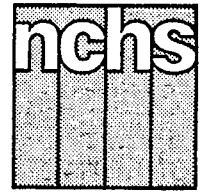


# Advance Data



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

## Prevalence of Major Digestive Disorders and Bowel Symptoms, 1989

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### Introduction

Digestive diseases have a substantial impact on health and health services in the United States. In 1988, about 3.3 million people were hospitalized for digestive diseases and over 5.3 million digestive system procedures were performed on hospitalized patients (1). In 1989, there were an estimated 26.7 million first-listed visits for digestive diseases to office-based physicians (2).

Despite the frequency of digestive diseases, there are no special population-based registries for nonmalignant digestive diseases in the United States nor are noninfectious digestive diseases reported to State health departments. The surveys of the National Center for Health Statistics (NCHS) provide timely data on the impact and trends in chronic digestive diseases. The National Health Interview Survey (NHIS) is particularly useful for several reasons. First, questions regarding digestive conditions have been asked annually for more than 30 years, which allows for an analysis of long-term trends. Second, less common conditions and

small subpopulations can also be examined by combining multiple years. Data are routinely gathered on common conditions, such as constipation and hemorrhoids, that may not require frequent medical attention and therefore are not adequately covered by surveys of medical care utilization. Finally, NHIS is the only continuing source of information regarding disability and activity restriction due to digestive diseases.

The ongoing NHIS is limited in its ability to provide accurate information on specific diseases. The survey utilizes a chronic condition checklist and relies on respondents' reports for all family members. The National Institute of Diabetes and Digestive and Kidney Diseases collaborated with NCHS to develop a special questionnaire aimed at collecting more complete and accurate information on digestive disorders. Renewed interest in the epidemiology of these diseases also prompted the development of this questionnaire (3-11). The NHIS questionnaire on digestive disorders

was administered in 1989, along with two other surveys that provide information relevant to the identification of digestive conditions—the National Ambulatory Medical Care Survey and the third National Health and Nutrition Examination Survey.

The data collection method for the 1989 NHIS digestive disorders questionnaire, which is described in more detail later, improves the accuracy of the reporting of chronic digestive conditions. It may also allow for improved case selection for analytic study of these diseases. More complex analyses of the data from the digestive disorders questionnaire are possible, and further exploration of the data is encouraged.

### Data and methods

This report is based on data from the 1989 National Health Interview Survey, which is a continuous cross-sectional survey of the resident household population of the United States. Every year since 1957, basic demographic and health information



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has been collected from a nationally representative sample of household members in face-to-face interviews using a standard questionnaire. Additional health topics are added to the basic questionnaire. In 1989 a special questionnaire on digestive disorders was administered to one randomly selected member of each sample family in an interview household who was 18 years of age and over. Approximately 42,000 individuals were interviewed.

The NHIS digestive disorders (NHIS-DD) questionnaire consists of three sections. In the first section, respondents were asked about specific digestive conditions: gallbladder trouble, ulcers, diverticulitis, hemorrhoids, and colon conditions. Functional colon conditions include diagnostic synonyms such as irritable bowel syndrome, functional bowel, spastic colon, and irritable colon. Information on the timing of onset, medical diagnosis, and treatment of these specific disorders was also obtained. In the second section of the questionnaire, data were collected on the location and severity of abdominal pain and the diagnosis of associated conditions. The purpose of this section was to examine the prevalence of the symptoms of irritable bowel syndrome and other diseases of the lower digestive tract. The final section contains information on normative bowel habits and identifies episodes of common bowel complaints such as diarrhea and constipation. Data derived from the first and third sections of this survey are presented in this report. A facsimile of the digestive disorders questionnaire is provided in "Current Estimates From the National Health Interview Survey: United States, 1989" (12).

The "Technical notes" section that appears at the end of this report contains more information on the survey design, sampling procedure, and the NHIS questionnaire document. Methods for constructing approximate standard errors and tests of significance for estimates and percents presented in this report also appear in these notes. The prevalence

estimates of the major digestive disorders from the NHIS-DD are compared with those routinely generated from the basic NHIS questionnaire. The reasons why these estimates may differ are also discussed. Unless otherwise noted, the comparisons made within the text are significant at the .05 level.

Tables 1 through 5 contain data on the number and percent of persons with selected major chronic digestive disorders. These figures are reported for those with the condition in the last 12 months and those who have ever had the condition by age, sex, race, Hispanic origin, and poverty status. In table 6 the prevalence of chronic bowel complaints, such as diarrhea and constipation, and the use of medical care are presented. For the purposes of this report, those persons who report having constipation or diarrhea most or all of the time are classified as having a chronic bowel complaint.

## Results

### Prevalence and onset

Of the major digestive disorders reported in the NHIS-DD, hemorrhoids were the most commonly reported in the last 12 months and for those ever reporting digestive conditions. In the case of hemorrhoids, the question of whether the respondent ever had the condition is worded slightly differently from that for other conditions. Respondents were asked if a doctor ever diagnosed hemorrhoids, whereas for other conditions respondents were asked if they ever had the condition with no mention of its medical diagnosis. About 23 million adults had hemorrhoids (12.8 percent of the noninstitutionalized population) in the last year, and 36 million (20.3 percent) reported ever having had hemorrhoids. Functional colon conditions and ulcers were also fairly prevalent. About 7 million people had functional colon conditions (3.7 percent of the population), and about 6 million people (3.5 percent) had ulcers in the 12-month period

preceding the interview date. An estimated 19 million people (10.5 percent) reported ever having had ulcers, and over 10 million (5.9 percent) reported ever having had functional colon conditions.

Gallstones and gallbladder trouble and diverticulitis affect fewer people, although about 3 million people had each of these conditions in the last 12 months. About 14 million reported ever having had gallstones or gallbladder trouble, and about 5 million reported ever having had diverticulitis. In the 12 months before the interview date, about 5.3 million people had chronic constipation (about 3.0 percent of the adult noninstitutionalized population) and about 2.1 million adults had chronic diarrhea (1.2 percent).

Among those who reported having had a condition in the last 12 months, there are two major subgroups—those for whom the condition is ongoing and those for whom the condition was first identified in the last 12 months. An estimated 1 million gallstones or gallbladder cases were first diagnosed in the last 12 months. This represents about 39 percent of those conditions reported in that time period. About 20 percent of those reporting ulcers, or an estimated 1.3 million, were first diagnosed in the previous year. An estimated 1.3 million persons developed functional colon conditions in the last 12 months (18.6 percent of persons with functional colon conditions during that time period). In the same period, 17.9 percent of those persons with diverticulitis (an estimated 476,000 persons) were first diagnosed with the condition.

Two of the conditions reported in the NHIS-DD represent composites of numerous related conditions. The ulcer group consists of gastric (stomach) ulcer and duodenal ulcers. Ulcers of either site may more generally be referred to as peptic ulcers. Respondents could also report other (excluding skin) ulcers without further specification. For those reporting ever having ulcers, the most common diagnosis was a duodenal ulcer (32.4 percent of the cases),

followed by peptic (27.0 percent), gastric (19.2 percent), stomach (12.1 percent), and other or not told (9.3 percent).

