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Data in this report from health and demographic surveys present statistics by age and other variables on nursing home characteristics, acute conditions and restricted activity during the 1985–86 influenza season, physical abilities of people ages 65 and over, utilization of drugs in medical office practice, highlights of osteopathic office practice, health care coverage, and the declining utilization of hospitals. Estimates are based on the civilian noninstitutionalized population of the United States. These reports were originally published in 1987.

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Nursing Home Characteristics Preliminary Data From the 1985 National Nursing Home Survey

by Genevieve Strahan, Division of Health Care Statistics

Introduction

The National Nursing Home Survey (NNHS) is a nationwide (excluding Alaska and Hawaii) sample survey of nursing and related care homes, their residents, their discharges and their staff conducted periodically by the National Center for Health Statistics. Preliminary data on nursing home characteristics from the 1985 NNHS are presented in this report. Because the estimates in this report are preliminary, they may differ slightly from estimates published in future 1985 NNHS reports due to further editing of the data. The 1985 NNHS is the third in a series of periodic surveys conducted between August 1985 and January 1986. The first NNHS survey was conducted between August 1973 and April 1974; the second survey was conducted from May through December 1977. For convenience, this report will use the terms "nursing and related care homes," "nursing homes," and "facilities" interchangeably.

The focus of this report is facility characteristics and will include trend data about the characteristics of facilities from all three surveys and national estimates on the following topics from the 1985 survey:

- Facility characteristics (number of homes and beds by ownership, certification, bed size, region, and affiliation).
- Utilization data (number of current residents, discharges, admissions, admissions per bed, and occupancy rates).
- Employees (number and rates per 100 beds of full-time equivalent employees by occupational category according to selected facility characteristics).
- Nursing home per diem rates (data on basic amount charged private pay patients by level of care and per diem rates for medicare/medicaid patients by certification status according to ownership and location of the facility).

Background

The foundation for the 1985 NNHS sampling frame was the 1982 National Master Facility Inventory (NMFI) Survey.¹ Facilities in the NMFI are homes with three beds or more and with available nursing or personal care to the residents. Added to this 1982 NMFI list of over 17,000 nursing and related care homes were homes identified by the Agency Reporting System² as having opened between the time of the 1982 NMFI Survey and June 1, 1984 (the cutoff date for the sampling frame), homes located by the 1982 Complement Survey,³ and hospital-based nursing facilities certified by the Health Care Financing Administration. The final sampling frame consisted of about 20,500 nursing and related care homes in the conterminous United States.

The 1985 NNHS is similar in scope to that of the 1977 survey that included nursing care homes, personal care homes (with and without nursing), and domiciliary care homes. The two later surveys represent a broadening in scope over that of the 1973-74 survey, which excluded facilities providing only personal care or domiciliary care. Because personal and domiciliary care homes constitute such a small proportion of the 1977 and 1985 surveys, no special adjustments will be made when comparing the three surveys.

The sample design⁴ for the 1985 NNHS was a stratified two-stage probability design. The first stage was the selection of 1,220 facilities. The second stage allowed for a maximum selection of five current residents, six discharges, and four registered nurses from each of the 1,220 facilities.

Six questionnaires were used to collect data in the 1985 survey. Data on characteristics of the facility were collected on the Facility Questionnaire by interviewing the administrator. With the permission of the administrator, cost data were col-

lected on the self-administered Expense Questionnaire returned by mail from the facility's accountant or bookkeeper. A recent financial statement, if available, was acceptable as a replacement for the completed expense questionnaire. Information to complete the Current Resident Questionnaire and Discharged Resident Questionnaire was obtained by interviewing the staff person most familiar with the medical records of the resident. Additional information about the residents was obtained in a telephone interview using a Next-of-Kin Questionnaire. Registered nurses were asked to complete a self-administered Nursing Staff Questionnaire and return it to the interviewer or mail it to the data processing headquarters. Additional employee data were collected on the Facility Questionnaire for all categories of full-time and part-time workers.

Estimates of admissions, admissions per 100 beds, and occupancy are for 1984. Discharge estimates cover 1 year prior to the day of the survey. Because all estimates are based on a sample of nursing homes rather than a complete enumeration, they are subject to sampling variability. Information on sampling variability is presented in the Technical notes.

Separate Advance Data reports on current residents and discharges are planned for publication this year.

Facility characteristics

Survey estimates for 1985 indicate that there were 19,100 nursing homes with 1,624,200 beds. This represents a 22-percent increase in the number of nursing homes since the 1973-74 survey and a 38-percent increase in the number of beds (table 1).

There continue to be significantly more proprietary homes than nonprofit or government-owned nursing homes. Proprietary homes accounted for an overwhelming 75 percent of all nursing homes in the 1985 NNHS. Homes owned by nonprofit organizations made up 20 percent of the total while the remaining 5 percent were operated by Federal, State, and local governments. As would be expected, homes operated for profit had the largest proportion of beds (69 percent). Nonprofit and government homes were larger in size than proprietary homes by 24 and 68 percent, respectively (table 2).

An important classification of nursing homes is according to certification status. Nursing homes are classified as follows by Social Security's medicare and medicaid programs:

- Skilled nursing facilities (SNF's) by medicare (Title XVIII).
- Skilled nursing facilities (SNF's) by medicaid (Title XIX).
- Intermediate care facilities (ICF's) by medicaid (Title XIX).

Since SNF regulations are identical under medicare and medicaid, a skilled nursing home may have dual certification status. In addition, a nursing home could be certified as both an SNF and an ICF. This is accomplished by allocating a specific number of beds to each certification status. The proportion of homes certified as both an SNF and an ICF increased significantly from 24.3 percent of the total homes in 1977 to 29.8 percent of total homes in 1985.

A nursing home may not meet certification criteria or may choose not to participate in the program and therefore be classified as not certified.

More than 75 percent of all nursing homes in the 1985 NNHS were certified as an SNF by medicare or medicaid, an ICF by medicaid, or certified as both an SNF and an ICF. Although homes that were not certified made up 25 percent of the total number of homes, they had only 11 percent of the total beds and averaged only 39 beds per home (table 2).

Of a total 14,400 homes with some form of certification, about 40 percent were certified as both SNF's and ICF's. Homes certified as both SNF's and ICF's had the largest proportion of beds (50.2 percent) and had the largest average bed size (127 beds per home). Homes providing intermediate care only constituted 37 percent of all certified homes, had 28.4 percent of the total beds and an average bed size of 77 beds. The "SNF's only" group of certified homes constituted 24 percent of all certified homes, 21 percent of the beds, and had an average bed size of 88 beds per home. The majority (73 percent) of the 14,400 certified homes were operated for profit (table 3).

Chain affiliation describes those homes that are members of a group of facilities operating under one general authority or general ownership. Fewer homes were operated as part of a chain in 1985 than were operated independently. However,

Table 1. Facility characteristics and measures of utilization for nursing homes: United States, 1973-74, 1977, and 1985

Survey year	Facility characteristics				Measures of utilization				
	Homes	Beds	Full-time equivalent employees (FTE's) ¹	FTE's ¹ per 100 beds	Current residents	Discharges	Admissions	Admissions per 100 beds	Occupancy
					Number			Rate ²	
1985	19,100	1,624,200	793,600	48.9	1,491,400	1,223,500	1,299,200	80.5	91.6
1977	18,900	1,402,400	647,700	46.2	1,303,100	1,117,500	1,367,400	98.4	89.0
1973-74	15,700	1,177,300	485,400	41.2	1,075,800	1,077,500	1,110,800	95.3	86.5

¹Includes only those providing direct patient care: Administrative, medical, and therapeutic staff; registered nurses; licensed practical nurses; nurse's aides; and orderlies. The FTE's are calculated by dividing part-time hours by 35 and adding the results to full-time employees.

²Occupancy rate = $\frac{\sum \text{Aggregate number of days of care provided to residents in year prior to survey year} \times 100}{\sum \text{Estimated number of beds in year prior to survey year} \times 366}$

NOTE Admissions, admissions per 100 beds, and the occupancy rates are for the calendar year prior to the survey year

Table 2. Number and percent distribution of nursing homes and beds and beds per nursing home by selected nursing home characteristics: United States, 1985

Facility characteristic	Nursing homes		Nursing home beds		Beds per nursing home
	Number	Percent distribution	Number	Percent distribution	
Total	19,100	100.0	1,624,200	100.0	85.0
Ownership					
Proprietary	14,300	74.9	1,121,500	69.0	78.4
Voluntary nonprofit	3,800	19.9	370,700	22.8	97.6
Government	1,000	5.2	131,900	8.1	131.9
Certification					
Certified facilities	14,400	75.8	1,441,300	88.8	99.4
Skilled nursing facility only	3,500	18.3	307,900	19.0	88.0
Skilled nursing facility and intermediate care facility	5,700	29.8	724,000	44.6	127.0
Intermediate care facility only	5,300	27.7	409,400	25.2	77.2
Not certified	4,700	24.6	182,900	11.3	38.9
Bed size					
Less than 50 beds	6,300	33.0	151,100	9.3	23.9
50-99 beds	6,200	32.5	444,300	27.4	71.7
100-199 beds	5,400	28.3	702,100	43.2	130.0
200 beds or more	1,200	6.3	326,700	20.1	272.3
Census region					
Northeast	4,400	23.0	371,100	22.8	84.4
North Central	5,600	29.3	531,700	32.7	94.9
South	6,100	31.9	488,300	30.1	80.0
West	3,000	15.7	233,100	14.4	78.6
Affiliation					
Chain	7,900	41.4	800,000	49.3	101.5
Independent	10,000	52.4	680,700	41.9	68.1
Government	1,000	5.2	131,900	8.1	131.9
Unknown	*100	*0.5	11,600	0.7	116.0

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

Table 3. Certification status of nursing homes by ownership and affiliation: United States, 1985

Ownership and affiliation	Total	Certified homes				Not certified
		Total	Skilled nursing facility only	Skilled nursing facility and intermediate care facility	Intermediate care facility only	
Total	19,100	14,400	3,500	5,700	5,300	4,700
Ownership						
Proprietary	14,300	10,500	2,800	3,900	3,800	3,800
Voluntary nonprofit	3,800	3,000	500	1,400	1,100	700
Government	1,000	900	200	400	300	100
Affiliation						
Chain	7,900	7,400	1,300	3,200	2,900	500
Independent	10,000	6,000	2,000	2,100	1,900	4,000
Government	1,000	900	200	400	300	100
Unknown	*100	-	-	-	-	100

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

chain homes had a larger share of the total number of beds and a larger average bed size of 101.5 beds per home compared with 68.1 beds per home for independently owned facilities (table 2). There has also been a significant increase in the number of chain homes since the 1977 NNHS survey. Chain homes increased from 28 percent of total homes in 1977 to 41 percent of total homes in 1985.

Significantly more chain homes have some form of certification than do independently operated homes. Almost 94 percent of the total chain homes were certified in 1985 while 60 percent of the total independently operated were certified (table 3).

Table 2 also shows homes and beds and beds per home by bed size and U.S. Bureau of the Census region.

Utilization

The procedures for collecting certain measures of utilization differed by method and time period. The reader should consider these differences, as explained in the text that follows, when making comparisons.

Probably the single most important measure of nursing home utilization is occupancy rate, which estimates that nursing homes operated at about 92 percent of capacity in 1984. The rate for 1984 represents a significant increase over the 1972 rate of 85.6 percent. The 1.5 million residents served in 1985 were counts for the night before the survey. The number of residents in 1985 had increased 14 percent since the 1977 survey and 39 percent since the 1973-74 survey. The ratio of residents 65 years and over in nursing homes to those in the general population has remained virtually unchanged. Over the past 12 years, nearly 50 of every 1,000 persons 65 years and over continue to reside in nursing homes. In other words, nursing home usage by residents in the 65 years and over age group has kept pace with the increase in the elderly population.

There was a significant decrease of 2.8 beds per 1,000 population 65 years and over between 1977 and 1985 (table 4). Although there is much discussion about the ratio of beds per 1,000 elderly, no consensus exists on the appropriate number. Hence, it is difficult to interpret what this decrease in

number of beds means in terms of availability of nursing home beds to potential elderly residents.

The number of admissions was determined by directly asking the administrator for this information for calendar year 1984. Admissions were down from the 1.4 million in 1977 to 1.3 million in 1985. The admissions per 100 beds rate in 1985 was also down significantly from 1977 (98.4 to 80.5, table 1).

The 1.2 million discharges were estimated from a sample of all events in which a person was discharged alive or dead during the 12 months ending on the day prior to the facility's survey date (table 1).

Employees

Employee data presented in this report are in terms of full-time equivalent (FTE) employees. The FTE's are computed to neutralize the variations between facilities that hire part-time workers to cover the number of hours of a full-time worker. Thirty-five hours of part-time work are taken to equal that of one full-time employee. Full-time employees and part-time hours are converted to FTE employees by dividing part-time hours by 35 and adding the result to full-time employees. The procedure used to collect employee data differed slightly in each of the survey years. In 1973-74, all employees were listed for each sample facility, and a sample was taken from each listed category. However, in the 1977 survey, estimates were based on a sample of employees from each sample facility. In the 1985 survey, total counts for employee categories were asked of the facility's administrator. These differences should be considered when comparing FTE's for different survey years.

The 1985 survey included individuals employed full time and part time along with the number of part-time hours worked for each category of part-time workers. All employees providing direct or indirect services to nursing home residents were included in the survey. Unlike previous surveys, clerical, food service, housekeeper, and maintenance personnel, as well as other employees providing indirect services to residents, were included in the 1985 survey. However, to provide a credible comparison of FTE's in previous surveys with 1985, FTE's presented in table 1 for 1985 exclude those FTE's providing indirect patient care.

Table 4. Beds per 1,000 population 65 years and over, residents 65 years and over per 1,000 population, total population, and standard errors of the rates. United States, 1973-74, 1977, and 1985

Survey year	Beds per 1,000 population 65 years and over		Residents 65 years and over per 1,000 population 65 years and over		Total U.S. resident population Number in thousands
	Number	Standard error	Number	Standard error	
1985	56.9	0.70	46.0	1.00	28,530 ¹
1977	59.7	0.48	47.9	0.71	23,494 ²
1973-74	55.2	0.33	45.1	0.38	21,329 ²

¹U.S. Bureau of the Census. Estimates of the population of the United States, by age, sex, and race 1980 to 1985. *Current Population Reports*. Series P-25, No. 985. Washington: U.S. Government Printing Office, 1986.

²U.S. Bureau of the Census. Estimates of the population of the United States, by age, sex, and race 1970 to 1977. *Current Population Reports*. Series P-25, No. 721. Washington: U.S. Government Printing Office, 1978.

The total number of FTE's and selected groups of FTE's working in nursing homes are presented in table 5. In 1985 almost 1.2 million FTE's were providing direct and indirect services to nursing home residents. Those employees providing some form of nursing or personal care accounted for over 700,000 of the total FTE's, averaging about 43 FTE's per 100 beds. Nurse's aides and orderlies were by far the largest group (71 percent) of those employees providing nursing care or personal care. This group also accounted for over 40 percent of the total FTE's.

There is a direct relationship between certification status of the nursing home and FTE's per 100 beds. SNF's (medicare and medicaid) and facilities with both SNF and ICF certification had significantly more FTE's per 100 beds than facilities certified as ICF's only or those not certified. The facilities certified SNF only had a rate of total 80.4 FTE's per 100 beds, and those facilities certified as both SNF and ICF had an FTE rate per 100 beds of 76.8. These two rates compare with 64.1 for ICF's and 51.2 for not-certified facilities. The greatest difference in FTE's per 100 beds by certification is in registered nurses (RN's). The ICF's and not-certified facilities employ fewer than one-half the number of FTE RN's per 100 beds than the other two certification groups (table 5).

Information on RN's was collected as a separate component of the NNHS. Estimates of RN's were made from a maximum sample of four RN's selected from each sample facility. Future statistical reports will present more detailed information on RN's working in nursing homes.

Nursing home per diem rates

In 1985, for the first time, the NNHS was designed to collect data on per diem rates set by the nursing homes for

routine care. Rates were collected for private pay residents and for medicare and medicaid residents. Rates differ because of different services provided, especially to medicare/medicaid patients. These rates are not to be confused with charges to residents after care has been received. Charges include the per diem rate plus fees for additional services not covered in per diem rate.

- *Private pay*—The average daily rates for private pay increased as would be expected as the level of care increased. Skilled care had the highest average daily rate of \$61 per day. The average rates decreased to \$48 for intermediate care and down to \$31 per day for residential care. By region, homes in the Northeast tend to have higher rates than the other regions for skilled and intermediate levels of care but about the same rates for residential care (table 6).
- *Medicare and medicaid*—A nursing home's certification status directly affects the per diem rates that are set for routine care. Skilled care has a requirement, for instance, that an RN be on duty 24 hours per day. Rates for medicare and medicaid skilled homes are higher than rates for medicaid intermediate. Table 6 shows the average per diem rate for each certification status of homes in the 1985 survey by ownership of the home and region.

Nursing home rates by ownership are also presented in table 6. Further analysis by other facility characteristics of per diem rates for private pay and medicare and medicaid residents will be presented in a future publication from the 1985 NNHS.

Table 5. Number and rate per 100 beds of full-time equivalent employees by occupational category and selected nursing home characteristics: United States, 1985

Facility characteristic	Occupational category														
	All full-time equivalent employees		Administrative, medical, and therapeutic		Nursing								All other staff		
	Number	Rate per 100 beds	Number	Rate per 100 beds	Total		Registered nurse		Licensed practical nurse		Nurse's aide and orderly		Number	Rate per 100 beds	
				Number	Rate per 100 beds	Number	Rate per 100 beds	Number	Rate per 100 beds	Number	Rate per 100 beds	Number	Rate per 100 beds	Number	Rate per 100 beds
Total	1,159,700	71.4	89,400	5.5	704,300	43.4	83,300	5.1	120,000	7.4	501,000	30.8	366,100	22.5	
Ownership															
Proprietary	733,300	65.4	55,700	5.0	461,000	41.1	48,600	4.3	80,100	7.1	332,300	29.6	216,600	19.3	
Voluntary nonprofit	310,800	83.8	25,100	6.8	175,100	47.2	24,900	6.7	28,500	7.7	121,700	32.8	110,600	29.8	
Government	115,600	87.6	8,500	6.5	68,100	51.6	9,800	7.4	11,300	8.6	47,100	35.7	38,900	29.5	
Certification															
Skilled nursing facility only	247,400	80.4	19,200	6.2	152,800	49.6	21,900	7.1	24,600	8.0	106,200	34.5	75,500	24.5	
Skilled nursing facility and intermediate care facility	556,100	76.8	38,900	5.4	344,000	47.5	45,500	6.3	58,500	8.1	240,000	33.1	173,200	23.9	
Intermediate care facility only	262,500	64.1	19,700	4.8	160,900	39.3	11,000	2.7	30,500	7.4	119,300	29.2	82,000	20.0	
Not certified	93,700	51.2	11,600	6.3	46,600	25.5	4,900	2.7	6,300	3.4	35,500	19.4	35,400	19.4	
Bed size															
Less than 50 beds	92,400	61.1	14,500	9.6	48,600	32.1	5,100	3.4	7,900	5.3	35,500	23.5	29,300	19.4	
50-99 beds	317,700	71.5	24,500	5.5	194,700	43.8	20,500	4.6	33,000	7.4	141,200	31.8	98,500	22.2	
100-199 beds	489,800	69.8	32,300	4.6	307,400	43.8	35,700	5.1	53,100	7.6	218,600	31.1	150,100	21.4	
200 beds or more	259,800	79.5	18,100	5.5	153,600	47.0	22,000	6.7	25,900	7.9	105,700	32.4	88,100	27.0	
Census region															
Northeast	286,100	77.1	22,800	6.1	166,500	44.9	26,800	7.2	26,700	7.2	113,000	30.5	96,800	26.1	
North Central	380,000	71.5	28,700	5.4	231,300	43.5	28,300	5.3	35,200	6.6	167,800	31.6	120,000	22.6	
South	323,900	66.3	24,600	5.0	200,200	41.0	14,700	3.0	41,000	8.4	144,500	29.6	99,100	20.3	
West	169,800	72.8	13,300	5.7	106,300	45.6	13,500	5.8	17,100	7.3	75,700	32.5	50,200	21.5	

Note. Figures may not add to totals due to rounding.

