checkbox"/> LPN <input type="checkbox"/> Medical/Nursing assistant <input type="checkbox"/> Nurse practitioner/Midwife <input type="checkbox"/> Physician assistant <input type="checkbox"/> Medical technician/technologist <input type="checkbox"/> Other	
<b>b. List up to 8 medication/injection names below.</b> (1) _____ (5) _____ (2) _____ (6) _____ (3) _____ (7) _____ (4) _____ (8) _____		12. TIME SPENT WITH PHYSICIAN		
		Minutes: _____ Enter zero if no physician seen.		

FORM **NHAMCS-100(OPD)**  
04-02-2005

U.S. DEPARTMENT OF COMMERCE  
Economic and Statistics Administration  
U.S. CENSUS BUREAU  
47101 42-1073 COLLECTION SYSTEM FOR THE  
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Centers for Disease Control and Prevention  
National Center for Health Statistics

**NATIONAL HOSPITAL AMBULATORY MEDICAL CARE SURVEY  
2004 OUTPATIENT DEPARTMENT PATIENT RECORD**

**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 purpose of the survey and will not be disclosed or released to other persons or used for any other purpose without consent of the individual or the establishment in accordance with section 306(c) of the Public Health Service Act (42 USC 342m).

NHAMCS-100(OPD) 04-02-2005

1. PATIENT INFORMATION		2. REASON FOR VISIT	
<b>a. Date of visit</b> Month Day Year _____		<b>2. REASON FOR VISIT</b> <b>Patient's complaint(s), symptom(s), or other reason(s) for this visit - Use patient's own words.</b> (1) Most important: _____ (2) Other: _____ (3) Other: _____	
<b>b. ZIP code</b> _____			
<b>c. Date of birth</b> Month Day Year _____			
<b>d. Sex</b> <input type="checkbox"/> Female <input type="checkbox"/> Male			
<b>e. Ethnicity</b> <input type="checkbox"/> Hispanic or Latino <input type="checkbox"/> Not Hispanic or Latino			
<b>f. Race - Mark (X) one or more.</b> <input type="checkbox"/> White <input type="checkbox"/> Native Hawaiian/ Other Pacific Islander <input type="checkbox"/> Black/African American <input type="checkbox"/> American Indian/ Alaska Native <input type="checkbox"/> Asian			
<b>g. Does patient use tobacco?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown			
<b>h. Primary expected source of payment for this visit - Mark (X) one.</b> <input type="checkbox"/> Private insurance <input type="checkbox"/> Self-pay <input type="checkbox"/> Medicare <input type="checkbox"/> No charge/Charity <input type="checkbox"/> Medicaid/SHIP <input type="checkbox"/> Other <input type="checkbox"/> Worker's Compensation <input type="checkbox"/> Unknown			
3. CONTINUITY OF CARE			
<b>a. Are you the patient's primary care physician?</b> <input type="checkbox"/> Yes - SHIP to Item 2b. <input type="checkbox"/> No <input type="checkbox"/> Unknown Was patient referred for this visit? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		<b>c. Major reason for this visit</b> <input type="checkbox"/> Acute problem (<3 mos. onset) <input type="checkbox"/> Chronic problem, routine <input type="checkbox"/> Chronic problem, flare-up <input type="checkbox"/> Pre-/Post-surgery <input type="checkbox"/> Preventive care (e.g., routine prenatal, general exam, well-baby, screening, insurance exam)	
<b>b. Has the patient been seen in this clinic before?</b> <input type="checkbox"/> Yes, established patient - How many past visits in the last 12 months? (Exclude this visit.) 1. None 2. 1-2 3. 3-5 4. 6+ <input type="checkbox"/> Unknown <input type="checkbox"/> No, new patient		<b>d. Do other physicians share patient's care for this problem or diagnosis?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
<b>4. INJURY/POISONING/ADVERSE EFFECT</b> <b>a. Is this visit related to an injury, or poisoning, or adverse effect of medical treatment?</b> <input type="checkbox"/> Yes -> SHIP to Item 5. <input type="checkbox"/> No -> SHIP to Item 5.		<b>5. PHYSICIAN'S DIAGNOSIS FOR THIS VISIT</b> As specifically as possible, list diagnoses related to this visit including chronic conditions. (1) Primary diagnosis: _____ (2) Other: _____ (3) Other: _____	
<b>b. Cause of injury, poisoning, or adverse effect - Describe the place, intentionality, and events that preceded the injury, poisoning, or adverse event (e.g., allergy to penicillin, bee sting, pedestrian hit by car driven by drunk driver, wife beaten with knife by husband, hot oven/broiler, infected wound, etc.).</b> _____			