The conditions grouped together under the rubric "functional colon conditions" tend to be synonyms rather than distinctly diagnosed conditions. Among those persons with functional colon conditions in the last 12 months, the most frequently reported diagnosis was spastic colon (39.2 percent), followed by irritable bowel syndrome (30.6 percent), irritable colon (14.8 percent), other (14.0 percent), and functional bowel (1.4 percent). The pattern of diagnosis is similar among those who report ever having the condition.

### Sociodemographic differences

As with most chronic conditions, increasing age is highly related to the lifetime prevalence of chronic digestive conditions. The age gradient is especially steep for gallbladder trouble, ulcers, and diverticulitis. Among men, the percent who ever had gallstones or gallbladder trouble nearly doubles from 6.2 percent of noninstitutionalized adults aged 45–64 to 12.0 percent for those 65 and over. Ulcers exhibit a similar pattern for men. About 14 percent of men aged 45–64 report ever having ulcers. That figure increases to 20.4 percent for men 65 and over. Diverticulitis is also much more prevalent among elderly men and women. Nearly 10 percent of the population 65 and over ever had diverticulitis compared with 2.8 percent of the population of all ages. Among women, 4.8 percent of those 45–64 report ever having diverticulitis. This figure increases to 11.3 percent for those aged 65 and over.

In general, women are much more likely than men to report ever having had digestive disorders and bowel complaints, with the exception of ulcers. See figure 1 for an illustration of differences by age and sex. These data support the clinical impression and other survey data that women have these conditions more often than men (13–16). For nearly

all of the digestive disorders and bowel complaints on which data were collected, the percent of adult women affected is nearly twice that of men. About 11 percent of women 18 years of age and over ever had gallstones or gallbladder trouble in contrast to 4.0 percent of men. Over 8 percent of women reported ever having had functional colon conditions, whereas only 3.4 percent of men reported having had these conditions. A little over 1 percent of men reported being constipated most or all the time in the last 12 months in contrast to nearly 5 percent of women.

Current digestive conditions are especially characteristic of elderly women and, in fact, may be understated, because elderly women—especially those who are functionally dependent—are more likely to be institutionalized (17). Of the noninstitutionalized female population 65 years of age and over, 3.6 percent had gallstones or gallbladder trouble, 5.7 percent had diverticulitis, 5.9 percent had functional colon condition, 15.2 percent had hemorrhoids, and 6.4 percent were chronically constipated in the last 12 months. These percents are all significantly higher than males in the same age groups and some are significantly higher than younger women.

The prevalence of chronic digestive disorders is not consistently related to race, ethnicity, or poverty. In general, however, smaller proportions of black persons and Hispanics reported digestive disorders; although within many of the age categories, the estimates for black persons are not statistically reliable. Several explanations have been offered for why black persons, in particular, report fewer chronic conditions (18). First, the black and Hispanic populations are younger and, therefore, less likely to have chronic conditions. Among the statistically reliable comparisons that can be made for all age groups, however, a smaller proportion of black persons are affected by these digestive conditions. Second, a medical diagnosis is often necessary

to identify these conditions and given that black persons have fewer physician contacts than white persons, these conditions may remain undiagnosed (18).

One consistent difference is the higher prevalence of chronic constipation among black persons, Hispanics, and the poor. Among black persons, 4.3 percent of the adult population were chronically constipated in the last 12 months compared with 2.8 percent of white persons. Among Hispanics, 4.7 percent were constipated compared with 2.9 percent of non-Hispanics; and among the poor, 5.4 percent compared with 3.5 percent of the nonpoor. The poor were also more likely to have had chronic diarrhea (1.9 percent of the poor compared with 1.1 percent of the nonpoor).

### Medical diagnosis

In general, most digestive disorders are medically diagnosed and some form of diagnostic test is performed when applicable. Over 95 percent of persons who reported ever having gallbladder trouble, ulcers, or diverticulitis were medically diagnosed. Of those conditions, gallstones or gallbladder trouble was most likely to have been identified by a diagnostic test (88.3 percent of persons who ever had condition). Approximately three-fourths of those who reported ulcers and diverticulitis also had diagnostic tests performed. Persons who ever had functional colon conditions are slightly less likely to have had them medically diagnosed (88 percent). Hemorrhoids are medically attended in fewer cases. Of those who ever report having hemorrhoids, only 21 percent ever had hemorrhoid surgery.

Medical diagnosis and testing vary slightly by age, race, ethnicity, poverty status, and sex. The notable comparisons, although not statistically significant, are in the use of diagnostic tests that may reflect differences in the adequacy of health care coverage (19). Slightly less than 70 percent of black persons who ever had an ulcer had an upper GI series,