Table 6. Average per diem rates for private pay patients by level of care and for medicare/medicaid patients by certification status, ownership, and region: United States, 1985

<i>Ownership and region</i>	<i>Level of care</i>			<i>Certification status</i>		
	<i>Skilled</i>	<i>Intermediate</i>	<i>Residential</i>	<i>Medicare</i>	<i>Medicaid skilled</i>	<i>Medicaid intermediate</i>
	Per diem rate					
Total.....	\$61.01	\$48.09	\$30.71	\$62.02	\$49.93	\$39.57
Ownership						
Proprietary.....	58.67	47.28	28.69	60.76	47.54	38.58
Voluntary nonprofit.....	66.37	50.57	35.82	63.97	55.18	41.88
Government.....	68.27	48.25	41.51	71.64	57.87	42.50
Census region						
Northeast.....	79.85	63.33	29.73	58.24	63.93	48.87
North Central.....	57.06	46.01	35.84	63.89	47.70	38.33
South.....	53.19	43.83	29.63	58.13	42.95	35.47
West.....	58.22	47.44	28.52	68.41	46.49	43.02

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Technical notes

Because the statistics presented in this report are based on a sample, they will differ somewhat from figures that would have been obtained if a complete census had been taken using the same schedules, instructions, and procedures. The standard error is primarily a measure of the variability that occurs by chance because only a sample, rather than the entire universe, is surveyed. The standard error also reflects part of the measurement error, but it does not measure any systematic biases in the data. The chances are about 95 out of 100 that an estimate from the sample differs from the value which would be obtained from a complete census by less than twice the standard error.

Standard errors used in this report are approximated using the balanced repeated replicated procedure. This method yields overall variability through observation of variability among random subsamples of the total sample. A description of the development and evaluation of the replication technique for error estimation has been published.^{5,6}

Although exact standard error estimates were used in tests of significance for this report, it is impractical to present exact estimates of every standard error for statistics used in this report. Hence, a generalized variance function was produced for each class of aggregate statistic by fitting the data presented in this report into curves using the empirically determined relationship between the size of an estimate X and its relative variance (rel var X). This relationship is expressed as

$$\begin{aligned} \text{rel var } X &= \frac{S_X^2}{X^2} \\ &= a + \frac{b}{X} \end{aligned}$$

where a and b are regression estimates determined by an iterative procedure.

Preliminary estimates of relative standard errors are presented in figure I for estimated numbers of beds; total full-time equivalent (FTE) employees; administrative, medical, and therapeutic FTE employees; registered nurse FTE employees; licensed practical nurse FTE employees; nurse's aide FTE employees; and facilities. Preliminary standard errors for per diem rates are presented in table I.

The relative standard error of an estimate is the standard error of the estimate divided by the estimate itself and is expressed as a percent of the estimate. In this report, an asterisk is shown for any estimate with more than a 30-percent relative standard error. Because of the relationship between the relative standard error and the estimate, the standard error of an estimate can be found by multiplying the estimate by its relative standard error. For example, curve A of figure I shows the relative standard error for beds. Table 2 gives the total number of beds in all facilities with less than 50 beds as 151,100. The

relative standard error corresponding to this estimate on curve A of figure I is approximately 10 percent. The standard error is $151,100 (0.09) = 13,599$.

The approximate standard error of ratios such as FTE employees per 100 beds can be calculated as in the following example: Suppose the standard error ($\sigma_{R'}$) for the ratio of total FTE employees per 100 beds is desired for nursing homes with less than 50 beds. In table 5 the total FTE employees per 100 beds for homes with less than 50 beds is 61.1, which is equal to a total of 92,400 FTE employees divided by 151,100 beds times 100. The relative standard error of 92,400 total FTE employees in homes with less than 50 beds is (from figure I, curve B) approximately 8.6 percent, and the relative standard error of 151,100 beds (from figure I, curve A) is approximately 10 percent. The square root of the sum of the squares of these two relative standard errors minus their covariance provides an approximation for the relative standard error of the ratio. In other words, if $V_{X'}$ is the relative standard error of number of total FTE employees, $V_{Y'}$ is the relative standard error of number of beds, r is the sample correlation coefficient between total FTE employees and beds (conservatively estimated to be 0.5), and $V_{R'}$ is the relative standard error of the ratio $R' = X'/Y'$, then

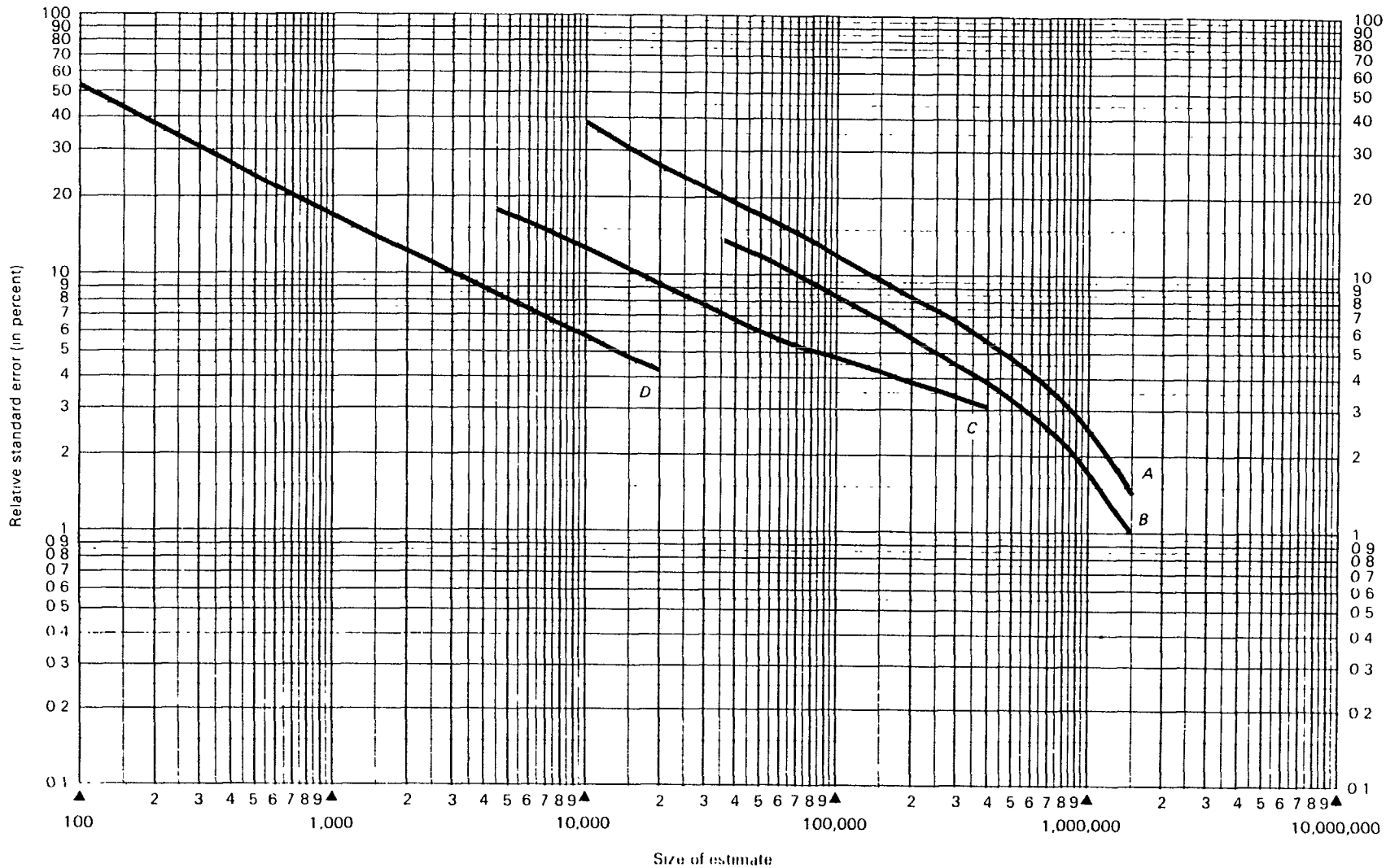
$$\begin{aligned} V_{R'}^2 &= V_{X'}^2 + V_{Y'}^2 - 2rV_{X'}V_{Y'} \\ &= (0.086)^2 + (0.1)^2 - 1.00(0.086 \times 0.1) \\ &= 0.0074 + 0.01 - 0.0086 \\ V_{R'} &= \sqrt{0.0088} \\ &= 0.0938 \end{aligned}$$

The approximate standard error of the ratio of total FTE employees per 100 beds may now be obtained by multiplying the relative standard error by the ratio as done below:

$$\begin{aligned} \sigma_{R'} &= R' \times V_{R'} \\ &= 61.1 \times 0.0938 \\ &= 5.73 \end{aligned}$$

The sample correlation coefficient r for calculating the standard error estimates of the ratios presented in this report is assumed to be zero except in the cases of FTE employees per 100 beds and the occupancy rate estimates where the correlation coefficient used was 0.5.

The Z -test with a 0.05 level of significance was used to test all comparisons mentioned in this report. Because all observed differences were not tested, lack of comment in the text does not mean that the difference was not statistically significant.



Curve A: Beds
 Curve B: Total full-time equivalent (FTE) employees and nurse's aide FTE employees
 Curve C: Administrative, medical, and therapeutic FTE employees; registered nurse FTE employees; licensed practical nurse FTE employees; and all other staff
 Curve D: Facilities

Figure 1. Provisional relative standard errors for estimated numbers of beds, full-time equivalent employees, and facilities: United States, 1985

Table 1. Preliminary standard errors of per diem rates for private pay and medicare/medicaid patients by ownership and region: United States, 1985

<i>Ownership and region</i>	<i>Standard errors of per diem rates</i>					
	<i>Level of care for private pay patients</i>			<i>Certification status of facilities for routine services</i>		
	<i>Skilled</i>	<i>Intermediate</i>	<i>Residential</i>	<i>Medicare</i>	<i>Medicaid skilled</i>	<i>Medicaid intermediate</i>
Total.....	0.92	0.59	1.16	1.93	2.13	1.98
Ownership						
Proprietary.....	1.00	0.81	1.46	2.48	2.26	2.51
Voluntary nonprofit.....	1.90	1.92	1.79	4.44	5.33	5.57
Government.....	5.08	3.30	9.35	6.99	6.65	8.33
Census region						
Northeast.....	2.18	1.94	3.08	6.40	6.24	6.38
North Central.....	1.05	0.61	3.38	3.28	3.17	5.08
South.....	1.13	0.71	2.20	2.85	3.48	6.51
West.....	2.86	2.80	4.96	6.81	10.29	7.78

Symbols

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

Acute Conditions and Restricted Activity During the 1985–86 Influenza Season

by Patricia F. Adams, Division of Health Interview Statistics

The incidence rate of influenza increased 32.7 percent, from 19.9 per 100 persons to 26.4 from the first quarter (January through March) of 1985 to the first quarter of 1986 (table 1). According to the Center for Disease Control, the influenza B epidemic that peaked in February of 1986 was the largest influenza B epidemic in the United States since the 1968–69 influenza season.¹ This report describes acute illness and its impact on work and other activities during that period.

In tables 1 and 2 national estimates are presented on the incidence and incidence rate of acute conditions and activity restriction due to acute conditions for the first quarter of 1986 and the four quarters of 1985. The data are derived from the results of the National Health Interview Survey (NHIS), an interview survey conducted annually by the National Center for Health Statistics whose respondents embody a representative sample of the household population (see technical notes). A description of the survey design, methods used in estimation, and general qualifications of the data obtained from NHIS are available in *Vital and Health Statistics*, Series 10, No. 160.²

Incidence and incidence rate of acute conditions by quarter

According to NHIS, an acute condition is defined as an illness or injury that ordinarily lasts less than 3 months, was first noticed less than 3 months before the reference date of the interview, and was serious enough to have impact

on behavior. Two types of impact are considered: whether the illness or injury caused the person to cut down for at least half a day on the activities he or she usually performed, and whether the person contacted a physician regarding his or her illness or injury. Because some illnesses are forgotten after a period of time, the incidence of acute conditions is calculated by including only those conditions whose onset occurred within the 2 weeks prior to interview.

The incidence rate of acute conditions in the first quarter of 1986 (table 1) was 64.6 per 100 persons compared with 58.0 for 1985. The rate for most categories was higher in 1986 than in 1985, including infective and parasitic (6.7 compared with 5.1) and respiratory (39.9 compared with 36.0); however, not all differences were statistically significant. The only decrease that occurred between the 2 years was the rate for digestive system conditions (1.7 in 1986 compared with 2.1 in 1985), but this difference was not statistically significant.

Respiratory conditions accounted for over 60 percent of all acute conditions in the first quarters of 1986 and 1985. Influenza is the largest contributor to the respiratory category and accounted for 66 percent of all respiratory conditions in the first quarter of 1986 and 55 percent in the first quarter of 1985. As mentioned earlier, the incidence rate of influenza was 32.7 percent higher in the first quarter of 1986 (26.4) than in the first quarter of 1985 (19.9). Although not shown separately, other subcategories that are included in the respiratory conditions category are the common cold, acute bronchitis, and pneumonia.

Overall the incidence of acute conditions decreases in the spring and summer months and rises in the fall and winter months. In 1985 the most noticeable seasonal variation was observed in respiratory conditions, which decreased from 36.0 per 100 persons in the first quarter of 1985 (January through March) to 13.5 in the second quarter (April through June) and rose again to 25.2 in the fourth quarter (October through

¹Center for Disease Control: *Morbidity and Mortality Weekly Report*, Vol. 35, No. 29. U.S. Department of Health and Human Services. Public Health Service. U.S. Government Printing Office, July 25, 1986.

²National Center for Health Statistics, A. J. Moss and V. L. Parsons: Current estimates from the National Health Interview Survey, United States, 1985. *Vital and Health Statistics*, Series 10, No. 160. DHHS Pub. No. (PHS) 86-1588. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1986.

Table 1. Number of acute conditions per 100 persons per year and number of acute conditions, by type of condition and quarter: United States, 1985, 1986

[Data are based on household interviews of the civilian noninstitutionalized population]

Condition	Quarter				
	1985				1986
	Jan.-Mar.	Apr.-June	July-Sept.	Oct.-Dec.	Jan.-Mar.
	Number per 100 persons				
All acute conditions	58.0	35.9	34.3	47.1	64.6
Infective and parasitic diseases	5.1	5.5	4.1	5.8	6.7
Respiratory conditions	36.0	13.5	12.4	25.2	39.9
Influenza	19.9	5.9	5.2	9.4	26.4
Digestive system conditions	2.1	1.7	1.8	1.3	1.7
Injuries	5.8	7.3	8.0	6.3	6.2
All other acute conditions	9.0	8.0	7.9	8.5	10.2
	Number in thousands				
All acute conditions	135,031	83,873	80,270	110,423	152,214
Infective and parasitic diseases	11,867	12,772	9,662	13,528	15,720
Respiratory conditions	83,905	31,429	29,067	59,089	93,925
Influenza	46,442	13,846	12,072	22,049	62,218
Digestive system conditions	4,827	4,071	4,267	3,133	3,974
Injuries	13,538	16,979	18,749	14,754	14,601
All other acute conditions	20,893	18,621	18,525	19,920	23,994

NOTE Conditions involving neither medical attention nor activity restriction are excluded from these estimates.

Table 2. Number of days per 100 persons per year and number of days of activity restriction due to acute conditions, by type of restriction and quarter: United States, 1985, 1986

[Data are based on household interviews of the civilian noninstitutionalized population]

Restriction	Quarter				
	1985				1986
	Jan.-Mar.	Apr.-June	July-Sept.	Oct.-Dec.	Jan.-Mar.
	Number of days per 100 persons				
All types (restricted-activity days)	238.1	138.2	139.2	172.1	275.2
Bed days	108.5	60.6	57.6	75.9	138.2
Work-loss days ¹	102.2	69.0	65.8	72.8	113.6
	Number of days in thousands				
All types (restricted-activity days)	554,734	322,600	325,691	403,580	648,263
Bed days	252,752	141,425	134,852	178,059	325,651
Work-loss days ¹	109,122	74,950	70,912	78,213	124,482

¹Work-loss days are shown for currently employed persons 18 years of age and over

December). On the other hand, injuries rose in the spring and summer months. The injury incidence rates per 100 persons for the first and fourth quarters of 1985 were 5.8 and 6.3, respectively, compared with 7.3 and 8.0 for the second and third quarters, respectively. This increase may be associated with more outdoor activity and sports participation in the warmer months.

Activity restriction by quarter

Four types of health-related activity restriction are measured by means of NHIS: bed days, work-loss days, school-loss days, and cut-down days. A work-loss day is one on which a currently employed person 18 years of age or over was absent from a job or business for more than half the day. A bed day is one during which a person stayed in bed for more than half the day because of illness or injury. A hospital day for an inpatient is considered a bed day even if the

patient was not in bed for more than half the day. A school-loss day is one on which a student 5-17 years of age missed more than half the day from the school in which he or she was currently enrolled. A cut-down day is one on which a person cuts down for more than half the day on the activities he or she usually performs.

The number of restricted-activity days is the number of days a person experienced at least one of the four types of activity restriction just described. A single restricted-activity day may involve both a bed day and a work-loss or school-loss day. However, a cut-down day cannot overlap with any of these three types of disability days. Thus, each restricted-activity day is counted as only one restricted-activity day even if more than one type of activity restriction was involved. Table 2 shows the number and rate per 100 persons of days of all types of activity restriction, bed days, and work-loss days. School-loss days, although not shown separately, are included in the total.