6. DIAGNOSTIC/SCREENING SERVICES			
Mark (X) all ordered or provided at this visit.			
<input type="checkbox"/> NONE <input type="checkbox"/> General medical exam <input type="checkbox"/> Other exam - Specify site (e.g., breast, rectal) _____ <input type="checkbox"/> Temperature Specify _____		<input type="checkbox"/> Blood pressure - Specify _____ <input type="checkbox"/> Urinalysis (UA) <input type="checkbox"/> Urine culture <input type="checkbox"/> PAP test <input type="checkbox"/> Cervical/Urethral culture <input type="checkbox"/> PSA (prostate specific antigen) <input type="checkbox"/> Hematocrit/Hemoglobin	
		<input type="checkbox"/> CBC (complete blood count) <input type="checkbox"/> Lipids/Cholesterol <input type="checkbox"/> Glucose <input type="checkbox"/> HgA1C (glycohemoglobin) <input type="checkbox"/> Electrolytes <input type="checkbox"/> Other blood test <input type="checkbox"/> EKG/ECG (electrocardiogram) <input type="checkbox"/> Throat culture/Rapid strep test <input type="checkbox"/> Stool culture <input type="checkbox"/> X-ray	
		<input type="checkbox"/> Mammography <input type="checkbox"/> Other imaging <input type="checkbox"/> Scope procedure (e.g., colonoscopy) - Specify _____ <input type="checkbox"/> Other type of test or service - Specify _____	
7. COUNSELING/EDUCATION/THERAPY		8. SURGICAL PROCEDURES	
Mark (X) all ordered or provided at this visit. Exclude medications. <input type="checkbox"/> NONE <input type="checkbox"/> Asthma education <input type="checkbox"/> Diet/Nutrition <input type="checkbox"/> Exercise <input type="checkbox"/> Growth/Development <input type="checkbox"/> Mental health/Stress management <input type="checkbox"/> Physiotherapy <input type="checkbox"/> Psychotherapy <input type="checkbox"/> Tobacco use/exposure <input type="checkbox"/> Weight reduction <input type="checkbox"/> Other		List up to 2 surgical procedures ordered, scheduled, or performed at this visit. <input type="checkbox"/> NONE (1) SHIP to Item 8. (2) _____ <input type="checkbox"/> Ordered/Scheduled <input type="checkbox"/> Performed <input type="checkbox"/> Ordered/Scheduled <input type="checkbox"/> Performed	
9. MEDICATIONS & INJECTIONS		10. VISIT DISPOSITION	
<b>a. What is the total number of drugs prescribed or provided at this visit?</b> _____ Number of drugs Include Rx and OTC medications, immunizations, allergy shots, anesthetics, and dietary supplements that were ordered, supplied, administered or continued during this visit.		Mark (X) all that apply. <input type="checkbox"/> No follow-up planned <input type="checkbox"/> Return if needed, PRN <input type="checkbox"/> Refer to other physician <input type="checkbox"/> Return at specified time <input type="checkbox"/> Telephone follow-up planned <input type="checkbox"/> Admit to hospital <input type="checkbox"/> Other	
<b>b. List up to 8 medication/injection names below.</b> (1) _____ (5) _____ (2) _____ (6) _____ (3) _____ (7) _____ (4) _____ (8) _____		Mark (X) all that apply. <input type="checkbox"/> Staff physician <input type="checkbox"/> Resident/Intern <input type="checkbox"/> Other physician <input type="checkbox"/> RN <input type="checkbox"/> LPN <input type="checkbox"/> Medical/Nursing assistant <input type="checkbox"/> Nurse practitioner/Midwife <input type="checkbox"/> Physician assistant <input type="checkbox"/> Medical technician/technologist <input type="checkbox"/> Other	

Form <b>NHACMS-100(ED)</b> (8-11-2003)	U.S. DEPARTMENT OF COMMERCE Economic and Statistics Administration U.S. CENSUS BUREAU 47701 44 Street, Suite 2000, Silver Spring, MD U.S. Department of Health and Human Services Centers for Disease Control and Prevention National Center for Health Statistics
NATIONAL HOSPITAL AMBULATORY MEDICAL CARE SURVEY 2004 EMERGENCY DEPARTMENT PATIENT RECORD	
<b>Assurance of confidentiality</b> - 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 purpose of the survey and will not be disclosed or released to other persons or used for any other purpose without consent of the individual or the establishment in accordance with section 308(b) of the Public Health Service Act (42 USC 242b).	