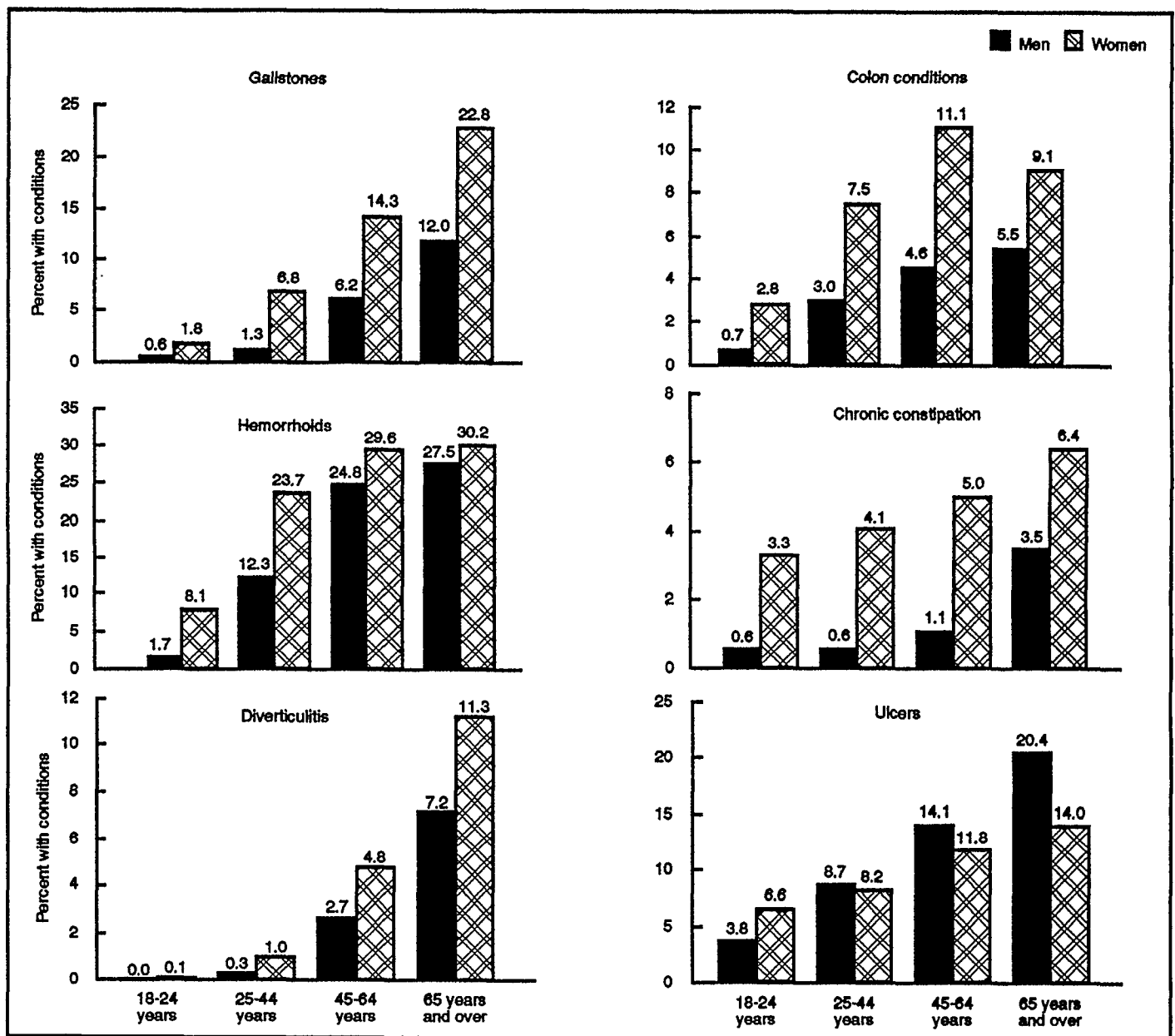


Figure 1. Percent of persons 18 years of age and over who ever had selected digestive disorders by age and sex: United States, 1989

upper endoscopy, or upper gastroscopy performed as compared with 73 percent of white persons. For Hispanics with ulcers, 66.4 percent had these procedures compared with 73 percent of non-Hispanics. The comparison is similar and significant for the poor and nonpoor. Finally, although women are much more likely to report ever having hemorrhoids (24.2 percent of women compared with 15.9 percent of men), they are significantly less likely to have had hemorrhoid surgery. Of women who ever had hemorrhoids, 16.7 percent had surgery in contrast to 28.6 percent of men.

There is variation in the use of over-the-counter remedies for constipation by sociodemographic groups, which parallels the prevalence of chronic constipation. Over 14 percent of women 65 years of age and over used stool softeners or laxatives in the 30 days prior to the interview. This compares with about 9 percent of men in the same age group. Elderly black persons (19.6 percent) also were more likely to have used laxatives recently than elderly white persons (11.4 percent). The high rates of laxative use among the general population (an estimated 10 million persons used these

remedies in the last 30 days) reported in this study may also be a reflection of the way in which the question was worded. Respondents were asked about a range of products, including standard laxatives and also bulk and fiber laxatives. Although they were specifically asked about whether the products were used to improve bowel function, respondents may also be using these remedies for other reasons. Laxative use is also congruent with occasional constipation as well as chronic constipation. An estimated 31 million persons reported being constipated some, most, or all of the time in the last 12 months.

## Comments

Digestive disorders and gastrointestinal and bowel complaints are often difficult to identify and diagnose (20,21). The NHIS-DD questionnaire provides an integrated data source to identify not only the specific conditions noted by the respondent but also the sources and nature of abdominal pain as well as a detailed description of bowel function. The abdominal pain and bowel function portions of the questionnaire, which measure symptoms, have proven effective in other small-scale surveys in identifying and discriminating among a variety of gastrointestinal disorders (22). The information contained in these two portions of the NHIS-DD will be useful for both future scientific analysis and for the improvement of the identification and treatment of digestive disorders (22).

In addition, further analysis can be done on how digestive conditions affect general health. The NHIS-DD is linked to the basic NHIS, which includes information on self-assessed health status, limitation of activity, reduced activity days, and medical care utilization. Other sociodemographic characteristics of the sample individuals and their families are also available. In addition the NHIS-DD can be linked to other special health topic questionnaires in 1989, a list of which appears in the technical notes.

A public use data file based on the 1989 digestive disorders supplement is available. Information regarding the purchase of the public use tape and documentation may be obtained by writing to the Systems and Programming Branch, Division of Health Interview Statistics, 6525 Belcrest Road, Hyattsville, MD 20782.

## References

- Graves EJ. National Hospital Discharge Survey: Annual Summary, 1988. National Center for Health Statistics. *Vital Health Stat* 13(106).
- DeLozier JE, Gagnon RO. 1989 Summary: National Ambulatory Medical Care Survey. Advance data from vital and health statistics; no 203. Hyattsville, Maryland: National Center for Health Statistics. 1991.
- Maurer KR, Everhart JE, Ezzati TM, Johannes RS, Knowler WC, Larson DL, Sanders R, Shawker TH, Roth HP. Prevalence of gallstone disease in Hispanic populations in the United States. *Gastroenterology* 96:487-92. 1989.
- Sichieri R, Everhart JE, Roth HP. Low incidence of hospitalization with gallbladder disease among blacks in the United States. *Am J Epidemiol* 131:826-35.
- Johanson JF, Sonnenberg A. The prevalence of hemorrhoids and chronic constipation: an epidemiological study. *Gastroenterology* 98:380-6. 1990.
- Everhart JE, Go VLW, Johannes RS, FitzSimmons SC, Roth HP, White LR. A longitudinal survey of self-reported bowel habits in the United States. *Dig Dis Sci* 34:1153-62. 1990.
- Sandler RS, Jordon MC, Shelton BJ. Demographic and dietary determinants of constipation in the U.S. population. *Am J Public Health* 80:185-9. 1990.
- Everhart JE, Renault PF. Irritable bowel syndrome in office practice in the United States. *Gastroenterology* 100:998-1005. 1991.
- Talley NJ, Phillips SF, Twomey BB, Zinsmeister AR, Melton LJ. Relationship among personality and symptoms in nonulcer dyspepsia and the irritable bowel syndrome. *Gastroenterology* 99:327-33. 1990.
- Sonnenberg A. Changes in physician visits for gastric and duodenal ulcer in the United States during 1958-84 as shown by National Disease and Therapeutic Index (NDTI). *Dig Dis Sci* 32:1-7. 1987.
- Kurta JH, Coroby ED. Current peptic ulcer trends. An epidemiological profile. *J Clin Gastroenterol* 10:259-68. 1988.
- Adams PF, Benson V. Current estimates from the National Health Interview Survey, 1989. National Center for Health Statistics. *Vital Health Stat* 10(176). 1990.
- Gee MI, Grace MG, Wensel RH, Sherbaniuk RW, Thompson AB. Nutritional status of gastroenterology outpatients: comparison of inflammatory bowel disease with functional disorders. *J Am Diet Assoc* 85(12):1591-9. 1985.
- Johanson JF, Sonnenberg A, Koch TR. Clinical epidemiology of chronic constipation. *J Clin Gastroenterol* 11(5):525-36. 1989.
- Prior A, Wilson K, Whorwell PJ, Faragher EB. Irritable bowel syndrome in the gynecological clinic: survey of 798 new referrals. *Dig Dis Sci* 1820-4. 1989.
- Sandler RS. Epidemiology of irritable bowel syndrome in the United States. *Gastroenterology* 99(2):409-15. 1990.
- Hing E, Bloom B. Long-term care for the functionally dependent elderly. National Center for Health Statistics. *Vital Health Stat* 13(104). 1990.
- Ries, P. Health of black and white Americans, 1985-87. National Center for Health Statistics. *Vital Health Stat* 10(171). 1989.
- Ries, P. Characteristics of persons with and without health care coverage: United States, 1989. Advance data from vital and health statistics; no 201. Hyattsville, Maryland: National Center for Health Statistics. 1991.
- Thompson WG, Heaton KW. Functional bowel disorders in apparently healthy people. *Gastroenterology* 79:283-8. 1980.
- Manning AP, Thompson WG, Heaton KW, Morris AF. Towards positive diagnosis of the irritable bowel. *Br Med J* 2:653-4. 1978.
- Talley MJ, Phillips SF, Melton LJ, Wiltgen C, Zinsmeister AR. A patient questionnaire to identify bowel disease. *Ann Intern Med* 111:671-4. 1989.