The number of days per 100 persons per year for all types of activity restriction, bed days, and work-loss days follows the same pattern as the incidence of acute conditions. The rates were higher in the fall and winter months and lower in the spring and summer. The rate per 100 persons for restricted-activity days was 275.2 in the first quarter of 1986 compared with 238.1 in 1985, an increase of 15.6 percent. Bed days showed the largest increase, 27.4 percent, from the first quarter of 1985 to the first quarter of 1986 (108.5 compared with 138.2).

From the first quarter of 1985 to the first quarter of 1986 the number of restricted-activity days increased from approximately 550 million to 650 million days and a higher proportion of these were bed days. The proportion of all restricted-activity days which were bed days was 45.6 percent for the first quarter of 1985 and 50.2 percent for the first quarter of 1986. The higher rates of restricted-activity and bed days may be attributed to the higher incidence of influenza. In 1985 the annual rates of restricted-activity and bed days for all acute conditions were highest for respiratory conditions in general and highest for influenza among the subcategories.³

Technical notes

The National Health Interview Survey (NHIS) is a continuous, cross-sectional, nationwide survey conducted by household interview. Each week a probability sample of households in the civilian, noninstitutionalized population is interviewed by personnel of the U.S. Bureau of the Census to obtain information on the health and other characteristics of each member of the household.

During 1985, the sample consisted of 36,399 eligible households. The total noninterview rate for the basic health and demographic household questionnaire was about 4 percent, about 2 or 3 percent of which was due to respondent refusal and the remainder due primarily to an inability to locate an eligible respondent at home after repeated calls. Information was obtained for all household members for the basic questionnaire, a sample of 91,531 persons. The sample for the first quarter of 1986 consisted of 6,281 households containing 15,496 persons. A description of the survey design, methods used in estimation, and general qualifications of NHIS data was published previously.⁴

The estimates shown in this report are based on a sample of the civilian noninstitutionalized population rather than on

the entire population and therefore are subject to sampling error. When an estimate or the numerator or denominator of a rate is small, the sampling error may be relatively high. Approximate standard errors for the estimates in this report may be calculated using the formula

$$SE(x) = \sqrt{ax^2 + bx},$$

for numbers of events where x is the estimated number, and a and b are given in table A, and the formula

$$SE(p) = p\sqrt{a + \frac{b}{x}},$$

for rates where p is the estimated rate, and a and b are given in table I.

In this report, terms such as "similar" and the "same" mean that no statistically significant difference exists between the statistics being compared. Terms relating to difference (for example, "greater" or "less") indicate that differences are statistically significant (unless otherwise stated). The t -test with a critical value of 1.96 (0.05 level of significance) was used to test all comparisons that are discussed. Lack of comment regarding the difference between any two statistics does not mean the difference was tested and found to be not significant.

Table I. Estimated standard error parameters for selected characteristics

Characteristic	Estimated parameters	
	a	b
Number of acute conditions	0.00019636	85,166.5
Days of restricted activity or bed days	0.00064540	622,840.3
Days lost from work	-0.00008666	529,550.2

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
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³National Center for Health Statistics, A. J. Moss and V. L. Parsons: Current estimates from the National Health Interview Survey, United States, 1985. *Vital and Health Statistics*. Series 10, No. 160. DHHS Pub. No. (PHS) 86-1588. Public Health Service, Washington. U.S. Government Printing Office, Sept. 1986, pp. 31 and 43.

⁴National Center for Health Statistics, M. G. Kovar and G. S. Poe: The National Health Interview Survey design, 1973-84, and procedures, 1975-83. *Vital and Health Statistics*. Series 1, No. 18. DHHS Pub. No. (PHS) 85-1320. Public Health Service, Washington. U.S. Government Printing Office, Aug. 1985.

Aging in the Eighties Functional Limitations of Individuals Age 65 Years and Over

by Deborah Dawson, Ph.D., and Gerry Hendershot, Ph.D., Division of Health Interview Statistics,
and John Fulton, Ph.D., Brown University

Introduction

As a cohort ages, the prevalence of functional limitations increases; that is, an increasing proportion of its members have difficulty performing personal care or home management activities. Whereas the increase in the prevalence of functional limitations tends to occur in all aging cohorts, its pace may differ among subgroups of the population and may change over time. The prevalence of functional limitations is an important indicator of quality of life and of the need for health and social services in the aging population. It is important, therefore, that the levels, differentials, and trends in prevalence of functional limitations be remeasured periodically.

The National Center for Health Statistics (NCHS) has measured the prevalence of functional limitations in several of its surveys.¹ The data presented in this report, which come from the 1984 National Health Interview Survey (NHIS), will be discussed in greater detail in a future NCHS publication.

The NHIS is a continuing nationwide survey of the civilian noninstitutionalized population of the United States. Each year, people in about 40,000 households are interviewed by the U.S. Bureau of the Census to obtain information about their health and use of health care. Demographic information needed to interpret the data is also obtained. The interviewers on this survey have special training in addition to their regular training. Response rates are high—about 97 percent.

The 1984 NHIS included a special questionnaire, the Supplement on Aging (SOA), aimed at elderly people living in the community. The SOA was designed to collect information about physical limitations, chronic conditions, housing, retirement status, interactions with family and organizations, use of community services, and other health-related information about

middle-aged and older people. The SOA sample consisted of 16,148 persons age 55 years and over—4,651 age 55–64 years and 11,497 age 65 years and over. Detailed descriptions of the sample, survey operations, and field procedures are presented in *The Supplement on Aging to the National Health Interview Survey*.² Selected results of the SOA have been published in numerous NCHS publications.^{3–7}

Background

This report describes the functional limitations of persons age 65 years and over in terms of their performance of selected daily activities. Two measures of limitation are presented: (a) The proportion of persons who have difficulty performing each activity and (b) the proportion of persons who receive help with each activity. All estimates are based solely on persons living in the community; institutionalized individuals, such as those in nursing homes, are excluded. To the extent that the institutionalized elderly have more functional limitations than their noninstitutionalized counterparts,⁸ the data in this report underestimate the extent of functional limitation for the total elderly population.

Seven of the 13 activities discussed in this report involve personal care: Bathing, dressing, eating, getting in and out of bed and chairs (designated as “transferring” in tables 1–8), walking, getting outside, and using the toilet, sometimes known as “activities of daily living” or ADL’s.⁹ The remaining six activities, which concern home management, elsewhere have been termed “instrumental activities of daily living” or IADL’s.¹⁰ Home management activities are preparing meals, shopping for personal items, managing money, using the telephone, doing heavy housework, and doing light housework.

For this report, persons are classified as having difficulty with an activity if they responded positively to the question, "Because of a health or physical problem, do you have difficulty _____ing?" Persons who did not perform certain activities for reasons unrelated to health, such as men who did not cook because their wives did so, were included in the groups whose total numbers formed the denominators of the proportions of persons having difficulty with each activity. Had the analysis been restricted to individuals who routinely performed each activity, that is, to those at risk of health-related problems in their performance, the proportions of persons experiencing difficulty would have been higher. Numbers of persons who refused or were unable to say whether they had health-related problems performing personal care and home management activities were also included in the denominators for proportions of persons having difficulty with those activities. Such individuals made up approximately 1 percent of the elderly population. Because some of the individuals in these two groups may have had unreported problems performing the activities in question, percents in tables 1-8 are conservative estimates of the extent of functional disability, and the proportions of persons with no difficulty performing any of the activities are slightly overstated.

In this report, persons were classified as receiving help with an activity if they responded positively to the question,

"Do you receive help from another person in _____ing?" Only those individuals who reported having health-related difficulty with an activity were asked if they received help with that activity. Thus, this measure excludes persons who may have received help with an activity despite being able to perform the activity without assistance. Among those excluded are persons who may have received help with activities for which they were not at risk of having health-related problems, for example, activities not performed for cultural reasons. Finally, numbers of persons who refused or were unable to answer the questions on receiving help with various activities were included in the denominators of the proportions of persons receiving help, further reducing those percents. The net effect of the counting procedures used was that the percents of individuals with functional limitation based on numbers receiving help with various activities are conservative.

Difficulties with personal care activities

Of 26.4 million persons age 65 years and over living in the community, 4.9 million or 19 percent had difficulty walking (table 1). The elderly were more likely to have problems with walking than with any other personal care activity. Difficulty bathing and difficulty getting outside were each experienced by 10 percent of persons age 65 years and over. Eight percent had

Table 1. Percent of persons 65 years of age and over who have difficulty performing selected personal care activities by sex and age: United States, 1984

Sex and age	Personal care activity						
	Bathing	Dressing	Eating	Transferring	Walking	Getting outside	Using toilet
Both sexes							
Percent							
65 years and over	9.8	6.2	1.8	8.0	18.7	9.6	4.3
65-74 years	6.4	4.3	1.2	6.1	14.2	5.6	2.6
65-69 years	5.2	3.9	1.2	5.3	12.2	4.9	2.2
70-74 years	7.9	4.8	1.1	7.1	16.6	6.6	3.0
75-84 years	12.3	7.6	2.5	9.2	22.9	12.3	5.4
75-79 years	9.8	6.4	2.1	7.5	19.5	9.9	4.1
80-84 years	16.8	9.7	3.2	12.4	29.0	16.8	7.8
85 years and over	27.9	16.6	4.4	19.3	39.9	31.3	14.1
Male							
65 years and over	7.6	5.8	2.0	5.6	15.5	6.3	3.1
65-74 years	5.7	4.4	1.5	4.8	12.9	4.5	2.4
65-69 years	5.3	4.1	1.7	4.7	11.5	4.3	2.3
70-74 years	6.1	4.9	1.4	5.0	14.9	4.7	2.4
75-84 years	9.2	7.3	2.5	6.0	18.3	7.5	3.6
75-79 years	7.8	6.7	2.3	4.7	15.6	6.3	2.7
80-84 years	12.3	8.5	3.0	8.7	24.2	10.2	5.6
85 years and over	23.1	14.1	4.3	12.7	32.2	21.9	10.0
Female							
65 years and over	11.2	6.5	1.7	9.7	20.9	11.8	5.1
65-74 years	6.9	4.2	0.9	7.0	15.1	6.5	2.7
65-69 years	5.1	3.7	0.9	5.7	12.9	5.3	2.2
70-74 years	9.1	4.8	1.0	8.6	17.8	8.0	3.4
75-84 years	14.2	7.7	2.4	11.2	25.7	15.3	6.5
75-79 years	11.1	6.2	3.3	9.3	22.2	12.3	5.0
80-84 years	19.2	10.2	3.4	14.3	31.4	20.2	9.0
85 years and over	30.1	17.7	4.4	22.2	43.3	35.4	15.9

difficulty getting in and out of bed and chairs (transferring), and 6 percent experienced difficulty dressing themselves. Only 4 percent had any degree of difficulty using the toilet, including getting to the toilet. Eating was the personal care activity least often causing a problem. Only 2 percent of all persons age 65 years and over living in the community had difficulty eating.

More than three-fourths of the elderly, 77 percent of those age 65 years and over, did not have difficulty performing any of the seven personal care activities discussed in this report (table 2). Nine percent had difficulty performing one of the seven activities, 5 percent had difficulty with two activities, and 3 percent had difficulty with three activities. Six percent of all persons age 65 years and over living in the community had difficulty performing four or more of the seven personal care activities.

The proportion of elderly persons experiencing difficulty with each personal care activity increased with age. For example, 12 percent of persons age 65–69 years living in the community had difficulty walking, compared with 40 percent

of those 85 years and over. Whereas 85 percent of persons age 65–69 years had no difficulty with any of the seven personal care activities described in this report, almost half, 49 percent, of those 85 years and over had difficulty with one or more activities. The order of difficulty of the seven personal care activities, as indicated by the proportions of elderly experiencing problems in their performance, varied slightly by age; however, at all ages, walking was the most difficult and eating the least difficult.

A greater proportion of women than of men had difficulty bathing, transferring, walking, getting outside, and using the toilet. There were no statistically significant differences by sex in the percents of elderly persons who experienced difficulty dressing and eating. Twenty-five percent of women age 65 years and over had difficulty performing at least one of these seven personal care activities, compared with 19 percent of men age 65 years and over. When all persons age 65 years and over are considered, sex differentials in difficulty with personal care activities may reflect the fact that the women in this age group are older, on average, than the men. When more narrowly restricted age groups were considered, many of the differentials by sex were not statistically significant. For persons age 65–69 years, for example, there were no statistically significant differences between men and women in the proportions of individuals with difficulty performing any of the seven personal care activities described in table 1.

Table 2. Percent distribution of persons 65 years of age and over by number of personal care activities that are difficult, according to sex and age: United States, 1984

Sex and age	Number of personal care activities that are difficult					
	Total	None	1	2	3	4–7
Both sexes						
		Percent				
65 years and over.....	100.0	77.3	9.2	4.7	2.8	5.9
65–74 years.....	100.0	82.9	7.8	3.7	1.9	3.7
65–69 years....	100.0	85.3	6.8	3.1	1.5	3.2
70–74 years....	100.0	79.9	9.1	4.4	2.4	4.2
75–84 years.....	100.0	72.2	11.2	5.4	3.7	7.4
75–79 years....	100.0	75.9	10.8	4.3	3.3	5.7
80–84 years....	100.0	65.6	12.1	7.4	4.6	10.4
85 years and over.....	100.0	51.2	12.8	10.2	6.7	19.2
Male						
65 years and over.....	100.0	81.3	8.8	3.5	2.0	4.5
65–74 years.....	100.0	84.6	7.6	2.7	1.8	3.2
65–69 years....	100.0	86.5	6.6	2.1	1.5	3.2
70–74 years....	100.0	82.1	9.0	3.6	2.2	3.1
75–84 years.....	100.0	77.6	10.6	4.2	2.2	5.4
75–79 years....	100.0	80.3	10.1	2.9	2.4	4.4
80–84 years....	100.0	71.8	11.6	7.2	1.9	7.6
85 years and over.....	100.0	60.1	13.2	8.3	3.5	14.9
Female						
65 years and over.....	100.0	74.6	9.5	5.6	3.4	6.9
65–74 years.....	100.0	81.6	7.9	4.4	2.0	4.0
65–69 years....	100.0	84.4	7.0	3.9	1.5	3.2
70–74 years....	100.0	78.3	9.1	5.0	2.6	5.0
75–84 years.....	100.0	68.9	11.6	6.2	4.7	8.6
75–79 years....	100.0	73.0	11.2	5.4	3.9	6.6
80–84 years....	100.0	62.4	12.3	7.5	5.9	11.9
85 years and over.....	100.0	47.2	12.6	11.1	8.1	21.1

NOTE: Figures may not add to 100.0 because of rounding.

SOURCE: National Health Interview Survey, National Center for Health Statistics.

Difficulties with home management activities

About 6.3 million persons age 65 years and over living in the community had difficulty with heavy housework. Almost one-fourth, 24 percent, of elderly individuals experienced problems with this aspect of home management (table 3). This proportion is more than twice as great as for any other home management activity. In comparison, 11 percent of individuals age 65 years and over living in the community experienced difficulty managing money and using the telephone.

Twenty-seven percent of the population age 65 years and over had difficulty with at least one of the six home management activities described above (table 4). As age increased, so did the proportion of elderly who had difficulty with these activities. Less than one-fifth (18 percent) of persons age 65–69 years had difficulty with one or more home management activities, compared with more than half (55 percent) of those age 85 years and over. At all ages, the elderly experienced somewhat more difficulty with these six activities than with the seven personal care activities discussed previously.

Women of age 65 years and over were significantly more likely than men in the same age range to have difficulty performing most home management activities. For two activities, managing money and using the telephone, the differentials by sex were not statistically significant at most ages 65 years and over. For the other activities—preparing meals, shopping, and doing heavy and light housework—elderly men experienced fewer problems than women at almost all ages 65 years and over. These differentials may reflect, in part, the fact that for cultural reasons many elderly men do not routinely perform

Table 3. Percent of persons 65 years of age and over who have difficulty performing selected home management activities by sex and age: United States, 1984

Sex and age	Home management activity					
	Preparing meals	Shopping	Managing money	Using telephone	Doing heavy housework	Doing light housework
Both sexes						
	Percent					
65 years and over.....	7.1	11.3	5.1	4.8	23.8	7.1
65-74 years.....	4.0	6.4	2.2	2.7	18.6	4.3
65-69 years.....	3.5	5.4	1.9	2.1	16.4	3.8
70-74 years.....	4.7	7.7	2.6	3.4	21.3	5.0
75-84 years.....	8.8	15.0	6.3	6.0	28.7	8.9
75-79 years.....	7.1	11.8	5.2	5.0	25.7	7.1
80-84 years.....	11.9	21.0	8.2	7.8	34.0	12.0
85 years and over.....	26.1	37.0	24.0	17.5	47.8	23.6
Male						
65 years and over.....	4.7	7.3	4.4	5.6	13.7	4.9
65-74 years.....	3.0	4.6	2.8	3.5	11.2	3.5
65-69 years.....	2.6	4.1	2.6	3.0	9.8	3.5
70-74 years.....	3.6	5.3	3.1	4.3	13.0	3.4
75-84 years.....	6.0	9.6	5.4	7.9	15.9	6.2
75-79 years.....	5.1	7.6	5.2	6.3	14.6	5.2
80-84 years.....	7.8	13.9	5.8	11.3	18.9	8.2
85 years and over.....	18.5	26.8	19.0	18.4	33.3	15.2
Female						
65 years and over.....	8.7	14.1	5.5	4.2	30.8	8.7
65-74 years.....	4.8	7.8	1.8	2.0	24.3	5.0
65-69 years.....	4.2	6.4	1.4	1.3	21.8	4.0
70-74 years.....	5.5	9.4	2.3	2.8	27.3	6.2
75-84 years.....	10.5	18.4	6.8	4.8	36.4	10.5
75-79 years.....	8.3	14.5	5.2	4.1	33.2	8.4
80-84 years.....	14.0	24.7	9.3	6.0	41.7	14.0
85 years and over.....	29.5	41.6	26.2	17.1	54.2	27.4

SOURCE: National Health Interview Survey, National Center for Health Statistics.

home management activities. Thus, they are at reduced risk of having health-related difficulties in their performance.

Help with personal care activities

Of elderly persons age 65 years and over living in the community, 1.6 million or 6 percent received help with bathing themselves (table 5). As noted previously, these numbers exclude persons who may have received assistance not related to health-related problems with bathing themselves. Five percent each received help getting outside and walking, and 4 percent got help dressing. The proportions who received assistance with transferring, using the toilet, and eating were 3, 2, and 1 percent, respectively. At the oldest ages, 85 years and over, the proportion of individuals receiving help with personal care increased sharply, reaching 21 percent each for bathing and getting outside, 15 percent for walking, and 13 percent for dressing.