NHACMS-100(ED) (8-11-2003)

1. PATIENT INFORMATION			
<b>a. Date of visit</b> Month: <input type="text"/> Day: <input type="text"/> Year: <input type="text"/>	<b>b. ZIP code</b> <input type="text"/>	<b>c. Date of birth</b> Month: <input type="text"/> Day: <input type="text"/> Year: <input type="text"/>	<b>d. Time of day</b> (1) Arrival: <input type="text"/> : <input type="text"/> : <input type="text"/> AM <input type="checkbox"/> PM <input type="checkbox"/> Military (2) Time seen by physician: <input type="text"/> : <input type="text"/> : <input type="text"/> AM <input type="checkbox"/> PM <input type="checkbox"/> Military <input type="checkbox"/> Not seen by physician (3) Discharge: <input type="text"/> : <input type="text"/> : <input type="text"/> AM <input type="checkbox"/> PM <input type="checkbox"/> Military Mark (X) if discharge is more than 24 hours from arrival: <input type="checkbox"/>
<b>e. Does patient reside in a nursing home or other institution?</b> 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Unknown	<b>f. Sex</b> 1 <input type="checkbox"/> Female 2 <input type="checkbox"/> Male	<b>g. Ethnicity</b> 1 <input type="checkbox"/> Hispanic or Latino 2 <input type="checkbox"/> Not Hispanic or Latino	
<b>h. Mode of arrival - Mark (X) one</b> 1 <input type="checkbox"/> Ambulance (air/ground) 2 <input type="checkbox"/> Public service (nonambulance, e.g., police, social services) 3 <input type="checkbox"/> Walk-in 4 <input type="checkbox"/> Unknown	<b>i. Race - Mark (X) one or more</b> 1 <input type="checkbox"/> White 2 <input type="checkbox"/> Black/African American 3 <input type="checkbox"/> Asian 4 <input type="checkbox"/> Native Hawaiian/Other Pacific Islander 5 <input type="checkbox"/> American Indian/Alaska Native	<b>j. Primary expected source of payment for this visit - Mark (X) one.</b> 1 <input type="checkbox"/> Private insurance 2 <input type="checkbox"/> Medicare 3 <input type="checkbox"/> Medicaid/SCHIP 4 <input type="checkbox"/> Worker's Compensation 5 <input type="checkbox"/> Self-pay 6 <input type="checkbox"/> No charge/Charity 7 <input type="checkbox"/> Other 8 <input type="checkbox"/> Unknown	
2. TRIAGE			
<b>a. Initial vital signs</b> (1) Temperature: <input type="text"/> (2) Pulse: <input type="text"/> beats per minute	<b>(3) Blood pressure:</b> <input type="text"/> / <input type="text"/> <b>(4) Oriented X/3:</b> 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Unknown	<b>b. Immediacy with which patient should be seen</b> 1 <input type="checkbox"/> Unknown/No triage 2 <input type="checkbox"/> Less than 15 minutes 3 <input type="checkbox"/> 15-60 minutes 4 <input type="checkbox"/> >1 hour-2 hours 5 <input type="checkbox"/> >2 hours-24 hours	<b>c. Presenting level of pain</b> 1 <input type="checkbox"/> Unknown 2 <input type="checkbox"/> None 3 <input type="checkbox"/> Mild 4 <input type="checkbox"/> Moderate 5 <input type="checkbox"/> Severe
3. REASON FOR VISIT		4. CONTINUITY OF CARE	
<b>a. Patient's complaint(s), symptom(s), or other reason(s) for this visit</b> - Use patient's own words. (1) _____ (2) _____ (3) _____		<b>b. Is this visit related to alcohol use?</b> 1 <input type="checkbox"/> Yes, patient's use 2 <input type="checkbox"/> Yes, other person's use 3 <input type="checkbox"/> No 4 <input type="checkbox"/> Unknown	<b>c. Is this visit work related?</b> 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Unknown
		<b>a. Has patient been seen in this ED within the last 72 hours?</b> 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Unknown	<b>b. Episode of care</b> 1 <input type="checkbox"/> Initial visit for problem 2 <input type="checkbox"/> Follow-up visit for problem 3 <input type="checkbox"/> Unknown
5. INJURY/POISONING/ADVERSE EFFECT			