**Table 1. Number and percent of persons 18 years of age and over with gallstones, gallbladder trouble, medically diagnosed conditions, and diagnostic procedures performed, by selected sociodemographic characteristics: United States, 1989**

Characteristic	All persons 18 years and over <sup>1</sup>	Gallstones or gallbladder trouble in last 12 months	Ever had gallstones or gallbladder trouble	Condition was medically diagnosed	Diagnostic procedures <sup>2</sup> performed	Gallstones or gallbladder trouble in last 12 months	Ever had gallstones or gallbladder trouble	Condition was medically diagnosed	Diagnostic procedures performed
Number of persons in thousands									
Percent of persons 18 years and over									
Percent of persons who ever had condition									
<b>Age</b>									
18 years and over . . . . .	179,529	2,691	13,702	13,411	12,095	1.5	7.6	97.9	88.3
18-24 years . . . . .	25,400	162	303	272	213	0.6	1.2	89.8	70.3
25-44 years . . . . .	78,796	798	3,257	3,156	2,825	1.0	4.1	96.9	86.7
45-64 years . . . . .	46,114	872	4,790	4,701	4,406	1.9	10.4	98.1	92.0
65 years and over . . . . .	29,219	859	5,352	5,282	4,651	2.9	18.3	98.7	86.9
<b>Sex and age</b>									
Male, 18 years and over . . . .	85,257	757	3,399	3,303	2,962	0.9	4.0	97.2	87.1
18-24 years . . . . .	12,396	*57	70	*43	*35	*0.5	0.6	*61.4	*0.0
25-44 years . . . . .	38,648	145	516	481	401	0.4	1.3	93.2	77.7
45-64 years . . . . .	22,070	311	1,358	1,341	1,226	1.4	6.2	98.7	90.3
65 years and over . . . . .	12,143	244	1,455	1,437	1,300	2.0	12.0	98.8	89.3
<b>Female</b>									
Female, 18 years and over . . .	94,272	1,934	10,303	10,108	9,134	2.1	10.9	98.1	88.7
18-24 years . . . . .	13,005	105	234	229	179	0.8	1.8	97.9	76.5
25-44 years . . . . .	40,147	652	2,741	2,674	2,424	1.6	6.8	97.6	88.4
45-64 years . . . . .	24,042	561	3,431	3,360	3,180	2.3	14.3	97.9	92.7
65 years and over . . . . .	17,076	615	3,896	3,845	3,350	3.6	22.8	98.7	86.0
<b>Race and age</b>									
White, 18 years and over . . . .	154,178	2,435	12,571	12,295	11,128	1.6	8.2	97.8	88.5
18-24 years . . . . .	20,956	146	255	224	165	0.7	1.2	87.8	64.7
25-44 years . . . . .	66,637	675	2,845	2,746	2,469	1.0	4.3	96.5	86.8
45-64 years . . . . .	40,139	791	4,391	4,310	4,071	2.0	10.9	98.2	92.7
65 years and over . . . . .	26,445	823	5,080	5,015	4,424	3.1	19.2	98.7	87.1
Black, 18 years and over . . . .	19,932	208	917	908	780	1.0	4.6	99.0	85.1
18-24 years . . . . .	3,562	*16	*48	*48	*48	*0.4	*1.3	*100.0	*0.0
25-44 years . . . . .	9,204	100	341	338	294	1.1	3.7	99.1	86.2
45-64 years . . . . .	4,712	*63	294	291	244	*1.3	6.2	99.0	83.0
65 years and over . . . . .	2,454	*29	234	230	194	*1.2	9.5	98.3	82.9
<b>Hispanic origin</b>									
Hispanic . . . . .	13,029	321	869	850	714	2.5	6.7	97.8	82.2
Non-Hispanic . . . . .	166,500	2,370	12,833	12,560	11,381	1.4	7.7	97.9	88.7
<b>Poverty status</b>									
Below poverty threshold . . . .	16,225	354	1,543	1,512	1,322	2.2	9.5	98.0	85.7
At or above poverty threshold . . . . .	149,290	2,116	10,845	10,618	9,651	1.4	7.3	97.9	89.0

<sup>1</sup>Includes persons of all races and unknown poverty status.

<sup>2</sup>Diagnostic tests include x-ray, sonogram or ultrasound, and upper G.I. series.

NOTE: Estimates of less than 68,000 and percents based on these estimates have 30 percent or more relative standard error; see technical notes for description of the calculation of standard errors.