Only 25 percent of the elderly individuals who had difficulty walking received help with that activity. (This proportion was estimated by comparing the percents who had difficulty and received help with walking.) In contrast, 70 percent of those who had difficulty dressing received help, as did roughly 60 percent each of persons who experienced difficulty

bathing and eating. The numbers of persons receiving help using the toilet and getting outside represented 52 and 56 percent, respectively, of those who had difficulty performing those activities. Thirty-five percent of elderly persons who had difficulty transferring received help with that activity. The proportion of persons in need of assistance who received help with personal care increased with age for each of the seven activities examined in this report. For example, of persons having difficulty bathing, 75 percent of those age 85 years and over received help, compared with 56 percent of those age 65-69 years.

Overall, 10 percent of persons age 65 years and over living in the community were functionally limited in the sense that they received help with one or more personal care activities (table 6). This proportion increased with age from 5 percent of individuals age 65-69 years to 31 percent of those age 85 years and over. Of persons age 65 years and over who had difficulty with one or more aspects of personal care, 42 percent received help with at least one activity.

There were no statistically significant differences by sex in the proportions of persons 65 years and over receiving help with dressing, eating, or using the toilet. When all ages 65 years and over were considered, women were significantly more likely than men to receive help bathing and transferring. However, these differences were a function of the different age

Table 4. Percent distribution of persons 65 years of age and over by number of home management activities that are difficult, according to sex and age: United States, 1984

Sex and age	Number of home management activities that are difficult					
	Total	None	1	2	3	4-6
Both sexes						
		Percent				
65 years and over...	100.0	73.1	14.3	4.3	2.4	6.0
65-74 years	100.0	79.5	13.0	2.9	1.5	3.2
65-69 years	100.0	81.9	11.5	2.5	1.3	2.8
70-74 years	100.0	76.3	14.8	3.4	1.7	3.7
75-84 years	100.0	67.0	16.6	5.8	3.2	7.5
75-79 years	100.0	70.8	15.9	4.8	2.6	5.8
80-84 years	100.0	60.0	17.9	7.5	4.1	10.6
85 years and over...	100.0	44.8	15.2	9.3	6.6	24.2
Male						
65 years and over...	100.0	81.9	9.7	2.5	1.5	4.3
65-74 years	100.0	85.8	8.6	1.9	1.1	2.7
65-69 years	100.0	87.5	7.4	1.6	0.8	2.6
70-74 years	100.0	83.5	10.1	2.1	1.4	2.8
75-84 years	100.0	77.8	11.7	3.0	2.0	5.5
75-79 years	100.0	80.8	10.3	2.2	1.9	4.7
80-84 years	100.0	71.3	14.8	4.5	2.2	7.3
85 years and over...	100.0	56.8	12.5	8.1	4.9	17.8
Female						
65 years and over...	100.0	67.0	17.4	5.4	3.0	7.2
65-74 years	100.0	74.6	16.3	3.7	1.9	3.6
65-69 years	100.0	77.4	14.9	3.1	1.8	2.9
70-74 years	100.0	71.3	18.0	4.3	2.0	4.4
75-84 years	100.0	60.3	19.6	7.5	3.9	8.7
75-79 years	100.0	64.1	19.7	6.6	3.1	6.6
80-84 years	100.0	54.2	19.4	9.1	5.1	12.2
85 years and over...	100.0	39.5	16.4	9.8	7.4	27.0

NOTE: Figures may not add to 100.0 because of rounding.

SOURCE: National Health Interview Survey, National Center for Health Statistics.

structures for men and women and were not statistically significant within narrower age groups. Women were more likely than men to receive help walking within all 5-year age groups at age 75 years and over and to receive help getting outside within all age groups at age 70 years and over.

Of elderly persons who experienced difficulty bathing, dressing, eating, transferring, and using the toilet, the proportions receiving help with those activities were higher for men than women. For example, 77 percent of the men age 65 years and over who had difficulty dressing received help with that activity, compared with 65 percent of the women who had difficulty dressing. With respect to walking and getting outside, the situation was reversed, with women who had difficulty performing these activities more likely than men to receive help with them.

Help with home management activities

Of persons age 65 years and over living in the community, 5.1 million or 19 percent received help with heavy housework as a result of health-related problems performing that activity (table 7). This proportion increased with age, from 13 percent

of individuals age 65-69 years to 44 percent of those age 85 years and over. Smaller proportions of the elderly received health-related assistance with other aspects of household management. Eleven percent got help with shopping, 6 percent each with doing light housework and preparing meals, 5 percent with managing money, and 3 percent with using the telephone. For all these activities, the percent of individuals receiving help in their performance increased with age.

As shown in table 8, 22 percent of persons age 65 years and over received help in at least one home management activity, whereas 78 percent were independent in all activities. The proportion of individuals receiving help with at least one aspect of household management increased from 14 percent of persons age 65-69 years to 51 percent of those age 85 years and over.

The majority of older individuals who had difficulty with home management activities received help with those chores. Of persons age 65 years and over who experienced problems using the telephone, 62 percent received help with this activity. More than 80 percent of individuals who had difficulty preparing meals, shopping, managing money, and doing heavy and light housework received help with those aspects of their lives.

There were no statistically significant differences in the overall proportions of men and women age 65 years and over who received help managing money and using the telephone. When all ages 65 years and over were combined, women were more likely than men to get help with preparing meals and doing light housework; however, these differences were not significant within 5-year age categories. At all ages, however, women were more likely than men to receive help with heavy housework, and they more frequently got help with shopping within all 5-year age groups at age 70 years and over.

When only individuals who had difficulty with home management activities were considered, men got help with preparing meals and doing light and heavy housework more often than did women, while women were the more likely to get help using the telephone. Men and women in need of assistance with shopping and managing money were equally likely to get help with those activities.

Conclusion

When the prevalence of functional limitations was measured by the proportion of individuals who had any difficulty in performing personal care activities, about 23 percent (6 million) of the noninstitutionalized Americans 65 years and over were functionally limited. Whereas difficulty in performing a personal care activity may indicate some loss in the quality of life, it does not indicate, necessarily, a present or imminent need for health and social services. A better measure of that need is the proportion who receive help with a personal care activity, a subset of those who have difficulty with the activity. According to this measure of prevalence, about 2.5 million persons or 10 percent of all noninstitutionalized Americans 65 years and over were functionally limited.

If the prevalence of functional limitations is measured by the proportion of persons who experience any difficulty in performing home management activities, about 27 percent (7 million) of the noninstitutionalized Americans 65 years and

Table 5. Percent of persons 65 years of age and over who receive help performing selected personal care activities by sex and age: United States, 1984

Sex and age	Personal care activity						
	Bathing	Dressing	Eating	Transferring	Walking	Getting outside	Using toilet
Both sexes				Percent			
65 years and over	6.0	4.3	1.1	2.8	4.7	5.3	2.2
65-74 years	3.3	2.9	0.6	1.8	2.9	2.7	1.2
65-69 years	2.9	2.4	0.6	1.5	2.7	2.4	1.1
70-74 years	3.8	3.5	0.7	2.1	3.2	3.1	1.4
75-84 years	7.7	5.1	1.5	3.6	5.7	6.9	2.9
75-79 years	5.9	4.4	1.3	2.9	4.6	5.4	2.3
80-84 years	10.9	6.4	1.9	4.7	7.8	9.6	3.8
85 years and over	21.0	13.3	2.7	9.0	15.3	21.2	8.2
Male							
65 years and over	5.1	4.5	1.2	2.3	3.4	3.2	1.9
65-74 years	3.3	3.3	0.9	1.7	2.8	2.2	1.4
65-69 years	3.3	2.9	0.9	1.9	2.8	2.3	1.4
70-74 years	3.3	3.8	0.8	1.6	2.8	2.1	1.3
75-84 years	6.6	5.7	1.8	2.7	3.7	3.7	2.3
75-79 years	5.5	5.4	1.6	2.3	3.0	3.3	2.1
80-84 years	8.9	6.2	2.1	3.7	5.2	4.6	2.7
85 years and over	18.4	12.6	2.4	6.7	9.0	11.8	5.6
Female							
65 years and over	6.5	4.3	1.0	3.2	5.5	6.8	2.5
65-74 years	3.3	2.7	0.5	1.8	2.9	3.1	1.1
65-69 years	2.6	2.1	0.4	1.2	2.6	2.5	0.8
70-74 years	4.2	3.4	0.6	2.5	3.4	3.8	1.5
75-84 years	8.4	4.7	1.4	4.1	6.9	8.8	3.2
75-79 years	6.2	3.7	1.2	3.4	5.6	6.8	2.5
80-84 years	12.0	6.5	1.8	5.2	9.0	12.1	4.4
85 years and over	22.1	13.5	2.9	9.9	18.0	25.4	9.3

SOURCE: National Health Interview Survey, National Center for Health Statistics.

over were functionally limited. The proportion of noninstitutionalized Americans 65 years and over who received help with a home management activity was 22 percent, or about 5.9 million persons. If doing heavy housework had been eliminated from the list, the overall prevalence of functional limitation would have been substantially reduced. Regardless of which measure of functional limitation was used, its prevalence increased with age. Women were more likely than men to be limited in these activities, in part because of their older age distribution. Also, because men do not perform many of these activities for cultural reasons, they were at reduced risk of having difficulty or receiving health-related help with them.

Most older persons who had difficulty with various aspects

of home management received help with those activities. They were slightly less likely to receive assistance with personal care activities that posed problems for them, especially walking and getting into and out of chairs.

The ability or inability of the elderly to get help with difficult activities may be an important factor in determining which individuals are able to remain in the community and which must enter nursing homes or other institutions for needed care and assistance. Comparison of the data presented in this report with data for the institutionalized elderly may prove helpful in developing programs to aid older persons in their attempts to remain active and independent for as long as possible.

Table 6. Percent distribution of persons 65 years of age and over by number of personal care activities for which help is received, according to sex and age: United States, 1984

<i>Sex and age</i>	<i>Number of personal care activities for which help is received</i>					
	<i>Total</i>	<i>None</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4-7</i>
Both sexes						
65 years and over.....	100.0	90.4	3.9	1.9	1.1	2.8
65-74 years.....	100.0	94.0	2.8	1.1	0.6	1.5
65-69 years.....	100.0	94.7	2.4	1.0	0.7	1.2
70-74 years.....	100.0	93.2	3.2	1.2	0.6	1.9
75-84 years.....	100.0	88.1	4.5	2.4	1.5	3.5
75-79 years.....	100.0	90.5	3.3	2.0	1.4	2.8
80-84 years.....	100.0	83.6	6.7	3.2	1.7	4.8
85 years and over.....	100.0	68.9	10.9	6.2	3.1	10.8
Male						
65 years and over.....	100.0	92.2	3.3	1.4	0.8	2.3
65-74 years.....	100.0	94.2	2.6	1.0	0.5	1.6
65-69 years.....	100.0	94.6	2.3	0.9	0.5	1.7
70-74 years.....	100.0	93.7	3.1	1.2	0.6	1.5
75-84 years.....	100.0	90.6	3.6	1.8	1.0	3.0
75-79 years.....	100.0	91.5	3.1	1.9	1.1	2.3
80-84 years.....	100.0	88.6	4.7	1.6	0.7	4.4
85 years and over.....	100.0	76.6	9.0	4.1	2.4	7.9
Female						
65 years and over.....	100.0	89.1	4.3	2.2	1.3	3.1
65-74 years.....	100.0	93.9	2.8	1.1	0.7	1.5
65-69 years.....	100.0	94.8	2.5	1.0	0.8	0.9
70-74 years.....	100.0	92.8	3.3	1.2	0.6	2.2
75-84 years.....	100.0	86.5	5.1	2.7	1.9	3.8
75-79 years.....	100.0	89.8	3.4	2.0	1.6	3.2
80-84 years.....	100.0	81.0	7.8	4.0	2.3	4.9
85 years and over.....	100.0	65.5	11.7	7.2	3.5	12.1

NOTE: Figures may not add to 100.0 because of rounding.

SOURCE: National Health Interview Survey, National Center for Health Statistics.

Table 7. Percent of persons 65 years of age and over who receive help performing selected home management activities by sex and age: United States, 1984

Sex and age	Home management activity					
	Preparing meals	Shopping	Managing money	Using telephone	Doing heavy housework	Doing light housework
Both sexes						
Percent						
65 years and over.....	6.0	10.5	4.8	3.0	19.3	6.2
65-74 years.....	3.3	5.8	2.1	1.5	14.5	3.6
65-69 years.....	2.9	4.9	1.7	1.2	12.8	3.2
70-74 years.....	3.8	6.9	2.5	1.9	16.6	4.2
75-84 years.....	7.1	14.1	5.8	3.9	23.1	7.6
75-79 years.....	5.9	10.9	4.8	3.3	20.5	6.0
80-84 years.....	10.9	19.8	7.5	5.0	27.8	10.4
85 years and over.....	23.7	35.9	23.5	11.7	44.1	21.6
Male						
65 years and over.....	4.4	6.9	4.2	3.3	11.4	4.5
65-74 years.....	2.8	4.3	2.6	2.0	9.3	3.2
65-69 years.....	2.4	3.9	2.3	1.7	8.4	3.3
70-74 years.....	3.4	4.9	2.9	2.4	10.4	3.1
75-84 years.....	5.4	8.9	5.0	5.0	12.7	5.7
75-79 years.....	4.6	7.1	4.9	4.3	11.4	4.7
80-84 years.....	7.0	12.7	5.2	6.5	15.5	7.8
85 years and over.....	17.7	26.4	19.0	10.9	30.0	14.4
Female						
65 years and over.....	7.1	13.0	5.2	2.7	24.7	7.3
65-74 years.....	3.7	6.9	1.7	1.1	18.5	4.0
65-69 years.....	3.3	5.7	1.3	0.7	16.3	3.1
70-74 years.....	4.1	8.2	2.1	1.5	21.0	5.0
75-84 years.....	8.2	17.2	6.3	3.2	29.4	8.7
75-79 years.....	6.6	13.4	4.8	2.7	26.6	6.9
80-84 years.....	10.8	23.4	8.7	4.2	34.0	11.7
85 years and over.....	26.3	40.1	25.6	12.1	50.3	24.8

SOURCE: National Health Interview Survey, National Center for Health Statistics.

Table 8. Percent distribution of persons 65 years of age and over by number of home management activities for which help is received, according to sex and age: United States, 1984

<i>Sex and age</i>	<i>Number of home management activities for which help is received</i>						
	<i>Total</i>	<i>None</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4-6</i>	
Both sexes		Percent					
65 years and over.....	100.0	77.8	11.4	3.5	2.4	5.0	
65-74 years.....	100.0	83.9	9.8	2.3	1.6	2.4	
65-69 years.....	100.0	85.9	8.6	2.0	1.5	2.1	
70-74 years.....	100.0	81.4	11.3	2.7	1.7	2.9	
75-84 years.....	100.0	72.4	13.9	4.7	3.0	6.0	
75-79 years.....	100.0	75.7	13.4	3.8	2.3	4.8	
80-84 years.....	100.0	66.3	14.8	6.4	4.3	8.2	
85 years and over.....	100.0	48.6	14.6	8.7	6.2	22.0	
Male							
65 years and over.....	100.0	85.4	7.2	2.0	1.6	3.8	
65-74 years.....	100.0	88.6	6.5	1.5	1.2	2.3	
65-69 years.....	100.0	89.7	5.8	1.4	1.0	2.2	
70-74 years.....	100.0	87.1	7.4	1.6	1.4	2.5	
75-84 years.....	100.0	82.6	8.4	2.3	1.9	4.8	
75-79 years.....	100.0	84.9	7.4	1.8	2.0	4.0	
80-84 years.....	100.0	77.9	10.5	3.5	1.7	6.4	
85 years and over.....	100.0	61.4	10.4	7.2	4.5	16.5	
Female							
65 years and over.....	100.0	72.5	14.3	4.6	2.9	5.8	
65-74 years.....	100.0	80.3	12.3	3.0	1.9	2.5	
65-69 years.....	100.0	82.8	10.9	2.5	1.8	2.0	
70-74 years.....	100.0	77.4	14.0	3.5	1.9	3.2	
75-84 years.....	100.0	66.1	17.2	6.2	3.7	6.8	
75-79 years.....	100.0	69.6	17.4	5.2	2.5	5.3	
80-84 years.....	100.0	60.3	17.0	7.9	5.6	9.2	
85 years and over.....	100.0	42.8	16.5	9.4	6.9	24.4	

NOTE: Figures may not add to 100.0 because of rounding.

SOURCE: National Health Interview Survey, National Center for Health Statistics.

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Technical notes

Data presented in this report were obtained from household interviews of the 1984 National Health Interview Survey (NHIS). These interviews were conducted among a probability sample of the civilian noninstitutionalized population of the United States. During 1984, approximately 105,000 persons living in about 41,000 households were included in the sample. The total noninterview rate for the NHIS was 3.6 percent.

The Supplement on Aging (SOA) was designed to be administered to all individuals of age 65 years and over who were included in the 1984 NHIS sample, and to one-half of the individuals of age 55–64 years. Interviewers strongly encouraged the people selected to answer the SOA questions to respond for themselves. As a result, 90 percent of the responses to the SOA were completely self-responses. A negative result of the added emphasis on self-response in the SOA was that no information was collected for some individuals even though other household members had provided information for them on the core NHIS questionnaire. Fortunately, this defect occurred infrequently; the effective response rate for the SOA was 93 percent of the NHIS sample. Interviews were conducted for 4,651 persons of age 55–64 years and 11,497 persons of age 65 years and over.

This analysis was restricted to persons of age 65 years and over. The 11,497 NHIS sample cases represented a national population of 26.4 million persons. The distribution of this population by sex and age is shown in table I.

The estimates in this report are based on a sample rather than the entire population of age 65 years and over. Therefore, the estimates are subject to sampling error. In addition, the complex sample design of the NHIS has the effect of making the sampling errors larger than they would be had a simple random sample of equal size been used. Standard errors for percents (x/y) where the denominator (y) is all men, women,

or persons of age 65–74 years or 65 years and over can be calculated using this formula:

$$SE\left(\frac{x}{y}\right) = \frac{x}{y} - 0.0000184 + \frac{3,691.285}{x}$$

Standard errors for percents (x/y) where the denominator (y) is some other population group, for example, all persons of age 85 years and over, can be calculated using this formula:

$$SE\left(\frac{x}{y}\right) = \frac{3,691.285x/y(1 - x/y)}{y}$$

The values of y are presented in tables 2, 4, 6, and 8. Values of x can be derived by multiplying the y values by the percents presented in tables 1, 3, 5, and 7.

To better understand the limitations of the estimates presented in this report, data users are encouraged to familiarize themselves with the survey design, the method used in estimation, and the general qualifications of the data, which are described in appendix I of *Current Estimates From the National Health Interview Survey: United States, 1984*.¹¹ The questionnaires for the 1984 core survey and the SOA are presented in appendix III of the report.