<b>a. Is this visit related to an injury, or poisoning, or adverse effect of medical treatment?</b> 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No - (SAP to Item 6.)	<b>b. Is this injury/poisoning intentional?</b> 1 <input type="checkbox"/> Yes, self-inflicted 2 <input type="checkbox"/> Yes, assault 3 <input type="checkbox"/> No, unintentional 4 <input type="checkbox"/> Unknown	<b>c. Cause of injury, poisoning, or adverse effect</b> - Describe the place and events that preceded the injury, poisoning, or adverse event (e.g., allergy to penicillin, bee sting, pedestrian hit by car driven by drunk driver, wife beaten with bats by husband, neuron overdose, infected shunt, etc.). _____ _____	
6. PHYSICIAN'S DIAGNOSIS FOR THIS VISIT			
As specifically as possible, list diagnoses related to this visit including chronic conditions. (1) Primary diagnosis: _____ (2) Other: _____ (3) Other: _____			
7. DIAGNOSTIC/SCREENING SERVICES		8. PROCEDURES	
Mark (X) all ordered or provided at this visit. <input type="checkbox"/> NONE <b>Examinations/Tests:</b> 1 <input type="checkbox"/> Medical screening exam 2 <input type="checkbox"/> Mental status exam 3 <input type="checkbox"/> EKG/ECG (electrocardiogram) 4 <input type="checkbox"/> Cardiac monitor 5 <input type="checkbox"/> EEG (electroencephalogram) 6 <input type="checkbox"/> Pulse oximetry 7 <input type="checkbox"/> Pregnancy test 8 <input type="checkbox"/> Urinalysis (UA) <b>Imaging:</b> 9 <input type="checkbox"/> Chest X-ray 10 <input type="checkbox"/> Extremity X-ray 11 <input type="checkbox"/> Other X-ray 12 <input type="checkbox"/> Ultrasound 13 <input type="checkbox"/> MRI/CAT scan 14 <input type="checkbox"/> Other imaging		Mark (X) all provided at the visit. Exclude medications. <input type="checkbox"/> NONE 1 <input type="checkbox"/> Bladder catheter 2 <input type="checkbox"/> CPR 3 <input type="checkbox"/> Endotracheal intubation 4 <input type="checkbox"/> Eye/ENT care 5 <input type="checkbox"/> IV fluids 6 <input type="checkbox"/> NG tube/gastric lavage 7 <input type="checkbox"/> OB/GYN care 8 <input type="checkbox"/> Orthopedic care 9 <input type="checkbox"/> Thrombolytic therapy 10 <input type="checkbox"/> Wound care 11 <input type="checkbox"/> Other	
		<b>a. What is the total number of drugs prescribed or provided at this visit?</b> -> Include Rx and OTC medications, immunizations, allergy shots, anesthetics, and dietary supplements that were ordered, supplied, administered or continued during the visit. <b>b. List up to 8 medication/injection names below.</b> (1) _____ (2) _____ (3) _____ (4) _____ (5) _____ (6) _____ (7) _____ (8) _____	
9. MEDICATIONS & INJECTIONS			
10. VISIT DISPOSITION			
Mark (X) all that apply. 1 <input type="checkbox"/> No follow-up planned 2 <input type="checkbox"/> Return if needed, PRN/appointment 3 <input type="checkbox"/> Return to referring physician 4 <input type="checkbox"/> Refer to other physician/clinic for FU 5 <input type="checkbox"/> Refer out from triage without treatment 6 <input type="checkbox"/> Refer to alcohol or drug treatment program 7 <input type="checkbox"/> Return to non-physician treatment or support service 8 <input type="checkbox"/> Left before being seen 9 <input type="checkbox"/> Left AMA 10 <input type="checkbox"/> Admit to ED for observation 11 <input type="checkbox"/> Admit to hospital 12 <input type="checkbox"/> Admit to ICU/CCU 13 <input type="checkbox"/> Transfer to other facility 14 <input type="checkbox"/> DOA/died in ED 15 <input type="checkbox"/> Other			
11. PROVIDERS SEEN			
Mark (X) all that apply. 1 <input type="checkbox"/> Staff physician 2 <input type="checkbox"/> Resident/Intern 3 <input type="checkbox"/> Other physician 4 <input type="checkbox"/> RN 5 <input type="checkbox"/> LPN 6 <input type="checkbox"/> Nurse practitioner 7 <input type="checkbox"/> Physician assistant 8 <input type="checkbox"/> EMT 9 <input type="checkbox"/> Other technician 10 <input type="checkbox"/> Other			