**Table 2. Number and percent of persons 18 years of age and over with ulcers, medically diagnosed conditions, and diagnostic procedures performed, by selected sociodemographic characteristics: United States, 1989**

Characteristic	All persons 18 years and over <sup>1</sup>	Ulcers in last 12 months	Ever had ulcers	Condition was medically diagnosed	Diagnostic procedures performed <sup>2</sup>	Ulcers		Condition was medically diagnosed	Diagnostic procedures performed
						in last 12 months	Ever had ulcers		
Age	Number of persons in thousands					Percent of persons 18 years and over		Percent of persons who ever had condition	
18 years and over . . . . .	179,529	6,295	18,849	18,102	13,660	3.5	10.5	96.0	72.5
18-24 years . . . . .	25,400	700	1,336	1,177	557	2.8	5.3	88.1	41.7
25-44 years . . . . .	78,796	2,391	6,689	6,327	4,480	3.0	8.5	94.6	67.0
45-64 years . . . . .	46,114	1,861	5,959	5,837	4,863	4.0	12.9	98.0	81.6
65 years and over . . . . .	29,219	1,343	4,864	4,761	3,760	4.6	16.6	97.9	77.3
Sex and age									
Male, 18 years and over . . . . .	85,257	2,754	9,442	8,969	6,800	3.2	11.1	95.0	72.0
18-24 years . . . . .	12,396	266	476	374	144	2.1	3.8	78.6	30.3
25-44 years . . . . .	38,648	1,120	3,378	3,147	2,236	2.9	8.7	93.2	66.2
45-64 years . . . . .	22,070	796	3,111	3,038	2,492	3.6	14.1	97.7	80.1
65 years and over . . . . .	12,143	572	2,477	2,410	1,928	4.7	20.4	97.3	77.8
Female, 18 years and over . . . . .	94,272	3,541	9,407	9,133	6,860	3.8	10.0	97.1	72.9
18-24 years . . . . .	13,005	434	861	803	413	3.3	6.6	93.3	48.0
25-44 years . . . . .	40,147	1,271	3,311	3,180	2,245	3.2	8.2	96.0	67.8
45-64 years . . . . .	24,044	1,064	2,848	2,770	2,371	4.4	11.8	97.3	83.3
65 years and over . . . . .	17,076	771	2,387	2,351	1,831	4.5	14.0	98.5	76.7
Race and age									
White, 18 years and over . . . . .	154,178	5,376	16,735	16,106	12,217	3.5	10.9	96.2	73.0
18-24 years . . . . .	20,956	630	1,198	102	512	3.0	5.7	8.5	42.7
25-44 years . . . . .	66,637	1,996	5,795	5,493	3,844	3.0	8.7	94.8	66.3
45-64 years . . . . .	40,139	1,556	5,226	5,135	4,352	3.9	13.0	98.3	83.3
65 years and over . . . . .	26,445	1,194	4,516	4,416	3,508	4.5	17.1	97.8	77.7
Black, 18 years and over . . . . .	19,932	763	1,766	1,682	1,230	3.8	8.9	95.2	69.6
18-24 years . . . . .	3,562	*42	106	87	*36	*1.2	3.0	82.1	*34.0
25-44 years . . . . .	9,204	322	720	686	542	3.5	7.8	95.3	75.3
45-64 years . . . . .	4,712	252	604	576	409	5.3	12.8	95.4	67.7
65 years and over . . . . .	2,454	147	336	333	244	6.0	13.7	99.1	72.6
Hispanic origin									
Hispanic . . . . .	13,029	397	909	854	604	3.0	7.0	93.9	66.4
Non-Hispanic . . . . .	166,500	5,897	17,940	17,249	13,056	3.5	10.8	96.1	72.8
Poverty status									
Below poverty threshold . . . . .	16,225	922	1,910	1,781	1,257	5.7	11.8	93.2	65.8
At or above poverty threshold . . . . .	149,290	4,769	15,296	14,714	11,174	3.2	10.2	96.2	73.1

<sup>1</sup>Includes persons of all races and those of unknown poverty status.<sup>2</sup>Diagnostic tests include upper G.I. series or upper endoscopy or gastroscopy.

NOTE: Estimates of less than 68,000 and percents based on these estimates have 30 percent or more relative standard error; see technical notes for description of the calculation of standard errors.

**Table 3. Number and percent of persons 18 years of age and over with diverticulitis, medically diagnosed conditions, and diagnostic procedures performed, by selected sociodemographic characteristics: United States, 1989**

Characteristic	All persons 18 years and over <sup>1</sup>	Diverticulitis in last 12 months	Ever had diverticulitis	Condition was medically diagnosed	Diagnostic procedures performed <sup>2</sup>	Diverticulitis in last 12 months	Ever had diverticulitis	Condition was medically diagnosed	Diagnostic procedures performed
	Number of persons in thousands					Percent of persons 18 years and over		Percent of persons who ever had condition	
<b>Age</b>									
18 years and over . . . . .	179,529	2,662	5,093	4,898	3,791	1.5	2.8	96.2	74.4
18-24 years . . . . .	25,400	*2	*17	*17	*2	*0.0	*0.1	*100.0	*11.8
25-44 years . . . . .	78,796	259	520	446	311	0.3	0.7	85.8	59.8
45-64 years . . . . .	46,114	966	1,750	1,698	1,375	2.1	3.8	97.0	78.6
65 years and over . . . . .	29,219	1,435	2,808	2,738	2,103	4.9	9.6	97.5	74.9
<b>Sex and age</b>									
Male, 18 years and over . . . . .	85,257	828	1,615	1,569	1,199	1.0	1.9	97.2	74.2
18-24 years . . . . .	12,396	*0	*5	*5	*0	*0.0	*0.0	*100.0	*0.0
25-44 years . . . . .	38,648	74	134	110	93	0.2	0.3	82.1	69.4
45-64 years . . . . .	22,070	295	598	578	442	1.3	2.7	96.7	73.9
65 years and over . . . . .	12,143	459	878	876	664	3.8	7.2	99.8	75.6
Female, 18 years and over . . . . .	94,272	1,834	3,479	3,329	2,592	1.9	3.7	95.7	74.5
18-24 years . . . . .	13,005	*2	*12	*12	*2	*0.0	*0.1	*100.0	*16.7
25-44 years . . . . .	40,147	185	385	336	218	0.5	1.0	87.3	56.6
45-64 years . . . . .	24,044	671	1,152	1,120	933	2.8	4.8	97.2	81.0
65 years and over . . . . .	17,076	976	1,930	1,862	1,439	5.7	11.3	96.5	74.6
<b>Race and age</b>									
White, 18 years and over . . . . .	154,178	2,570	4,927	4,734	3,671	1.7	3.2	96.1	74.5
18-24 years . . . . .	20,956	*2	*17	*17	*2	*0.0	*0.1	*100.0	*11.8
25-44 years . . . . .	66,637	249	486	412	280	0.4	0.7	84.8	57.6
45-64 years . . . . .	40,139	913	1,680	1,631	1,329	2.3	4.2	97.1	79.1
65 years and over . . . . .	26,445	1,406	2,744	2,674	2,060	5.3	10.4	97.4	75.1
Black, 18 years and over . . . . .	19,932	69	140	138	94	0.3	0.7	98.6	67.1
18-24 years . . . . .	3,562	*0	*0	*0	*0	*0.0	*0.0	*0.0	*0.0
25-44 years . . . . .	9,204	*2	*25	*25	*23	*0.0	*0.3	*100.0	*92.0
45-64 years . . . . .	4,712	*39	*55	*53	*32	*0.8	*1.2	*96.4	*58.2
65 years and over . . . . .	2,454	*29	*60	*60	*39	*1.2	*2.4	*100.0	*65.0
<b>Hispanic origin</b>									
Hispanic . . . . .	13,029	*56	111	96	*65	*0.4	0.9	86.5	*58.6
Non-Hispanic . . . . .	166,500	2,606	4,982	4,802	3,726	1.6	3.0	96.4	74.8
<b>Poverty status</b>									
Below poverty threshold . . . . .	16,225	135	310	284	223	0.8	1.9	91.6	71.9
At or above poverty threshold . . . . .	149,290	2,292	4,266	4,115	3,173	1.5	2.9	96.5	74.4

<sup>1</sup>Includes persons of all races and those of unknown poverty status.