Also important for interpreting the data presented in this report is a thorough understanding of what this, or any other, cross-sectional survey can provide. There are two issues—one important for any cross-sectional analysis and the other for analysis of older people.

First, the NHIS is a point-in-time study. Associations at one point in time do not necessarily indicate causality. The differences among the age groups, for example, could be the result of aging or, alternatively, they could be the result of different cohorts moving through time. Based on external knowledge, a difference in the proportions of persons experiencing difficulty with a specific activity could be interpreted as the result of aging, but the data from a cross-sectional survey may not enable one to make that distinction.

Second, this is a study of people who were living in the community at the time they, or proxy respondents, were interviewed. All of the elderly people who had left the population through institutionalization are excluded. The exclusion of these individuals, who may be expected to have demonstrated a different level of functional limitation than the SOA respondents, creates a bias in the estimates that must be borne in mind when interpreting the survey results.

Table I. Estimated number of persons 65 years of age and over by sex and age: United States, 1984

Age	All persons	Sex	
		Male	Female
Number in thousands			
65 years and over	26,433	10,787	15,645
65–74 years	16,288	7,075	9,213
65–69 years	9,088	4,081	5,007
70–74 years	7,200	2,994	4,206
75–84 years	8,249	3,128	5,121
75–79 years	5,320	2,137	3,183
80–84 years	2,929	991	1,938
85 years and over	1,897	585	1,312

SOURCE: National Health Interview Survey, National Center for Health Statistics.

NOTE: A list of references follows the text.

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

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

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

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

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

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

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

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

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

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

Assurance of Confidentiality—Information which would permit identification of an individual, a practice or an establishment will be held confidential and will not be released to 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.

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

B 467333

PATIENT RECORD
NATIONAL AMBULATORY MEDICAL CARE SURVEY

OMB No. 0937-0141
Expires 9/30/88
(PHS) 6105-B
456-232

<p>1. DATE OF VISIT</p> <p>____/____/____ Month Day Year</p>																																								
<p>2. DATE OF BIRTH</p> <p>____/____/____ Month Day Year</p>	<p>3. SEX</p> <p><input type="checkbox"/> FEMALE <input type="checkbox"/> MALE</p>	<p>4. COLOR OR RACE</p> <p><input type="checkbox"/> WHITE <input type="checkbox"/> BLACK <input type="checkbox"/> ASIAN/PACIFIC ISLANDER <input type="checkbox"/> AMERICAN INDIAN/ALASKA NATIVE</p>	<p>5. ETHNICITY</p> <p><input type="checkbox"/> HISPANIC <input type="checkbox"/> NON-HISPANIC</p>	<p>6. EXPECTED SOURCE(S) OF PAYMENT <i>(Check all that apply)</i></p> <p>1 <input type="checkbox"/> SELF PAY 4 <input type="checkbox"/> BLUE CROSS 2 <input type="checkbox"/> MEDICARE 5 <input type="checkbox"/> OTHER COMMERCIAL INSURANCE 3 <input type="checkbox"/> MEDICAID 6 <input type="checkbox"/> HMO PRE-PAID PLAN</p>		<p>7. WAS PATIENT REFERRED FOR THIS VISIT BY ANOTHER PHYSICIAN?</p> <p>1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO</p>																																		
<p>8. PATIENT'S COMPLAINT(S), SYMPTOM(S) OR OTHER REASON(S) FOR THIS VISIT <i>(Check all that apply)</i></p> <p>a. MOST IMPORTANT</p> <p>_____</p> <p>b. OTHER</p> <p>_____</p>			<p>9. GLUCOSE TESTS THIS VISIT <i>(Check all ordered or provided)</i></p> <p>1 <input type="checkbox"/> NONE 2 <input type="checkbox"/> BLOOD 3 <input type="checkbox"/> URINE 4 <input type="checkbox"/> ORAL</p>	<p>10. OTHER DIAGNOSTIC SERVICES THIS VISIT <i>(Check all ordered or provided)</i></p> <p>1 <input type="checkbox"/> NONE 6 <input type="checkbox"/> URINALYSIS 11 <input type="checkbox"/> BLOOD PRESSURE CHECK 2 <input type="checkbox"/> BREAST EXAM 7 <input type="checkbox"/> HEMATOLOGY 12 <input type="checkbox"/> EKG 3 <input type="checkbox"/> PELVIC EXAM 8 <input type="checkbox"/> BLOOD CHEMISTRY 13 <input type="checkbox"/> CHEST X-RAY 4 <input type="checkbox"/> RECTAL EXAM 9 <input type="checkbox"/> PAP TEST 14 <input type="checkbox"/> OTHER RADIOLOGY 5 <input type="checkbox"/> VISUAL ACUITY 10 <input type="checkbox"/> OTHER LAB TEST 15 <input type="checkbox"/> ULTRASOUND 16 <input type="checkbox"/> OTHER SERVICE <i>(Specify)</i></p>																																				
<p>11. PHYSICIAN'S DIAGNOSES</p> <p>a. PRINCIPAL DIAGNOSIS/PROBLEM ASSOCIATED WITH ITEM 8a</p> <p>_____</p> <p>b. OTHER SIGNIFICANT CURRENT DIAGNOSES</p> <p>_____</p>		<p>12. HAVE YOU SEEN PATIENT BEFORE?</p> <p>1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO</p> <p style="text-align: center;">↓ IF YES FOR THE CONDITION IN ITEM 11a?</p> <p>1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO</p>	<p>13. NON-MEDICATION THERAPY <i>(Check all services ordered or provided this visit)</i></p> <p>1 <input type="checkbox"/> NONE 5 <input type="checkbox"/> PSYCHOTHERAPY 9 <input type="checkbox"/> CORRECTIVE LENSES 2 <input type="checkbox"/> PHYSIOTHERAPY 6 <input type="checkbox"/> FAMILY PLANNING 10 <input type="checkbox"/> OTHER <i>(Specify)</i> 3 <input type="checkbox"/> AMBULATORY SURGERY 7 <input type="checkbox"/> DIET COUNSELING 4 <input type="checkbox"/> RADIATION THERAPY 8 <input type="checkbox"/> OTHER COUNSELING</p>																																					
<p>14. MEDICATION THERAPY <i>Record all new or continued medications ordered or provided at this visit. Use the same brand name or generic name entered on any Rx or other medical record.</i></p> <p>IF NONE, CHECK HERE <input type="checkbox"/></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">a NEW MEDICATION?</th> <th colspan="2">b FOR DX IN ITEM 11a?</th> </tr> <tr> <th>YES</th> <th>NO</th> <th>YES</th> <th>NO</th> </tr> </thead> <tbody> <tr> <td>_____</td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> </tr> <tr> <td>_____</td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> </tr> <tr> <td>_____</td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> </tr> <tr> <td>_____</td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> </tr> <tr> <td>_____</td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> <td>1 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> </tr> </tbody> </table>						a NEW MEDICATION?		b FOR DX IN ITEM 11a?		YES	NO	YES	NO	_____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	_____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	_____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	_____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	_____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	<p>15. DISPOSITION THIS VISIT <i>(Check all that apply)</i></p> <p>1 <input type="checkbox"/> NO FOLLOW-UP PLANNED 2 <input type="checkbox"/> RETURN AT SPECIFIED TIME 3 <input type="checkbox"/> RETURN IF NEEDED PRN 4 <input type="checkbox"/> TELEPHONE FOLLOW-UP PLANNED 5 <input type="checkbox"/> REFERRED TO OTHER PHYSICIAN 6 <input type="checkbox"/> RETURNED TO REFERRING PHYSICIAN 7 <input type="checkbox"/> ADMIT TO HOSPITAL 8 <input type="checkbox"/> OTHER <i>(Specify)</i></p>	<p>16. DURATION OF THIS VISIT <i>(Time actually spent with physician)</i></p> <p>_____ Minutes</p>
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Figure 1. National Ambulatory Medical Care Survey Patient Record

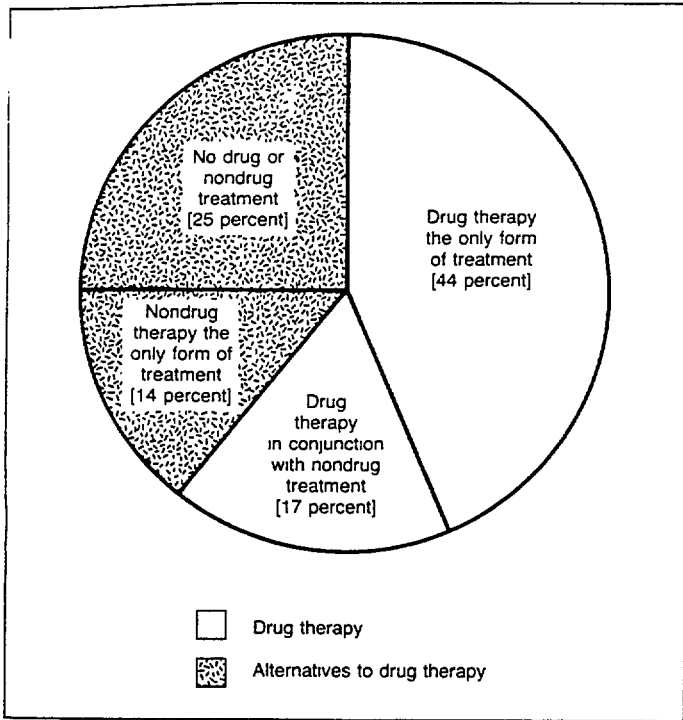


Figure 2. Percent distribution of office visits by treatment modality: United States, 1985

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

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

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

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

Diagnosis

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

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

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

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

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

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

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

Entry name of drug ¹	Number of mentions in thousands	Rank	Therapeutic use
All drugs	693.355
Aldomet (methyldopa)	3,888	29	Antihypertensive
Amoxicillin	10,959	1	Antibiotic
Amoxil (amoxicillin)	7,858	5	Antibiotic
Ampicillin	6,557	8	Antibiotic
Aspirin or A.S.A.	5,224	16	Analgesic, antipyretic, anti-inflammatory
Benadryl (diphenhydramine)	4,028	26	Antihistaminic
Ceclor (cefaclor)	3,783	30	Antibiotic
Coumadin (warfarin)	2,631	48	Anticoagulant
Darvocet-N (propoxyphene, acetaminophen)	3,610	34	Analgesic
Diabinese (chlorpropamide)	3,036	43	Hypoglycemic agent
Digoxin	3,766	31	Cardiotonic
Dimetapp (brompheniramine, phenylpropanolamine)	3,145	42	Antihistaminic, decongestant
Diphtheria tetanus toxoids pertussis	5,805	12	Immunization
Dyazide (triamterene, hydrochlorothiazide)	9,304	3	Diuretic, antihypertensive
E.E.S. (erythromycin)	4,791	20	Antibiotic
Erythromycin	4,494	21	Antibiotic
Feldene (piroxicam)	3,572	36	Nonsteroidal anti-inflammatory agent
Hydrochlorothiazide or HCTZ	5,636	13	Diuretic
Inderal (propranolol)	7,844	6	Arrhythmia, angina pectoris, hypertension, migraine
Indocin (indomethacin)	3,177	39	Nonsteroidal anti-inflammatory agent
Influenza virus vaccine	2,869	47	Immunization
Insulin	2,566	50	Hypoglycemic agent
Isordil (isosorbide dinitrate)	2,921	45	Vasodilator
Keflex (cephalexin)	6,255	11	Antibiotic
Lanoxin (digoxin)	8,308	4	Cardiotonic
Lasix (furosemide)	10,654	2	Diuretic, antihypertensive
Lopressor (metoprolol)	3,761	32	Hypertension, angina pectoris
Materna (multivitamin)	2,584	49	Prenatal supplement
Motrin (ibuprofen)	7,295	7	Nonsteroidal anti-inflammatory agent
Naalcocon (phenylephrine, phenylpropanolamine, phenyltoloxamine, chlorpheniramine)	3,206	38	Antihistaminic, decongestant
Naprosyn (naproxen)	6,489	9	Nonsteroidal anti-inflammatory agent
Nitroglycerin	3,164	41	Vasodilator
Ortho-novum (norethindrone, estradiol or mestranol)	3,176	40	Oral contraceptive
Pen-Vee-K (penicillin)	3,577	35	Antibiotic
Persantine (dipyridamole)	4,295	22	Angina pectoris
Polio vaccine	4,122	24	Immunization
Prednisone	6,454	10	Steroidal anti-inflammatory agent
Premarin (estrogens)	4,292	23	Estrogen replacement therapy
Prenatal vitamins	2,911	46	Prenatal supplement
Synthroid (levothyroxine)	3,001	44	Thyroid replacement
Tagamet (cimetidine)	5,205	17	Duodenal or gastric ulcer
T.B. Tine test (tuberculin)	3,257	37	Tuberculosis skin test
Tenormin (atenolol)	5,443	15	Antihypertensive, angina pectoris
Tetracycline	5,474	14	Antibiotic
Theo-dur (theophylline)	4,852	19	Bronchodilator
Timoptic (timolol)	3,901	28	Glaucoma
Tylenol (acetaminophen)	5,082	18	Analgesic
Tylenol No. 3 (acetaminophen, codeine)	3,909	27	Analgesic
Valium (diazepam)	3,672	33	Anxiety disorders
Xanax (alprazolam)	4,071	25	Anxiety disorders

¹The trade or generic name used by the physician on the prescription or other medical records. The use of trade names is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services. Because of its nonspecific nature, the entry "Allergy relief or shots," with 7,607,000 mentions, is omitted.

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

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

Patient

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

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

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

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

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

The relationship between the sex of the patient and drug utilization requires careful evaluation: A gender comparison

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

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

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

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

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

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

See footnotes at end of table

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

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

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

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

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

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

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

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

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

²Asian, Pacific Islander, American Indian, or Alaskan native

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

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

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

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

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

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

Physician

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

practitioners—as the specialty findings in table 8 make evident—lead most of the other specialists in the tempo and volume of their drug utilization.

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

Noteworthy contrasts between 1985 and 1981 drug findings

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

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

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

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

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

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

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

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

[Limited to the agents listed in table 3]

Generic ingredient	Therapeutic use	Percent increase ¹
Acetaminophen	Analgesic, antipyretic	51
Amoxicillin	Antibiotic	55
Atenolol	Antihypertensive, angina pectoris	> 100
Dipyridamole	Angina pectoris	> 100
Estrogens	Estrogen replacement therapy, oral contraception	65
Ibuprofen	Nonsteroidal anti-inflammatory agent	58
Naproxen	Nonsteroidal anti-inflammatory agent	33
Nitroglycerin	Vasodilator	59
Norethindrone	Oral contraceptive	37
Timolol	Glaucoma	> 100

¹Based on volume of drug mentions.

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

[Limited to the agents listed in table 3]

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

¹Based on volume of drug mentions.

Technical notes

Source of data and sample design

The information presented in this report is based on data collected by means of the 1985 National Ambulatory Medical Care Survey (NAMCS) during the period from March 1985 through February 1986. The target universe of NAMCS comprises office visits made within the coterminous United States to non-Federal physicians who are principally engaged in office practice, but not in the specialties of anesthesiology, pathology, or radiology. Telephone contacts and nonoffice visits are excluded.

NAMCS uses a multistage probability sample design that involves samples of primary sampling units (PSU's), physician practices within PSU's, and patient visits within physician practices. For 1985, a sample of 5,032 non-Federal, office-based physicians was selected from master files maintained by the American Medical Association and the American Osteopathic Association. The physician response rate was 70.2 percent. Sampled physicians were asked to complete Patient Records (figure 1) for a systematic random sample of their office visits over a randomly assigned 1-week reporting period. Responding physicians completed 71,594 Patient Records.

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

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

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

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

Base of percent (number of office visits in thousands)	Estimated percent					
	1 or 99	5 or 95	10 or 90	20 or 80	30 or 70	50
	Standard error in percentage points					
200	3.7	8.2	11.3	15.0	17.2	18.8
500	2.4	5.2	7.1	9.5	10.9	11.9
1,000	1.7	3.7	5.0	6.7	7.7	8.4
2,000	1.2	2.6	3.6	4.8	5.4	5.9
5,000	0.7	1.6	2.3	3.0	3.4	3.8
10,000	0.5	1.2	1.6	2.1	2.4	2.7
20,000	0.4	0.8	1.1	1.5	1.7	1.9
50,000	0.2	0.5	0.7	1.0	1.1	1.2
100,000	0.2	0.4	0.5	0.7	0.8	0.8
600,000	0.1	0.1	0.2	0.3	0.3	0.3

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

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

Sampling errors

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

Rounding of numbers

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

Definitions of terms used in this report

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

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

Use of Nursing Homes by the Elderly: Preliminary Data From the 1985 National Nursing Home Survey

by Esther Hing, Division of Health Care Statistics

Introduction

Most elderly people are not in nursing homes. Of an estimated 28.5 million Americans aged 65 years and over in the United States, only 5 percent were residents of nursing homes on any given day from August 1985 through January 1986. This finding from the 1985 National Nursing Home Survey (NNHS) is consistent with findings from previous National Nursing Home Surveys conducted in 1973-74 and 1977.¹ In these surveys also it was found that about 5 percent of the elderly were residents of nursing homes.

Differences, however, exist in the use of nursing homes by age, sex, and race subgroups. In this report, these differences in use rates are examined. Differences in the health and socioeconomic characteristics of elderly nursing home residents by age, sex, and race are also discussed. The health and socioeconomic characteristics examined in this report are functional dependencies in the basic activities of daily living—bathing, dressing, using the toilet room, transferring from a bed or chair, continence, and eating; cognitive functioning (disorientation or memory impairment and senile dementia or chronic organic brain syndrome); marital status at admission; whether residents had living children; living arrangements prior to admission to the nursing home; and primary source of payment at admission. The focus of this report will be a comparison of the characteristics of the elderly who reside in nursing homes with characteristics of those who reside in the community.

The data presented in this report are from the 1985 National Nursing Home Survey, a nationwide sample survey of nursing homes, their residents, discharges, and staff conducted by the National Center for Health Statistics. The survey, which was conducted from August 1985 through January 1986, was one third of a continuing series of nursing home surveys. The first survey was conducted from August 1973 through April

1974, and the second was conducted from May through December 1977.

Facilities included in the 1985 NNHS were nursing and related care homes in the conterminous United States that had three or more beds set up and staffed for use by residents and that routinely provided nursing and personal care services. A facility could be free standing or could be a nursing care unit of a hospital, retirement center, or similar institution as long as the unit maintained financial and employee records separate from the parent institution. Places providing only room and board were excluded, as were places serving only persons with specific health problems (for example, mental retardation or alcoholism).