# Vital and Health Statistics series descriptions

- SERIES 1. **Programs and Collection Procedures**—These reports describe the data collection programs of the National Center for Health Statistics. They include descriptions of the methods used to collect and process the data, definitions, and other material necessary for understanding the data.
- SERIES 2. **Data Evaluation and Methods Research**—These reports are studies of new statistical methods and include analytical techniques, objective evaluations of reliability of collected data, and contributions to statistical theory. These studies also include experimental tests of new survey methods and comparisons of U.S. methodology with those of other countries.
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- SERIES 4. **Documents and Committee Reports**—These are final reports of major committees concerned with vital and health statistics and documents such as recommended model vital registration laws and revised birth and death certificates.
- SERIES 5. **International Vital and Health Statistics Reports**—These reports are analytical or descriptive reports that compare U.S. vital and health statistics with those of other countries or present other international data of relevance to the health statistics system of the United States.
- SERIES 6. **Cognition and Survey Measurement**—These reports are from the National Laboratory for Collaborative Research in Cognition and Survey Measurement. They use methods of cognitive science to design, evaluate, and test survey instruments.
- SERIES 10. **Data From the National Health Interview Survey**—These reports contain statistics on illness; unintentional injuries; disability; use of hospital, medical, and other health services; and a wide range of special current health topics covering many aspects of health behaviors, health status, and health care utilization. They are based on data collected in a continuing national household interview survey.
- SERIES 11. **Data From the National Health Examination Survey, the National Health and Nutrition Examination Surveys, and the Hispanic Health and Nutrition Examination Survey**—Data from direct examination, testing, and measurement on representative samples of the civilian noninstitutionalized population provide the basis for (1) medically defined total prevalence of specific diseases or conditions in the United States and the distributions of the population with respect to physical, physiological, and psychological characteristics, and (2) analyses of trends and relationships among various measurements and between survey periods.
- SERIES 12. **Data From the Institutionalized Population Surveys**—Discontinued in 1975. Reports from these surveys are included in Series 13.
- SERIES 13. **Data From the National Health Care Survey**—These reports contain statistics on health resources and the public's use of health care resources including ambulatory, hospital, and long-term care services based on data collected directly from health care providers and provider records.
- SERIES 14. **Data on Health Resources: Manpower and Facilities**—Discontinued in 1990. Reports on the numbers, geographic distribution, and characteristics of health resources are now included in Series 13.
- SERIES 15. **Data From Special Surveys**—These reports contain statistics on health and health-related topics collected in special surveys that are not part of the continuing data systems of the National Center for Health Statistics.
- SERIES 16. **Compilations of Advance Data From Vital and Health Statistics**—Advance Data Reports provide early release of information from the National Center for Health Statistics' health and demographic surveys. They are compiled in the order in which they are published. Some of these releases may be followed by detailed reports in Series 10–13.
- SERIES 20. **Data on Mortality**—These reports contain statistics on mortality that are not included in regular, annual, or monthly reports. Special analyses by cause of death, age, other demographic variables, and geographic and trend analyses are included.
- SERIES 21. **Data on Natality, Marriage, and Divorce**—These reports contain statistics on natality, marriage, and divorce that are not included in regular, annual, or monthly reports. Special analyses by health and demographic variables and geographic and trend analyses are included.
- SERIES 22. **Data From the National Mortality and Natality Surveys**—Discontinued in 1975. Reports from these sample surveys, based on vital records, are now published in Series 20 or 21.
- SERIES 23. **Data From the National Survey of Family Growth**—These reports contain statistics on factors that affect birth rates, including contraception, infertility, cohabitation, marriage, divorce, and remarriage; adoption; use of medical care for family planning and infertility; and related maternal and infant health topics. These statistics are based on national surveys of women of childbearing age.
- SERIES 24. **Compilations of Data on Natality, Mortality, Marriage, and Divorce**—These include advance reports of births, deaths, marriages, and divorces based on final data from the National Vital Statistics System that were published as *National Vital Statistics Reports* (NVSR), formerly *Monthly Vital Statistics Report*. These reports provide highlights and summaries of detailed data subsequently published in *Vital Statistics of the United States*. Other special reports published here provide selected findings based on final data from the National Vital Statistics System and may be followed by detailed reports in Series 20 or 21.

For answers to questions about this report or for a list of reports published in these series, contact:

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**U.S. DEPARTMENT OF  
HEALTH & HUMAN SERVICES**

Centers for Disease Control and Prevention  
National Center for Health Statistics  
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