<sup>2</sup>Diagnostic tests include barium enema and overnight hospitalization.

NOTE: Estimates of less than 68,000 and percents based on these estimates have 30 percent or more relative standard error; see technical notes for description of the calculation of standard errors.



Table 4. Number and percent of persons 18 years of age and over with functional colon conditions and medically diagnosed conditions, by selected sociodemographic characteristics: United States, 1989

Characteristic	All persons 18 years and over <sup>1</sup>	Colon conditions in last 12 months <sup>2</sup>	Ever had colon conditions	Condition was medically diagnosed	Colon conditions in last 12 months	Ever had colon conditions	Condition was medically diagnosed
Age							
	Number of persons in thousands				Percent of persons 18 years and over		Percent of persons who ever had condition
18 years and over . . . . .	179,529	6,719	10,532	9,271	3.7	5.9	88.0
18-24 years . . . . .	25,400	348	457	406	1.4	1.8	88.8
25-44 years . . . . .	78,796	2,641	4,164	3,638	3.4	5.3	87.4
45-64 years . . . . .	46,114	2,408	3,686	3,244	5.2	8.0	88.0
65 years and over . . . . .	29,219	1,322	2,225	1,983	4.5	7.6	89.1
Sex and age							
Male, 18 years and over . . . . .	85,257	1,688	2,934	2,568	2.0	3.4	87.5
18-24 years . . . . .	12,396	*62	88	*60	*0.5	0.7	*68.2
25-44 years . . . . .	38,648	684	1,160	1,020	1.8	3.0	87.9
45-64 years . . . . .	22,070	620	1,013	899	2.8	4.6	88.7
65 years and over . . . . .	12,143	321	672	589	2.6	5.5	87.6
Female, 18 years and over . . . . .	94,272	5,031	7,598	6,704	5.3	8.1	88.2
18-24 years . . . . .	13,005	286	369	346	2.2	2.8	93.8
25-44 years . . . . .	40,147	1,957	3,004	2,619	4.9	7.5	87.2
45-64 years . . . . .	24,044	1,788	2,672	2,345	7.4	11.1	87.8
65 years and over . . . . .	17,076	1,001	1,553	1,395	5.9	9.1	89.8
Race and age							
White, 18 years and over . . . . .	154,178	6,411	10,070	8,881	4.2	6.5	88.2
18-24 years . . . . .	20,956	338	444	397	1.6	2.1	89.4
25-44 years . . . . .	66,637	2,452	3,898	3,420	3.7	5.8	87.7
45-64 years . . . . .	40,139	2,330	3,544	3,118	5.8	8.8	88.0
65 years and over . . . . .	26,445	1,290	2,184	1,947	4.9	8.3	89.1
Black, 18 years and over . . . . .	19,932	240	355	318	1.2	1.8	89.6
18-24 years . . . . .	3,562	*10	*13	*9	*0.3	*0.4	*69.2
25-44 years . . . . .	9,204	143	194	176	1.6	2.1	90.7
45-64 years . . . . .	4,712	*64	116	105	*1.4	2.5	90.5
65 years and over . . . . .	2,454	*23	*32	*27	*0.9	*1.3	*84.4
Hispanic origin							
Hispanic . . . . .	13,029	260	350	304	2.0	2.7	86.9
Non-Hispanic . . . . .	166,500	6,459	10,182	8,967	3.9	6.1	88.1
Poverty status							
Below poverty threshold . . . . .	16,225	488	616	556	3.0	3.8	90.3
At or above poverty threshold . . . . .	149,290	5,869	9,339	8,198	3.9	6.3	87.8

<sup>1</sup>Includes persons of all races and those of unknown poverty status.<sup>2</sup>Includes spastic colon, functional bowel, irritable colon, and irritable bowel syndrome.

NOTE: Estimates of less than 68,000 and percents based on these estimates have 30 percent or more relative standard error; see technical notes for description of the calculation of standard errors.

Table 5. Number and percent of persons 18 years of age and over with hemorrhoids and medically diagnosed conditions, by selected sociodemographic characteristics: United States, 1989

Characteristic	All persons 18 years and over <sup>1</sup>	Hemorrhoids in last 12 months	Doctor ever diagnosed hemorrhoids	Ever had hemorrhoid surgery	Hemorrhoids in last 12 months	Doctor ever diagnosed hemorrhoids	Ever had hemorrhoid surgery
	Number of persons in thousands				Percent of persons 18 years and over		Percent of persons who ever had hemorrhoids
<b>Age</b>							
18 years and over . . . . .	179,529	23,016	36,373	7,688	12.8	20.3	21.1
18-24 years . . . . .	25,400	1,481	1,262	73	5.8	5.0	5.8
25-44 years . . . . .	78,796	10,291	14,034	1,382	13.1	17.8	9.8
45-64 years . . . . .	46,114	7,143	12,578	3,059	15.5	27.3	24.3
65 years and over . . . . .	29,219	4,101	8,498	3,175	14.0	29.1	37.4
<b>Sex and age</b>							
Male, 18 years and over . . . . .	85,257	9,173	13,528	3,872	10.8	15.9	28.6
18-24 years . . . . .	12,396	429	213	*32	3.5	1.7	*15.0
25-44 years . . . . .	36,648	3,981	4,506	748	10.9	12.3	16.6
45-64 years . . . . .	22,070	3,250	5,466	1,650	14.7	24.8	30.2
65 years and over . . . . .	12,143	1,512	3,343	1,442	12.5	27.5	43.1
Female, 18 years and over . . . . .	94,272	13,843	22,844	3,816	14.7	24.2	16.7
18-24 years . . . . .	13,005	1,052	1,049	*40	8.1	8.1	*3.8
25-44 years . . . . .	40,148	6,310	9,528	633	15.7	23.7	6.6
45-64 years . . . . .	24,044	3,892	7,112	1,409	16.2	29.6	19.8
65 years and over . . . . .	17,076	2,589	5,155	1,733	15.2	30.2	33.6
<b>Race and age</b>							
White, 18 years and over . . . . .	154,178	20,955	33,184	7,122	13.6	21.5	21.5
18-24 years . . . . .	20,956	1,244	1,053	*55	5.9	5.0	*5.2
25-44 years . . . . .	66,637	9,250	12,526	1,200	13.9	18.8	9.6
45-64 years . . . . .	40,139	6,611	11,529	2,820	16.5	28.7	24.5
65 years and over . . . . .	26,445	3,895	8,076	3,047	14.7	30.5	37.7
Black, 18 years and over . . . . .	19,932	1,682	2,740	470	8.4	13.7	17.2
18-24 years . . . . .	3,562	199	195	*8	5.6	5.5	*4.1
25-44 years . . . . .	9,204	854	1,255	147	9.3	13.6	11.7
45-64 years . . . . .	4,712	448	922	201	9.5	19.6	21.8
65 years and over . . . . .	2,454	180	367	114	7.3	15.0	31.1
<b>Hispanic origin</b>							
Hispanic . . . . .	13,029	1,132	1,598	240	8.7	12.3	15.0
Non-Hispanic . . . . .	166,500	21,883	34,774	7,448	13.1	20.9	21.4
<b>Poverty status</b>							
Below poverty threshold . . . . .	16,225	2,024	2,834	512	12.5	17.5	18.1
At or above poverty threshold . . . . .	149,290	19,686	31,138	6,483	13.2	20.9	20.8

<sup>1</sup>Includes persons of all races and those of unknown poverty status.