The sampling frame for the 1985 NNHS consisted of the following components:

- The 1982 National Master Facility Inventory (NMFI),² a census of nursing and related care homes conducted by the National Center for Health Statistics.
- Homes identified in the 1982 Complement Survey of the NMFI as "missing" from the 1982 NMFI.
- Nursing homes opened for business from 1982 through June 1984.
- Hospital-based nursing homes identified in records of the Health Care Financing Administration.

The resulting frame contained 20,749 nursing homes. In this report, the terms "nursing homes" and "nursing and related care homes" are used interchangeably.

Estimates in this report are based on a sample of 4,646 elderly residents of the 1,079 nursing homes participating in the survey. A fixed sample of five or fewer residents per sample facility was selected. Residents included in the sample were those on the nursing home's roster the night before data collection began. Data were collected by interviewing knowledgeable

nursing home staff members, who referred to the residents' medical records when necessary. Additional followup information on the sample residents was collected by telephone interview with the residents' next of kin. (A resident's guardian or friends were contacted if there was no next of kin.) Data collected from the next of kin focused on the circumstances and reasons for the resident's nursing home admission. In this report, only data obtained from the nursing home staff are presented. In later reports estimates from the next-of-kin component will be included.

Data presented in this report are preliminary and may differ slightly from estimates presented in later reports because of further data editing. Another report presenting preliminary estimates of nursing homes and utilization characteristics of homes has already been published.³

Although data on residents reported by the nursing home staff were collected in a similar manner in earlier National Nursing Home Surveys as in the 1985 survey, note should be taken of some differences. First, personal care and domiciliary care homes were excluded from the scope of the 1973-74 NNHS but included in the two later surveys. The effect of this difference, however, is small because only about 2 percent of all nursing homes in 1973 were personal care or domiciliary care homes and they housed only about 1 percent of the beds and residents.⁴ Second, certain variables presented in this and later reports were not available from the previous surveys. Data on some variables discussed in this report—marital status at admission, the presence of living children, ability to transfer in or out of a bed or chair, and primary source of payment at admission—were not collected in the earlier surveys. Third, race and ethnicity were collected as a single item in the 1973-74 and 1977 surveys but as separate items in 1985. This difference should be considered when comparing data by race from the 1985 NNHS and previous surveys.

Because data in this report are national estimates based on a sample, they are subject to sampling errors. Information on sampling variability is presented in the Technical notes.

Utilization rates

In 1985 an estimated 1,491,400 residents lived in 19,100 nursing homes nationwide. Of these residents, 1,315,800, or 88 percent, were 65 years of age and over. The number of elderly residents in nursing homes increased 17 percent from 1977 to 1985. Residents aged 85 years and over comprised the largest age group (45 percent), followed by those aged 74-85 years (39 percent) and 65-74 years (16 percent). Because of the preponderance of the very old in nursing homes, those aged 85 years and over accounted for 76 percent of the increase in elderly residents from 1977 to 1985. The proportion of elderly residents who were aged 85 years and over increased from 40 percent in 1977 to 45 percent in 1985.

Not only were nursing home residents typically very old but they also tended to be female and white. Seventy-five percent of elderly residents were female. Similarly, 93 percent of elderly residents were white. Only 6 percent were black, and less than 1 percent were other races (a category that includes Asian and Pacific Islanders, American Indians, and Alaska Natives). On

the average, elderly females were older than their male counterparts (84 versus 81 years). Elderly white residents, who had an average age of 83 years, also tended to be slightly older than elderly black residents (81 years) and other residents (80 years).

As measured by the percent of elderly residing in nursing homes, the patterns of nursing home utilization mirrored the distributions of residents by age, sex, and race. On any given day during the survey period, 5 percent of the population aged 65 years and over resided in nursing homes (table 1). The rate of nursing home use increased sharply from 1 percent of those aged 65-74 years to 22 percent of those 85 years and over. Elderly females were twice as likely as elderly males to be residents of nursing homes. Six percent of elderly females were in nursing homes, compared with 3 percent of elderly males. Although use of nursing homes increased with advancing age for both sexes, women used nursing homes at significantly higher rates than men did regardless of the age group. Greater use by women was especially true in the oldest age group. One in four women 85 years of age and over resided in nursing homes, compared with one in seven men of the same age (figure 1). This greater utilization by elderly women than men is a reflection of women's longer life expectancy.⁵ It is also a reflection of a greater tendency among persons without spouses and with poor health to enter nursing homes.

Elderly white persons are more likely to reside in nursing homes than black persons and those of other races are. In 1985, 5 percent of the elderly white population, compared with 4 and 2 percent of the population of black and other races, respectively resided in nursing homes. The greater likelihood of elderly white people to reside in nursing homes was particularly true in the oldest age group. Of the population 85 years and over, 23 per-

Table 1. Number, percent distribution, and rate of nursing home residents 65 years of age and over by age, sex, and race: United States, 1985

<i>Age, sex, and race</i>	<i>Number of residents</i>	<i>Percent distribution</i>	<i>Number of residents per 1,000 population 65 years and over¹</i>
Total.....	1,315,800	100.0	46.1
Age			
65-74 years.....	212,100	16.1	12.5
75-84 years.....	509,000	38.7	57.7
85 years and over...	594,700	45.2	219.4
Sex			
Male.....	334,000	25.4	29.0
Female.....	981,900	74.6	57.7
Race			
White.....	1,224,900	93.1	47.6
Black.....	82,000	6.2	35.0
Other.....	8,900	0.7	20.1

¹ Population data used to compute rates are from—U.S. Bureau of the Census: Estimates of the population of the United States by age, sex, and race, 1980 to 1985 *Current Population Reports Series P-25 No 985* Washington, U.S. Government Printing Office, Apr 1986

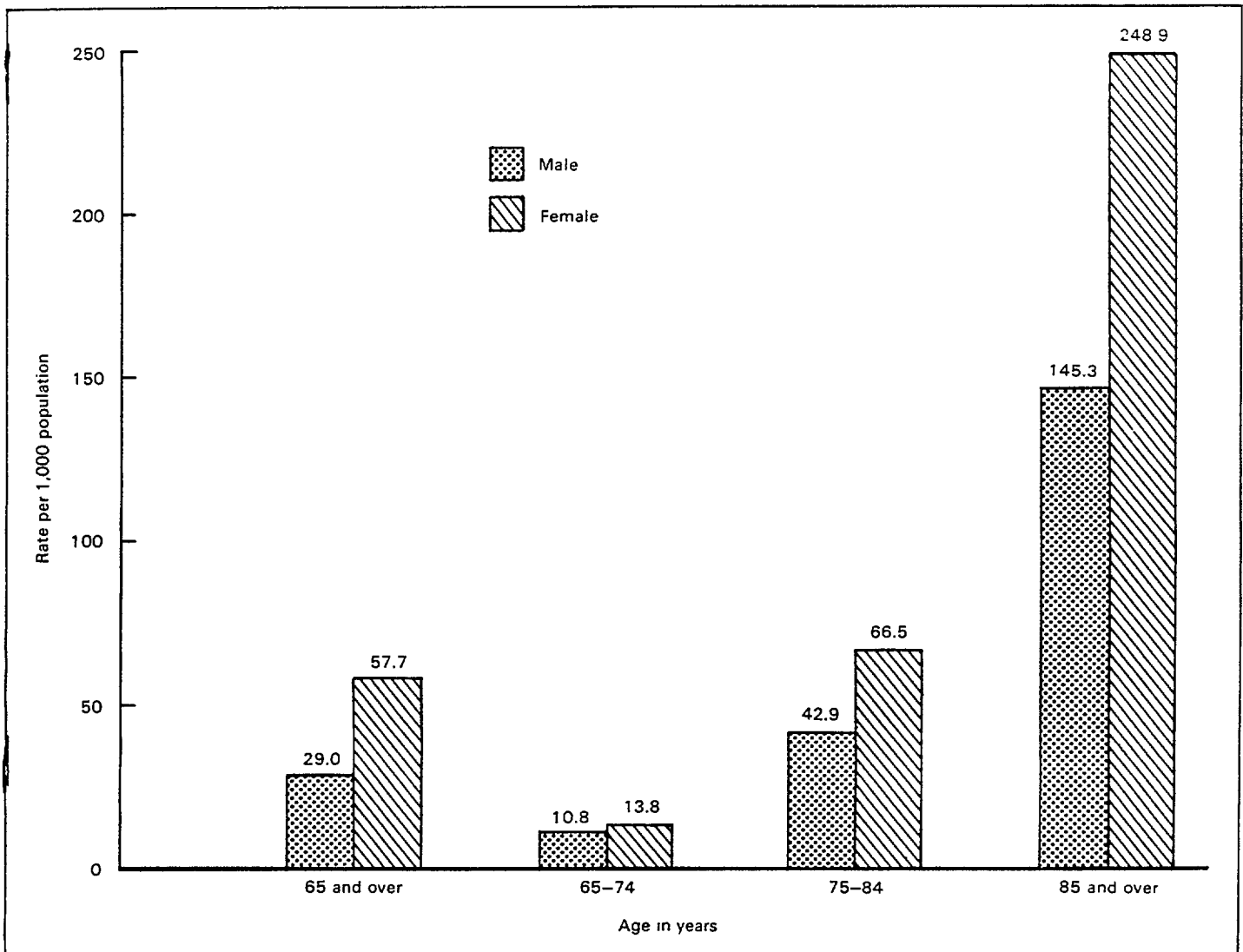


Figure 1. Number of nursing home residents per 1,000 population 65 years of age and over, by sex and age: United States, 1985

cent of white people, compared with 14 percent of black people, resided in nursing homes.

This lower use by elderly black people and those of other races may result from substitution of informal care at home for formal nursing home care. According to data from the 1982 Long-Term Care Survey, a higher proportion of elderly black people and people of other races than elderly white people were functionally impaired and remained in the community. Overall, 29 percent of the noninstitutionalized elderly who were of black or other races were functionally impaired in the activities of daily living or home management activities for at least 3 months, compared with only 19 percent of white people.⁶ Thus, elderly persons who were of black or other races were overrepresented among the noninstitutionalized most at risk of needing nursing home care. This finding suggests "the use of a more extended support system among black persons than among white persons."⁶ Other studies have shown that elderly black persons are more likely than elderly white persons to receive care at home.⁷

The proportion of the elderly residing in nursing homes has not changed since the period 1973-74, when the first

NNHS was conducted (figure 2). An exception to this trend is the increase in the proportion of elderly black persons using nursing homes. During the period 1973-74, 2 percent of the elderly black population resided in nursing homes; in 1985, the proportion was nearly 4 percent. In contrast, the proportion of the elderly in nursing homes did not change from 1973-74 to 1985 for persons who are white or of other races. About 5 percent of elderly white persons and 2 percent of elderly persons of other races were residents of nursing homes throughout this period. The percent of elderly males and females as well as the percent of the elderly aged 65-74 and 75-84 years who resided in nursing homes also remained the same. The percent of persons 85 years and over, however, decreased: 25 percent of persons aged 85 years and over resided in nursing homes in the period 1973-74, compared with 22 percent in 1985.

Functional dependencies

Because of the preponderance of very old residents in nursing homes, it is not surprising that many residents required assistance in performing or did not perform the basic activities

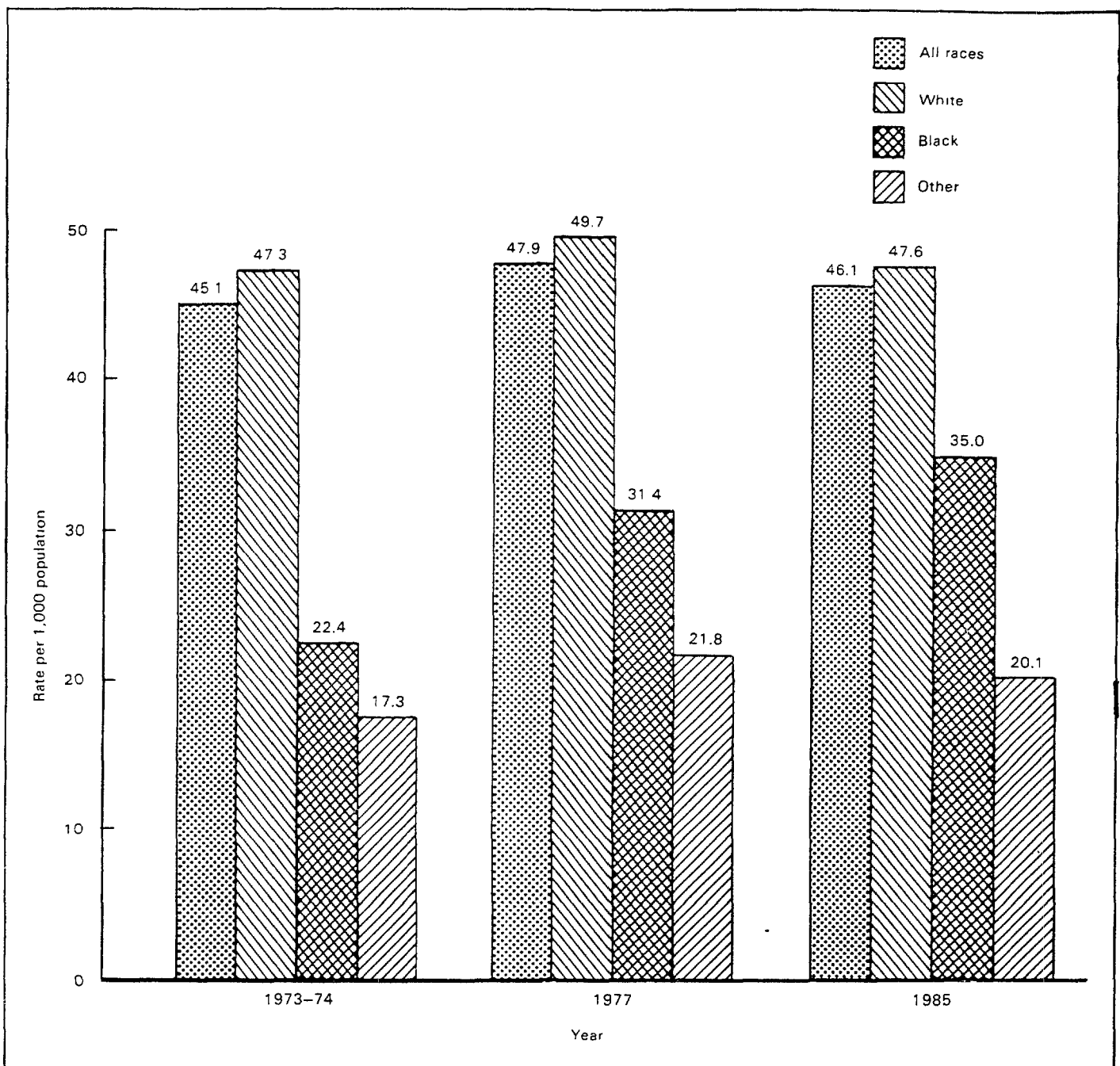


Figure 2. Number of nursing home residents per 1,000 population 65 years of age and over, by race: United States, 1973-74, 1977, and 1985

of daily living (ADL's), which are needed for independent living. The ADL's are bathing, dressing, using the toilet room, transferring in and out of a bed or chair, continence, and eating. In 1985, 91 percent of elderly residents required assistance in bathing; 78 percent required assistance in dressing; 63 percent required assistance in using the toilet room; 63 percent required assistance in transferring from a bed or chair; 55 percent were incontinent (bowels, bladder, or both); and 40 percent required assistance in eating (table 2). These findings are consistent with earlier studies by Katz and Apkom, in which it was shown that loss of independence is most likely to occur in bathing and least likely to occur in eating.

In general, elderly residents in nursing homes were more dependent in performing the ADL's in 1985 than in 1977. A larger proportion of elderly residents required assistance or had difficulty with bathing, using the toilet room, continence, and eating in 1985 than 1977 (tables 2 and 3). The exception to this trend was for dressing. The proportion of elderly residents requiring assistance in this ADL remained the same in both years. (Information about transferring from a bed or chair is not available from the 1977 NNHS.)

A partial explanation of the increased level of functional dependency is the shift in the age distribution of nursing home residents to the very old age group (85 years and over), noted

Table 2. Percent of nursing home residents 65 years of age and over, by type of dependency in activities of daily living, percent distribution by number of dependencies, and average number of dependencies, according to age, sex, and race: United States, 1985

Dependency status	Total	Age			Sex		Race		
		65-74 years	75-84 years	85 years and over	Male	Female	White	Black	Other
Type of dependency									
		Percent							
Requires assistance in bathing	91.2	84.8	90.3	94.1	86.9	92.6	90.9	94.2	91.5
Requires assistance in dressing	77.7	70.2	75.9	81.9	71.5	79.7	77.3	83.7	72.9
Requires assistance in using toilet room	63.3	56.6	60.3	68.2	56.2	65.7	62.9	68.6	61.4
Requires assistance in transferring ¹	62.7	52.1	59.7	69.0	55.3	65.2	62.2	70.2	60.9
Continence—difficulty with bowel and/or bladder control	54.5	42.9	55.0	58.1	51.9	55.3	54.1	59.9	47.6
Requires assistance in eating	40.4	33.4	39.1	44.0	34.8	42.3	40.0	47.9	32.1
Number of dependencies									
		Percent distribution							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None	7.6	13.2	8.6	4.8	11.8	6.2	7.8	4.8	*8.5
1	11.0	14.0	11.6	9.4	12.5	10.5	11.3	6.5	*15.8
2	9.9	11.2	9.6	9.6	10.0	9.8	10.0	8.0	*8.8
3	7.8	7.3	8.7	7.2	8.6	7.5	7.6	11.4	*5.5
4	13.5	13.8	12.8	13.9	12.6	13.8	13.4	14.4	*16.6
5	19.8	16.6	19.4	21.3	18.7	20.2	19.9	18.9	*18.6
6	30.4	23.9	29.2	33.8	25.7	32.0	30.1	35.9	*26.3
Average number									
Average number of dependencies	3.9	3.4	3.8	4.2	3.6	4.0	3.9	4.2	3.7

¹Transferring refers to getting in or out of a bed or chair.

Table 3. Percent of nursing home residents 65 years of age and over, by age and type of dependency in activities of daily living: United States, 1977

Type of dependency	All ages 65 years and over	65-74 years	75-84 years	85 years and over
	Percent			
Requires assistance in bathing	88.6	81.2	88.9	91.7
Requires assistance in dressing	77.7	61.2	72.5	75.8
Requires assistance in using toilet room	54.8	46.9	54.3	59.0
Continence—difficulty with bowel and/or bladder control	47.3	37.6	47.1	52.2
Requires assistance in eating	33.6	27.1	33.8	36.5

earlier. However, as tables 2 and 3 show, the proportion of residents functionally dependent in each ADL was generally higher in 1985 than in 1977 even when age was held constant. For example, a larger proportion of residents aged 85 years and over were dependent in bathing, dressing, using the toilet room, continence, and eating in 1985 than in 1977. Another explanation is the impact of medicare policy on nursing home care. Under the medicare prospective payment system, instituted in 1983, hospitals are encouraged to reduce patient length of stay. Patients released earlier under this new system may require a higher level of care in the nursing home than they would have needed if they had stayed longer in the hospital.⁹

In general, dependency in ADL's increases with age. In 1985, the percent of residents requiring assistance in bathing

increased from 85 percent for residents 65-74 years to 94 percent for residents 85 years and over. Similarly, difficulty with bowel or bladder control increased from 43 percent for residents 65-74 years to 58 percent for residents 85 years and over. Because female residents were older, on the average, than male residents, they tended to require assistance in ADL's more often than males did. A greater proportion of female than male elderly residents needed assistance in bathing, dressing, using the toilet room, transferring from a bed or chair, and eating. There was no statistically significant difference in the percent incontinent by sex. Elderly black residents also needed assistance in ADL's more often than elderly white residents did. This was the case in five of the six ADL's. There was no statistically significant difference in the percent incontinent by race.