NOTE: Estimates of less than 68,000 and percents based on these estimates have 30 percent or more relative standard error; see technical notes for description of the calculation of standard errors.

Table 6. Number of persons 18 years of age and over reporting bowel complaints and selected treatments, by selected sociodemographic characteristics: United States, 1989

Characteristic	All persons 18 years and over <sup>1</sup>	Chronic constipation in last 12 months <sup>2</sup>	Used stool softner or laxative in last 30 days	Chronic diarrhea in last 12 months <sup>2</sup>	Saw a doctor for diarrhea in last 12 months	Used stool				
						Chronic constipation in last 12 months	softner or laxative in last 30 days	Chronic diarrhea in last 12 months	Saw a doctor for diarrhea in last 12 months	
Age										
	Number of persons in thousands					Percent of persons 18 years and over				
18 years and over . . . . .	179,349	5,374	10,107	2,131	3,789	3.0	5.6	1.2	2.1	
18-24 years . . . . .	25,400	504	670	233	302	2.0	2.6	0.9	1.2	
25-44 years . . . . .	78,754	1,887	3,074	837	1,374	2.4	3.9	1.1	1.7	
45-64 years . . . . .	46,053	1,431	2,852	634	1,176	3.1	6.2	1.4	2.6	
65 years and over . . . . .	29,142	1,552	3,510	428	936	5.3	12.0	1.5	3.2	
Sex and age										
Male, 18 years and over . . . . .	85,146	999	2,232	584	1,142	1.2	2.6	0.7	1.3	
18-24 years . . . . .	12,396	80	136	*49	87	0.6	1.1	*0.4	0.7	
25-44 years . . . . .	38,617	251	513	211	405	0.6	1.3	0.5	1.0	
45-64 years . . . . .	22,043	239	539	201	367	1.1	2.4	0.9	1.7	
65 years and over . . . . .	12,091	428	1,044	123	283	3.5	8.6	1.0	2.3	
Female, 18 years and over . . . . .	94,203	4,376	7,875	1,547	2,646	4.6	8.4	1.6	2.8	
18-24 years . . . . .	13,005	424	534	183	216	3.3	4.1	1.4	1.7	
25-44 years . . . . .	40,136	1,636	2,561	626	969	4.1	6.4	1.6	2.4	
45-64 years . . . . .	24,010	1,192	2,313	433	809	5.0	9.6	1.8	3.4	
65 years and over . . . . .	17,502	1,124	2,466	304	653	6.4	14.1	1.7	3.7	
Race and age										
White, 18 years and over . . . . .	154,012	4,378	8,272	1,922	3,453	2.8	5.4	1.2	2.2	
18-24 years . . . . .	20,956	387	558	187	259	1.8	2.7	0.9	1.2	
25-44 years . . . . .	66,602	1,454	2,414	748	1,193	2.2	3.6	1.1	1.8	
45-64 years . . . . .	40,085	1,170	2,298	572	1,106	2.9	5.7	1.4	2.8	
65 years and over . . . . .	26,369	1,367	3,002	415	895	5.2	11.4	1.6	3.4	
Black, 18 years and over . . . . .	19,918	854	1,698	150	244	4.3	8.5	0.8	1.2	
18-24 years . . . . .	3,562	109	105	*46	*35	3.1	2.9	*1.3	*1.0	
25-44 years . . . . .	9,197	367	607	*51	130	4.0	6.6	*0.6	*1.4	
45-64 years . . . . .	4,705	206	504	*44	*46	4.4	10.7	*0.9	*1.0	
65 years and over . . . . .	2,454	172	482	*10	*33	7.0	19.6	*0.4	*1.3	
Hispanic origin										
Hispanic . . . . .	13,021	610	774	109	207	4.7	5.9	0.8	1.6	
Non-Hispanic . . . . .	166,328	4,764	9,332	2,022	3,582	2.9	5.6	1.2	2.2	
Poverty status										
Below poverty threshold . . . . .	16,211	868	1,262	316	397	5.4	7.8	1.9	2.4	
At or above poverty threshold . . . . .	149,172	3,908	7,830	1,653	3,160	2.6	5.2	1.1	2.1	

<sup>1</sup>Includes persons of all races and those of unknown poverty status; excludes those who refused to answer bowel habits portion of the questionnaire and those persons with colostomies.

<sup>2</sup>Chronic constipation and diarrhea are defined as those persons with constipation or diarrhea most or all of the time in the last 12 months.

NOTE: Estimates of less than 68,000 and percents based on these estimates have 30 percent or more relative standard error; see technical notes for description of the calculation of standard errors.

## Technical notes

### Source and description of data

The estimates presented in this report are based on data from the 1989 National Health Interview Survey (NHIS), an ongoing survey of households in the United States conducted by the National Center for Health Statistics. Each week, a probability sample of the civilian noninstitutionalized population of the United States is interviewed by personnel of the U.S. Bureau of the Census. Interviewers obtain information about the health and other characteristics of the households included in the NHIS sample.

NHIS consists of two parts: (a) a basic health questionnaire that remains the same each year and (b) special topics questionnaires that vary from year to year and usually are asked of just one person in each family. In 1989, the special topics included health care coverage, adult immunization, severe and persistent mental illness, dental health, diabetes, orofacial pain, digestive disorders, and acquired immunodeficiency syndrome (AIDS) knowledge and attitudes.

The total interviewed sample for 1989 for the basic health questionnaire consisted of 45,711 households containing 116,929 persons. The noninterview rate was 5.1 percent. NHIS digestive disorders (NHIS-DD) interviews were completed for 42,392 persons 18 years of age and over, or 90.7 percent of those NHIS-DD sample persons identified from the basic health questionnaire (approximately 46,756 members of families were identified). The overall response rate for the NHIS-DD was 86.1 percent (the product of the response rates for the basic and digestive disorders questionnaires).