The six activities of daily living may be summarized into a single measure of ADL dependency by summing the number of activities in which a resident required assistance.⁸ In 1985, 30 percent of elderly residents required assistance in all six ADL's, and only 8 percent were independent in all six activities. The mean number of dependencies was 3.9. The mean number of ADL dependencies increased with age from an average of 3.4 dependencies among residents 65-74 years to 4.2 dependencies among those 85 years and over. Females tended to be more functionally dependent than males. Overall, elderly females had an average of 4.0 ADL dependencies, and elderly males had an average of 3.6. Elderly black residents also tended to be more functionally dependent than elderly white residents. The average number of ADL dependencies was 4.2 among elderly black residents, compared with 3.9 among elderly white residents. Thus, the data show a greater need for care in nursing homes among female and black residents. In the case of females,

this is correlated with higher use of nursing homes. This is not the case, however, for elderly black persons.

Although it is possible that nursing home policy may preclude the resident from performing ADL's without assistance, the overwhelming need for assistance in ADL's among nursing home residents suggests that this dependency may have been a reason for entering the nursing home. (The importance of functional status as a reason for nursing home admission was also found in a study of medicare recipients.¹⁰) In contrast, the need for such assistance is minimal among the noninstitutionalized elderly. According to data from the Supplement on Aging to the 1984 National Health Interview Survey, 6 percent of the noninstitutionalized elderly received assistance in bathing; 4 percent, in dressing; 2 percent, in using the toilet room; 3 percent, in transferring from a bed or chair; and 1 percent, in eating (table 4). Data from the 1982 Long-Term Care Survey, which covered noninstitutionalized medicare enrollees most at risk of needing long-term care (people functionally impaired in ADL's or the instrumental activities of daily living for at least 3 months), indicate a lower need for assistance in ADL's than was found among nursing home residents. In 1982, 42 percent of the elderly impaired living in the community required assistance in bathing, 20 percent required assistance in dressing, 21 percent required assistance in using the toilet room, 26 percent required assistance in transferring from a bed or chair, and 6 percent required assistance in eating.⁶ Additional insights should be provided on the reasons for admission when data from the next-of-kin component are available.

Cognitive impairment

Another reason for nursing home placement that is cited in the literature is deteriorating cognitive functioning.¹¹ In 1985, 63 percent of elderly residents were disoriented or memory impaired to such a degree that performance of the basic ADL's, mobility, and other tasks were impaired nearly every day. Disorientation or memory impairment was defined as being unable to remember dates or time, unable to identify familiar locations or people, unable to recall important aspects of recent events, or unable to make straightforward judgments. Major causes

Table 4. Percent of persons 65 years of age and over, by whether nursing home resident or noninstitutionalized and type of dependency in selected activities of daily living: United States, 1984 and 1985

Type of dependency	Nursing home residents, 1985	Noninstitutionalized population, ¹ 1984
	Percent	
Requires assistance in:		
Bathing	91.2	6.0
Dressing	77.7	4.3
Using toilet room	63.3	2.2
Transferring ²	62.7	2.8
Eating	40.4	1.1

¹Data are from the National Center for Health Statistics, D. Dawson, G. Hendershot and J. Fulton: Aging in the eighties, functional limitations of individuals age 65 years and over. *Advance Data From Vital and Health Statistics*, No. 133, DHHS Pub. No. (PHS) 87-1250, Public Health Service, Hyattsville, Md., April 30, 1987. Percent of the noninstitutionalized elderly dependent in activities of daily living is a measure of those who received help rather than those needing it.

²Transferring refers to getting in or out of a bed or chair.

of disorientation or memory impairment in the elderly are senile dementia and chronic organic brain syndrome. In 1985, 47 percent of elderly residents were reported to have at least one of these conditions (table 5). Sixty-six percent of elderly residents who were disoriented or memory impaired were also reported to have senile dementia or chronic organic brain syndrome.

In general, disorientation or memory impairment increased with age: 56 percent of residents 65-74 years of age had memory impairment or disorientation, compared with 67 percent of those 85 years and over. Elderly female residents were memory impaired or disoriented more often than elderly male residents were—64 percent and 59 percent, respectively. This finding may be related to females' greater longevity. Although it appears that elderly black residents were memory impaired more often than elderly white residents were (70 percent, compared with 62 percent of elderly white residents), the difference was not statistically significant. Similar patterns were also found for residents with senile dementia or chronic organic brain syndrome when examined by age, sex, and race.

Marital status at admission

The marital status of residents may have influenced the decision to enter the nursing home because persons without spouses may not have anyone living with them to provide personal care services that would allow them to stay in the community longer. In 1985 the majority of elderly residents were without spouses at the time of admission to the nursing home. 65 percent were widowed, 6 percent were divorced or separated, and 14 percent had never married (table 6). In contrast, only 16 percent of elderly residents were married at the time of admission. The likelihood of being widowed increased with age, and the proportion who were married decreased with age. In

Table 5. Percent of nursing home residents 65 years of age and over, by whether they had disorientation or memory impairment and senile dementia or chronic organic brain syndrome, age, sex, and race: United States, 1985

Age, sex, and race	Disorientation or memory impairment	Senile dementia or chronic organic brain syndrome
		Percent
Total	62.6	47.0
Age		
65-74 years	55.7	34.0
75-84 years	60.8	45.4
85 years and over	66.6	52.9
Sex		
Male	58.8	42.1
Female	63.9	48.6
Race		
White	62.2	46.8
Black	69.5	51.4
Other	56.2	*35.2

Table 6. Percent distribution of nursing home residents 65 years of age and over by marital status at admission and percent with living children, according to age, sex, and race: United States, 1985

Age, sex, and race	Total	Marital status at admission				Proportion with living children
		Married	Widowed ¹	Divorced or separated	Never married	
		Percent distribution				Percent
Total	100.0	16.4	64.2	5.9	13.5	63.1
Age						
65-74 years	100.0	22.8	35.9	14.2	27.2	50.1
75-84 years	100.0	19.2	60.9	6.5	13.4	62.2
85 years and over	100.0	11.8	77.2	2.3	8.6	68.6
Sex						
Male	100.0	32.5	36.7	10.1	20.6	55.7
Female	100.0	11.0	73.6	4.4	11.0	65.7
Race						
White	100.0	16.6	64.4	5.6	13.3	64.5
Black	100.0	13.8	61.9	9.8	14.5	41.8
Other	100.0	*14.9	64.9		*20.2	68.1

¹A small number of persons of unknown marital status are included.

the group 65-74 years, 36 percent of residents were widowed; 77 percent of residents 85 years and over were widowed. Elderly female residents were more likely to be widowed (74 percent) than elderly male residents (37 percent). Elderly males were more likely to be married (33 percent) than elderly female residents (11 percent).

The tendency of persons without spouses to enter nursing homes is highlighted by comparing the marital status of the functionally impaired elderly living in the community with that of elderly nursing home residents. The proportion married was larger among the functionally impaired elderly living in the community (44 percent) than among elderly nursing home residents (16 percent). Thus, 84 percent of the elderly in nursing homes were without spouses, compared with 56 percent of the functionally impaired living in the community.⁶

Presence of living children

Data on whether nursing home residents had living children were collected for the first time in the 1985 NNHS. Among elderly nursing home residents, the majority (63 percent) had living children. The proportion of residents with children increased with age and was greater for female residents (66 percent) than male residents (56 percent). The trends among residents with children mirror the increasing utilization rates by age and the greater nursing home use by elderly women. Additionally, these trends appear to contradict the notion that the lack of children, which is a proxy measure for the lack of a social support network, is a risk factor for nursing home institutionalization. The finding that most elderly residents had children does not explain by itself why people enter nursing homes because this variable

is confounded by several factors. First, it is not known whether the residents' children lived close enough to provide care and, if they did, whether they were physically able to provide care. Although 69 percent of residents 85 years and over had children, their children were probably in their sixties and may not have

been physically able to care for their aging parents. Furthermore, for many residents, admission to the current nursing home was not from the community but from another health institution. As will be discussed in the next section, more than one-half of elderly residents were transferred to the nursing home from another health facility. For these residents, obtaining appropriate continuing care was a deciding factor in entering the current nursing home. Their children may not have been able to provide adequate informal care in the home. Further insights on this issue should be gained when the next-of-kin data on the sample residents are available.

There was one exception to this trend. Only 42 percent of elderly black residents had children, compared with 65 percent of elderly white residents. In the 1982 Long-Term Care Survey it was found that noninstitutionalized elderly black persons who were functionally impaired were more likely to live with children than functionally impaired elderly white persons were.⁶

Living arrangements prior to nursing home admission

The living arrangements of residents prior to admission reflect both the amount of support given in the environment in which they previously lived and their health. A majority of the residents (57 percent) were transferred from another health facility (table 7). The most common type of health facility transferred from was a short-stay hospital (39 percent). Only 12 percent of residents were transferred from another nursing home, and 3 percent were transferred from some type of mental facility (mental hospital, facility for the mentally retarded, psychiatric unit of a short-stay hospital, or mental health center). The proportion of elderly residents admitted from a short-stay hospital in 1985 (39 percent) was a significant increase from the proportion in 1977 (34 percent). This finding may also be related to the introduction of the medicare prospective payment system, under which hospitals have a strong incentive for early

Table 7 Percent distribution of nursing home residents 65 years of age and over by living arrangement prior to admission, according to age, sex, and race: United States, 1985

Living arrangement prior to admission	Total	Age			Sex		Race		
		65-74 years	75-84 years	85 years and over	Male	Female	White	Black	Other
Percent distribution									
All living arrangements	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Private or semiprivate residence	40.0	29.2	40.5	43.3	36.3	41.2	40.5	31.9	35.6
Alone	14.7	8.2	14.7	17.0	11.6	15.8	15.2	6.9	*15.5
With family members	18.9	16.0	19.8	19.2	19.3	18.8	18.9	19.0	*15.5
With nonfamily members	3.4	*3.1	3.3	3.5	3.2	3.4	3.3	3.9	*2.0
Unknown if with others	3.0	1.8	2.7	3.7	2.2	3.3	3.1	*2.1	*2.5
Another health facility	57.0	67.7	56.5	53.6	60.4	55.9	56.5	65.2	59.0
Another nursing home	12.2	12.9	12.6	11.5	13.1	11.8	12.4	9.2	*9.7
General or short-stay hospital ¹	38.7	39.5	38.2	38.9	35.2	40.0	37.9	49.5	49.4
Mental facility ²	3.0	7.6	3.2	1.1	5.0	2.3	3.1	*1.8	-
Veterans hospital	1.4	4.6	0.9	0.7	5.4	*0.0	1.5	*0.9	-
Other health facility or unknown	1.9	3.3	1.9	1.4	1.9	1.9	1.8	*3.8	-
Unknown or other arrangement	2.9	2.9	2.7	3.0	3.1	2.8	2.9	*2.9	*5.4

¹Psychiatric units of hospitals are excluded

²Mental hospitals, facilities for the mentally retarded, general or short-stay hospital psychiatric units, and mental health centers are included.

discharge of patients needing long-term care services.⁹ Further analysis of this issue will be presented in a later report.

The increasing proportion of residents transferred from short-stay hospitals to nursing homes also reflects the increasing role hospitals play in the provision of care to the elderly. For example, in the 1985 NNHS it was found that 22 percent of elderly residents were hospitalized for acute episodes of illness while still a resident of the nursing home. Thirteen percent of elderly residents had only one hospitalization, and 9 percent had two or more hospital stays (table 8). Hospitalizations of elderly residents were less likely among those who were admitted to the nursing home from a short-stay hospital, only 14 percent of whom had a subsequent hospitalization while a resident. In contrast, 27 percent of elderly residents not admitted from a short-stay hospital were hospitalized while a resident of the home.

When examined by age, the proportion of elderly residents transferred from a short-stay hospital or nursing home did not vary. Elderly female residents, however, were more likely to be admitted from a short-stay hospital (40 percent) than elderly male residents were (35 percent). In addition, a higher propor-

tion of elderly black residents (50 percent) than elderly white residents (38 percent) were transferred from a short-stay hospital. These findings appear to be correlated with the generally more dependent functional status of elderly women and black residents.

Forty percent of elderly residents were admitted from a private or semiprivate residence; 15 percent had lived alone prior to the nursing home admission, 19 percent lived with family members, and 3 percent lived with persons who were not family members. Residents 75 years and over were more likely than those 65-74 years to have lived alone prior to being admitted to the nursing home. Elderly female residents were more likely to have lived alone (16 percent) than elderly male residents (12 percent). Elderly black residents were less likely (7 percent) than elderly white residents (15 percent) to have lived alone prior to admission. This may result from the tendency of functionally impaired elderly black people to "draw on a more extended range of relationships in their living arrangement than white persons."⁶

Primary source of payment at admission

Data on sources of funds used to pay for nursing home care provide a rough measure of residents' income sources because public funds for nursing home care under certain government programs are available only to those who cannot afford to pay for such care. The medicaid program, for example, is a joint Federal-State program providing medical benefits to persons who qualify for welfare and to some of the "medically needy" (those who would be on welfare if their incomes were a little lower). The State-set criteria for medicaid eligibility vary from State to State but cover most poor people in the United States.¹²

Information on the payment sources used during the month of admission was collected for the first time in the 1985 NNHS. Table 9 shows the primary payment source used by elderly residents in the home 1 month or more. One-half of elderly

Table 8. Percent distribution of nursing home residents 65 years of age and over by number of hospital admissions while a resident, according to whether admitted from a short-stay hospital: United States, 1985

Number of hospital stays while a resident	Total	Admitted from	Not admitted from
		short-stay hospital	short-stay hospital
Percent distribution			
Total	100.0	100.0	100.0
None	77.7	85.5	72.8
1	13.1	9.2	15.6
2 or more	9.1	5.2	11.6

A small number of persons with unknown number of hospital stays are included

Table 9. Percent distribution of nursing home residents 65 years of age and over by primary source of payment at admission, according to age, sex, and race: United States, 1985

Age, sex, and race	Primary source of payment at admission						
	All sources	Own income or family support	Medicare	Medicaid payment for—		Other government assistance or welfare	All other sources
				Skilled nursing	Intermediate care		
	Percent distribution						
Total	100.0	49.8	4.9	13.9	26.2	2.7	2.5
Age							
65–74 years	100.0	39.0	4.7	13.9	31.5	5.5	5.4
75–84 years	100.0	51.2	5.2	13.5	25.3	2.6	2.3
85 years and over	100.0	52.4	4.6	14.3	25.1	1.9	1.7
Sex							
Male	100.0	50.9	4.8	11.9	23.7	4.0	4.8
Female	100.0	49.5	4.9	14.6	27.0	2.3	1.7
Race							
White	100.0	52.2	4.9	13.2	24.6	2.6	2.5
Black	100.0	17.1	*5.0	21.1	49.3	*5.3	*2.2
Other	100.0	*32.0		39.3	*28.7		

NOTE: Data cover only persons who were residents for 1 month or more.

residents relied primarily on their own income or family support to pay for the first month in the nursing home, and 40 percent relied primarily on the medicaid program to pay for care. Medicaid finances both skilled nursing and intermediate care services in nursing homes. At the time of admission, 26 percent of elderly residents received intermediate care and 14 percent received skilled nursing care through the medicaid program. Only 5 percent of elderly residents relied on medicare. Extended care benefits under medicare are limited to 100 days following a hospital stay of at least 3 days. Three percent of elderly residents relied on other government assistance or welfare, and another 3 percent relied on other payment sources. Overall, 48 percent of elderly residents relied on some form of public funds to pay for their stay at the time of admission.

There were differences in primary payment source by age. Residents 75 years of age and over were more likely to use their own income or family support for primary payment than were residents aged 65–74 years. Of residents 75–84 years and 85 years and over, 51 and 52 percent, respectively, relied on their own income or family support to pay for care, compared with 39 percent of residents 65–74 years. Medicaid was the primary payment source for a larger proportion of residents 65–74 years (45 percent) than residents aged 75–84 years (39 percent) or 85 years and over (39 percent). The primary payment source also varied by sex. A larger proportion of elderly females (42 percent) than elderly males (36 percent) relied on medicaid for payment.

There were major differences in the patterns of payment at admission by race. Elderly black residents were almost twice as likely to use medicaid as the primary source of payment (70 percent) as elderly white residents were (38 percent). Conversely, elderly white residents were more likely to use their own income or family support as their primary payment source (52 percent) than elderly black residents were (17 percent).

The differences in payment source by sex and race reflect the generally lower income of elderly women and elderly black people in the noninstitutionalized population,¹³ and in particular among the functionally impaired elderly living in the community. In 1982, 46 percent of elderly females who were functionally impaired and living in the community had family incomes of less than \$7,000, compared with 31 percent of their male counterparts. Similarly, 61 percent of functionally impaired elderly black persons had family incomes of less than \$7,000, compared with 37 percent of functionally impaired elderly white persons. (Family income included income of the functionally impaired individual and all members living with him or her.)⁶

Conclusions

On any given day during the survey period for the 1985 NNHS, about 5 percent of the elderly were residents of nursing homes. Use of nursing homes increased with age for both sexes but was greater for females than for males, especially in the older age groups. Use of nursing homes was lower for elderly persons who were black or of other races than for white persons. These trends have remained constant since the period 1973–74, when the first NNHS was conducted, with the exception of an increase in the use of nursing homes by elderly black persons and a decrease in use by those aged 85 years and over.

Examination of some health and social characteristics revealed that dependency in ADL's was widely prevalent among elderly nursing home residents but much rarer among the non-institutionalized elderly. The lack of available caregivers may have been a confounding factor for the preponderance of persons without spouses in nursing homes. The role of the residents' children or their living arrangements prior to admission

in the decision to enter a nursing home is not clear from the data examined. The need for continuing care in a nursing home and the availability and willingness of the residents' children to provide informal home care are issues that need further examination before conclusions can be drawn. These issues will be examined in future reports in which data from the next-of-kin component are presented. The lower use of nursing homes by elderly black persons appears to be related to a greater substitution of informal care at home for formal nursing home care.