### Sampling errors

Because estimates shown in this report are based on a sample of the population rather than on the entire population, they are subject to

sampling error. When an estimate or the numerator or denominator of a percent is small, the sampling error may be relatively high. In addition, the complex sample design of NHIS has the effect of making sampling errors larger than they would be had a simple random sample of equal size been used. Estimates and figures based on estimates that do not meet the reliability criteria of 30 percent relative standard error are marked on the tables.

Approximate standard errors of the estimated numbers ( $x$ ) in the tables (except for age, sex, and race for all persons when the standard error is assumed to be 0.0) may be calculated using the formula

$$SE(x) = \sqrt{.000021(x)^2 + 6,100(x)}$$

For example, it is estimated that 2,691,000 persons had gallstones or gallbladder trouble in the last 12 months (table 1). Using this formula, the standard error for the estimated number is

$$SE(2,691,000) = \sqrt{.000021(2,691,000)^2 + 6,100(2,691,000)} = 128,714$$

Approximate standard errors of the estimated percents in the tables may be calculated using the formula

$$SE(p) = \frac{\sqrt{6,100(p)(100-p)}}{y}$$

where  $p$  is the percent of persons and  $y$  is the base population from which the percent is calculated.

For example, it is estimated that 10.5 percent of the population has ever had ulcers (table 2). Using this formula, the standard error for the estimated percent is

$$SE(10.5) = \frac{\sqrt{6,100(10.5)(100-10.5)}}{179,529,000} = .18$$

If  $x_1$  and  $x_2$  are two estimates, then the approximate standard error of the difference ( $x_1 - x_2$ ) can be computed as follows:

$$SE(x_1 - x_2) = \sqrt{SE(x_1)^2 + SE(x_2)^2 - 2r SE(x_1) SE(x_2)}$$

where  $SE(x_1)$  and  $SE(x_2)$  are computed using the appropriate formulas previously presented in this section and  $r$  is the correlation coefficient between  $x_1$  and  $x_2$ . Assuming  $r = 0.0$  will result in an accurate standard error if the two estimates are actually uncorrelated. If they are correlated, the standard error of the difference will be underestimated or overestimated. These calculations can also be performed for differences in percents using the appropriate standard error formulas for percents.

In this report, differences are considered statistically significant at the 5-percent level if the difference between two estimates was at least twice as large as its standard error. Further information on how the standard error parameters are constructed is available in "Current Estimates From the National Health Interview Survey: United States, 1989" (12).

### Comparison to basic NHIS estimates

Prevalence estimates of digestive disorders routinely reported from the basic portion of NHIS are likely to differ from those presented in this report. Two survey design differences between the basic NHIS and the NHIS-DD may affect the comparability of the estimates. First, the questions from the basic NHIS may be answered by one respondent for all members of the family when other members are not present. Approximately one-third of the responses for adults on the basic NHIS are by proxy respondents. However, the questions on the NHIS-DD are answered only by the sample individual. This difference in reporting may be especially problematic for the less serious and more personally sensitive conditions such as hemorrhoids, chronic constipation, and diarrhea as the household respondent in the basic NHIS may not know about these conditions.

The manner in which the conditions are identified also differs between the basic NHIS and the

NHIS-DD. In the basic NHIS, the prevalence of chronic conditions is estimated by dividing the entire sample into six representative subsamples. Respondents within each subsample are administered one of six condition checklists, only one of which contains chronic digestive conditions, and are asked if any family member has each condition. In the NHIS-DD supplement, all respondents were asked specific questions about major digestive disorders and a series of followup questions on each reported condition.

Other reasons why the prevalence estimates may differ between the 1989 basic NHIS and the NHIS-DD include differences in nonresponse rates and the specificity of terminology related to the condition. In addition, the NHIS-DD asked respondents whether they had the particular condition in the past 12 months and whether they had ever had the condition. The basic NHIS queries the respondent about the last 12 months only. For conditions that are ongoing, the two-part question may improve reporting on the presence of the condition in the last 12 months. Finally, those with an identified digestive condition in the NHIS-DD were asked if the doctor made the diagnosis and if appropriate medical care had been given or diagnostic tests performed. These questions help assure that the respondent had an appropriate evaluation, although they cannot assure that the diagnosis was correct or the respondent remembered or was told the appropriate diagnosis.

The reported prevalence of digestive disorders in the basic questionnaire of the NHIS are significantly lower than those estimated from the NHIS-DD. These comparative estimates are presented in table I. In the case of ulcers and functional colon conditions, part of the difference is definitional. In the NHIS-DD respondents are given a

**Table I. Estimated number of persons 18 years of age and over with major digestive disorders by survey instrument: United States, 1989**

<i>Digestive condition in the last 12 months</i>	<i>Estimated from basic NHIS in thousands</i>	<i>Estimated from NHIS-DD in thousands</i>
Gallstones or gallbladder trouble . . . . .	1,818	2,691
Ulcers <sup>1</sup> . . . . .	4,095	6,295
Diverticulitis . . . . .	1,983	2,662
Functional colon conditions <sup>2</sup> . . . . .	1,328	6,719
Hemorrhoids . . . . .	11,446	23,016
Constipation <sup>3</sup> . . . . .	4,006	5,374

<sup>1</sup>Ulcer defined in the basic National Health Interview Statistics (NHIS) as gastric, duodenal, peptic, gastrojejunal, and ulcer of the esophagus (ICD 531-4, and 530.2). Ulcer defined in the NHIS digestive disorders (NHIS-DD) as gastric, duodenal, peptic, stomach, and other excluding skin.

<sup>2</sup>Functional colon conditions in the basic NHIS are defined as irritable bowel enterospasm, irritable bowel syndrome, mucous colitis, and spastic colon. Functional colon conditions defined in the NHIS-DD as irritable bowel syndrome, irritable colon, spastic colon, functional bowel, and other similar conditions.

<sup>3</sup>Constipation is defined as "frequent" constipation in the basic NHIS and as constipation most or all of the time in the NHIS-DD.

structured set of definitions for identifying their condition immediately following the query about the condition. In the basic NHIS, once the condition of "ulcer" or "spastic colon" is identified, the respondents supply information through followup questions. The information is then later used to classify the condition according to specific diagnosis categories.

The lower estimates for hemorrhoids and constipation in the basic NHIS are to be expected given that neither is likely to be medically diagnosed or attended. As a result, proxy respondents are less likely to know about the occurrence of the two conditions among family members. In addition, respondents to the basic NHIS are asked about hemorrhoids in a condition list that includes cardiovascular diseases, whereas the NHIS-DD groups them with digestive conditions. The grouping in the basic NHIS may lower the response rate because respondents do not identify hemorrhoids with heart disease or hypertension.

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**Symbols**

- - - Data not available
  - . . . Category not applicable
  - Quantity zero
  - 0.0 Quantity more than zero but less than 0.05
  - Z Quantity more than zero but less than 500 where numbers are rounded to thousands
  - \* Figure does not meet standards of reliability or precision
  - # Figure suppressed to comply with confidentiality
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