In this report, data on the primary source of payment for care used by residents during the month of admission were also presented. The data show that in 1985 one-half of elderly resi-

dents relied primarily on their own income or family support to pay for the first month in the nursing home, and 40 percent relied primarily on the medicaid program to pay for care. Residents 75 years of age and over were more likely to use their own income or family support to pay for care at admission than residents aged 65-74 years were. Residents aged 65-74 years were more likely to use medicaid. Elderly black residents were almost twice as likely as elderly white residents to use medicaid as the primary payment source at admission. Overall, 48 percent of elderly residents relied on some form of public funds (medicaid, medicare, other government assistance, or welfare) to pay for their stay at the time of admission.

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Technical notes

Because the statistics presented in this report are based on sample, they will differ somewhat from figures that would have been obtained if a complete census had been taken using the same schedules, instructions, and procedures. The standard error is primarily a measure of the variability that occurs by chance because only a sample, rather than the entire universe, is surveyed. The standard error also reflects part of the measurement error, but it 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 this report were approximated using the balanced repeated-replication procedure. This method yields overall variability through observation of variability among random subsamples of the total sample. A description of the development and evaluation of the replication technique for error estimation has been published.^{14,15}

NOTE: A list of references follows the text.

Although exact standard error estimates were used in tests of significance, it is impractical to present exact standard error estimates for all statistics used in this report. Thus, a generalized variance function was produced for aggregated resident estimates by fitting the data presented in this report into a curve using the empirically determined relationship between the size of an estimate X and its relative variance (rel var X). This relationship is expressed as:

$$\text{rel var } X = \frac{S_X^2}{X^2} = a + \frac{b}{X}$$

where a and b are regression estimates determined by an iterative procedure. Preliminary estimates of standard errors for the percents of the estimated number of residents are presented in table I.

The Z -test with a 0.05 level of significance was used to test all comparisons mentioned in this report. Not all observed differences were tested, so lack of comment in the text does not mean that the difference was not statistically significant.

Table I. Standard errors of percents for residents

Base of percent (residents)	Estimated percent					
	1 or 99	5 or 95	10 or 90	20 or 80	40 or 60	50
	Standard errors in percentage points					
5,000.....	2.84	6.22	8.56	11.41	13.97	14.26
10,000.....	2.01	4.40	6.05	8.07	9.88	10.09
30,000.....	1.16	2.54	3.49	4.66	5.71	5.82
50,000.....	0.90	1.97	2.71	3.61	4.42	4.51
100,000.....	0.63	1.39	1.91	2.55	3.12	3.19
200,000.....	0.45	0.98	1.35	1.80	2.21	2.26
400,000.....	0.32	0.70	0.96	1.28	1.56	1.59
800,000.....	0.22	0.49	0.68	0.90	1.10	1.13
1,000,000.....	0.20	0.44	0.61	0.81	0.99	1.01
1,491,000.....	0.16	0.36	0.50	0.66	0.81	0.83

Symbols

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

Aging in the Eighties, Ability to Perform Work-Related Activities

Data From the Supplement on Aging to the National Health Interview Survey: United States, 1984

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Introduction

At least three factors influence the exodus from paid employment among older Americans: public policy affecting retirement, the ability to perform work-related activities, and the desire on the part of the older worker to continue working or, alternatively, to enjoy leisure. The U.S. Congress has recently enacted two new laws that may influence the age at which Americans will choose to retire from active employment in the future. The first is an amendment to the Social Security Act implemented in April 1983 that will raise the minimum age of retirement for the receipt of full social security benefits from 65 to 67 years of age among persons born in 1960 or thereafter (Public Law 98-21). The second law amends the Age Discrimination in Employment Act of 1967 by eliminating a mandatory retirement age for most occupational groups (Public Law 99-592). Approved in October 1986, this law effectively extinguishes forced retirement at age 70. Thus, current Federal policy encourages Americans to retire at older ages than previously and now makes it legally possible for all older workers to remain employed, regardless of their chronological age, for as long as they possess the ability and desire to work.

The desire to continue working into the later years of life reflects a complex interplay among financial need and reward, gratification attained through work, and the functional capacity to meet job demands. This report is concerned primarily with the last of these forces—the physical ability to perform certain tasks associated with work.

Source of data

The National Health Interview Survey (NHIS) is the National Center for Health Statistics' large continuing survey of the civilian noninstitutionalized population of the United States. Each year people in about 42,000 households are interviewed by U.S. Bureau of the Census interviewers to obtain information about their health and use of health care. Demographic information that is needed to interpret the data is also obtained. The interviewers have special training on this survey in addition to their regular training and response rates are high—about 97 percent. The only item with a relatively low response rate is family income.

In 1984 a special supplement was added to the questionnaire to obtain information about older people who were living in the community. This supplement, the Supplement on Aging (SOA), was designed to collect information about physical limitations, chronic conditions, housing, retirement status, interactions with family and organizations, use of community services, and other health-related and social information about middle-aged and older people. All household members age 65 years and over and a one-half sample of those 55-64 years of age were asked the questions on the supplement themselves when possible. Another household member was interviewed only when the selected person was unable to answer either because of physical or mental problems or because of being away from the household for a longer period than the interviewer would be in the area. Response rates to the SOA were also high; 95 percent

of the people selected from the NHIS sample had complete interviews to the SOA. Of the people ages 55-74 years, 93.0 percent responded for themselves.

The purpose of this report is to provide information about a particular segment of this population, people ages 55-74 years who had worked at some time since they were age 45. These people are of particular interest because of an impending or relatively recent change in their labor force participation. By virtue of their age and midlife active employment, such people are either approaching retirement, postretirement, or in transition between these two states. Information on work-related activities from the SOA makes it possible to describe the ability of these Americans to perform several activities that are basic and common to a variety of occupations. The intent is not to study the precise and detailed functional requirements of numerous individual occupations, but rather to describe a limited set of physical abilities among older workers in the ages surrounding retirement.

The estimates are based on a sample, and they will differ from estimates based on a complete census in which exactly the same questions and interviewing techniques are used. The authors have taken care not to make statements about differences unless it is likely that the same differences would be found using the same techniques in a complete census. The reader should use the material in the technical notes before deciding that differences not mentioned in the text are likely to be statistically significant. Biases that result from the way that the questions are worded, the lack of understanding by a respondent, or the difficulties inherent in asking people to think about themselves and report accurately will remain in any case.

The estimates of the prevalence of disability are based on responses of "yes." If for some reason there was no response, the response was not recorded, or the answer was unknown, data are treated as if the answer were "no." The impact of this procedure on the estimates is small. Usually less than 1 percent and never more than 2 percent of the sample had such responses.

Background

The SOA included questions to determine the ability to perform 10 work-related activities. The 10 items covered a wide range of abilities that involve mobility (walking one-quarter of a mile and walking up 10 steps without resting), endurance for confined movement (standing on feet for 2 hours and sitting for 2 hours), lower and upper body strength (stooping, crouching, or kneeling and lifting or carrying 25 or 10 pounds), freedom of movement (reaching up over head and reaching out to shake hands), and fine motor skills (grasping with fingers). Participants were first asked if they currently had any difficulty performing each activity. For the subset of persons with any difficulty, the amount of difficulty (some or a lot) was ascertained, including the inability to perform the activity in question. Data on the proportion of persons with any difficulty for each

activity and the subset unable to perform each activity are presented in this report.

Of the 38.3 million Americans 55-74 years of age, 36 million or 95 percent, had been employed at some time during their lives. Virtually all men had been employed, as had a high proportion of women. An estimated 32.3 million, or 84 percent, had worked at some time since the age of 45. However, while almost all men had worked at some time since age 45, only about three-quarters of the women had worked after their 45th birthday, as shown in the following table.

<i>Work status</i>	<i>Both sexes</i>	<i>Men</i>	<i>Women</i>
Total.....	100.0	100.0	100.0
Ever worked.....	95.3	99.6	91.7
Worked since age 45.....	84.3	97.6	73.2

The data in this report pertain to the people 55-74 years of age who continued to work or returned to work for at least some time during their middle years. These individuals constitute the population who must decide whether and when to retire as they achieve older ages.

The report is focused on differences in the ability to perform 10 work-related activities among 4 age groups and 3 employment groups (working, retired because of health, and retired for other reasons). Examination of differences among these subgroups of people employed since age 45 can shed light on the proportion of older Americans who still maintain the work-related functional abilities common to many jobs. It can also reveal the ability to work among people this age who have retired, those people who might remain in the work-force under the new retirement laws.

Differences by age and sex

Overall, of the 10 work-related activities studied, stooping, crouching, or kneeling caused difficulty for the largest proportion of the people, 28 percent (table 1). A substantial proportion also experienced difficulty lifting or carrying 25 pounds (23 percent), standing on their feet for 2 hours (22 percent), walking one-quarter of a mile (18 percent), and walking up 10 steps without resting (15 percent). Very few people in this age range had any difficulty reaching out to shake hands and very few were unable to lift 10 pounds.

In general, a greater proportion of women than men had difficulty performing the work-associated activities. The sex difference was largest for the proportion with difficulty lifting or carrying 25 pounds (31 percent of the women, compared with 16 percent of the men). Sex differences of a smaller magnitude were evident for the ability to walk up 10 steps; stoop, crouch, or kneel; and lift or carry 10 pounds. For these four activities, the sex differences were most pronounced in the oldest age category. Twenty-five percent of the women 70-74 years of age had difficulty walking up 10 steps without resting, including 10 percent who were unable to do so. In comparison, 18 percent of the

men this age had difficulty walking up 10 steps, including 9 percent who were unable to do so.

Among people who had worked since the age of 45, a definite increment from younger to older age groups was observed in both the proportion of people with any difficulty and the proportion unable to perform several of the activities assessed. Increases with age were especially apparent for five activities that reflect mobility and musculo-skeletal strength: walking one-quarter of a mile; walking up 10 steps; standing on feet for 2 hours; stooping, crouching, or kneeling; and lifting or carrying 25 or 10 pounds. For each of these activities, people in the youngest age category (55-59 years) had the lowest proportion reporting any difficulty, and that proportion was nearly doubled among people in the oldest age category (70-74 years). For example, 12 percent of the people 55-59 years of age had difficulty walking one-quarter of a mile, compared with 25 percent of those ages 70-74 years.

The same kind of pattern was observed in the proportion of people unable to perform these activities. Nine percent of the people ages 55-59 years were unable to stoop, crouch, or kneel, compared with 17 percent of those ages 70-74 years. Differences in ability among age groups were absent or subtle for the other four activities (sitting for 2 hours, reaching up over head, reaching out to shake hands, and grasping with fingers).

Employment status

Fewer than one-half of the people 55-74 years of age who had worked since their 45th birthday were presently employed—49 and 42 percent of men and women, respectively (table 2). The proportions changed dramatically across the age span. Nearly 4 out of 5 people 55-59 years of age were presently employed, compared with about 1 in 10 ages 70-74 years. Even among people who had worked in midlife, women exited the work force earlier than men. A lower proportion of women remained active in the labor force at each age, and the difference was especially notable at the youngest ages.

The percent of the people who attributed their retirement to their health was greatest at ages 65 and over, 20 percent or more of each sex in each age group. Among those who had retired, however, a greater proportion of people in the younger than the older age groups had retired because of their health.

Differences among employment groups

The older age of people who were retired must be kept in mind when interpreting differences among the three employment-status groups. Nevertheless, there are major differences among the groups even within this relatively narrow age range. These differences are important when considering the impact of changes in retirement laws.

People who were presently employed were less likely than retired people to have difficulty performing each of the 10 work-associated activities (table 3). For the majority of the activities, the proportion with difficulty was two to

three times higher among people who had retired than among those who maintained employment. For example, 17 percent of the people who were presently employed had difficulty stooping, crouching, or kneeling, and 10 percent were unable to do so. In contrast, 37 percent of the retired population had this difficulty, and 15 percent were unable to stoop, crouch, or kneel. About 10 percent of presently employed people had difficulty standing on their feet for 2 hours, compared with about 32 percent of those who had retired.

People who had retired because of their health were the most likely of the three groups to have difficulty with each of the activities. The proportion with difficulty was highest for the activities associated with mobility and strength, such as walking one-quarter of a mile (54 percent); walking up 10 steps without resting (48 percent); standing on feet for 2 hours (63 percent); stooping, crouching, or kneeling (65 percent); and lifting or carrying 25 pounds (62 percent).

In general, the proportion with difficulty for each activity was somewhat higher among the people who had retired for reasons other than their health than among people who were presently employed. However, people who had retired for reasons other than their health were more similar to the presently employed than they were to people who had retired because of their health. The pattern of the lowest percents among the presently employed, intermediate percents among people who had retired for reasons not attributed to their health, and the highest percents among those retired because of their health was present and similar for both sexes.

Differences by age within employment groups

Age-specific data for the three employment groups are shown for four activities in table 4. Generally, the proportion with difficulty was higher in successive age groups for both the presently employed and those who had retired for reasons other than their health. For example, among presently employed people, 7 percent of those 55-59 years of age had difficulty walking one-quarter of a mile compared with 11 percent at 70-74 years of age. Among people who had retired for reasons not related to their health, the percents were 7 and 18, respectively. The one exception was in difficulty walking up 10 steps without resting; there was no age difference among the presently employed. Age patterns similar to those for both sexes combined were observed for each sex in these two employment-status groups.

A much higher proportion with difficulty was observed in every age category of people who had retired because of their health than for other retired persons or the presently employed. The number of retired people in the youngest age group in the sample was small, estimates are less precise than for other age-specific groups, and few differences are statistically significant. However, there did appear to be a different pattern by age among those who had retired because of their health: for most activities, the

proportion with difficulty was highest among the youngest people. This was particularly noticeable for men in the youngest age category for activities related to mobility. For example, 71 percent of the men 55-59 years of age who had retired because of their health had difficulty walking one-quarter of a mile, compared with about one-half of such men in the other age groups.

Commentary

Overall, 58 percent of the people ages 55-74 years who had worked at some time since their 45th birthday had no difficulty with any of the 10 work-related activities. The proportion was highest among those still working (73 percent) followed by those who had retired for reasons other than their health (60 percent), and it was lowest among those who had retired because of their health (14 percent). Potentially, many of the people who had retired for reasons other than their health could have remained in the labor force.

When retired people were asked if they could work at a job or business if such an opportunity were available, about

two-thirds of the people who had retired for reasons other than health answered affirmatively although only about 17 percent of them expressed a desire to work. Among people who had retired because of their health, only 28 percent said that they could work if a job were available, and only about 10 percent wanted to do so, as shown in the following table.

<i>Employment potential</i>	<i>Total retired</i>	<i>Retired because of:</i>	
		<i>Health</i>	<i>Other reasons</i>
No limitations.....	45.9	13.7	60.2
Could work if job available.....	52.8	27.7	64.0
Want to work.....	11.2	10.2	11.6

Thus, the majority of those who were retired for reasons other than health were not impaired. They also said that they could work if a job were available. However, very few of these potential workers wanted to be employed. The majority of those who had retired because of their health had at least one limitation and said that they could not work. Therefore, whether the recent changes in retirement laws will actually change the age at which people retire remains to be seen.

Table 1. Percent of people 55-74 years of age who have worked since age 45 with difficulty or unable to perform specified activities by sex, age, and activity: United States, 1984

Activity	Both sexes					Men					Women				
	Total	55-59 years	60-64 years	65-69 years	70-74 years	Total	55-59 years	60-64 years	65-69 years	70-74 years	Total	55-59 years	60-64 years	65-69 years	70-74 years
	Number														
Sample.....	9,805	2,000	1,968	3,285	2,552	5,100	1,036	1,067	1,731	1,266	4,705	964	901	1,554	1,286
	Number in thousands														
Estimated population.....	32,305	9,645	9,235	7,561	5,864	16,936	5,023	5,037	3,969	2,907	15,368	4,622	4,197	3,592	2,957
	Percent of population														
Walking ¼ mile															
Difficulty.....	17.6	12.4	16.5	20.0	25.0	17.4	12.3	17.0	20.1	23.3	17.9	12.6	15.8	19.9	26.6
Unable.....	7.6	5.4	8.0	8.7	9.5	7.6	5.0	7.9	9.4	8.7	7.7	5.8	8.0	7.9	10.2
Walking up 10 steps															
Difficulty.....	15.2	10.9	14.5	16.9	21.4	12.8	9.5	12.1	14.2	17.9	17.9	12.4	17.4	19.7	24.8
Unable.....	6.9	5.2	6.9	7.4	9.5	5.6	3.8	5.3	6.0	8.7	8.4	6.7	8.8	8.8	10.2
Standing on feet for 2 hours															
Difficulty.....	22.0	15.1	20.7	26.1	30.1	20.6	13.5	18.9	25.5	28.9	23.5	16.8	22.8	26.7	31.2
Unable.....	9.0	6.5	8.3	10.9	11.6	8.1	5.2	7.2	10.6	11.5	9.9	7.8	9.7	11.3	11.6
Sitting for 2 hours															
Difficulty.....	9.7	8.3	10.6	10.4	9.7	8.4	7.0	8.9	9.9	7.9	11.2	9.8	12.7	10.9	11.6
Unable.....	5.9	5.3	6.5	6.4	5.5	4.9	4.2	5.4	5.7	4.1	7.1	6.4	7.9	7.2	6.9
Stooping, crouching, or kneeling															
Difficulty.....	27.8	20.1	27.0	30.9	37.8	24.6	18.0	23.4	27.7	33.7	31.4	22.4	31.3	34.3	41.7
Unable.....	12.6	9.4	12.5	13.7	16.5	11.4	8.3	11.1	12.5	15.9	13.9	10.7	14.2	15.0	17.2
Reaching up over head															
Difficulty.....	11.5	9.0	11.2	13.1	14.2	10.5	9.0	9.9	12.4	11.6	12.7	9.1	12.8	13.8	16.6
Unable.....	6.4	4.6	6.7	7.3	7.7	5.7	3.9	6.3	6.9	6.0	7.2	5.4	7.1	7.7	9.5
Reaching out to shake hands															
Difficulty.....	1.8	1.8	1.6	1.8	2.0	1.6	1.5	1.3	1.8	2.0	2.0	2.2	1.9	1.8	2.0
Unable.....	1.0	1.0	1.1	1.0	1.2	1.0	0.8	0.9	1.1	1.0	1.1	1.2	1.2	0.8	1.4
Grasping with fingers															
Difficulty.....	7.8	6.4	7.4	8.7	9.5	6.3	4.5	6.0	7.1	8.8	9.4	8.5	9.0	10.5	10.2
Unable.....	5.0	4.2	5.0	5.2	5.9	4.0	2.6	4.0	4.5	5.4	6.1	5.8	6.2	6.1	6.3
Lifting or carrying 25 pounds															
Difficulty.....	23.1	17.0	22.5	24.8	32.0	15.9	11.6	15.4	16.8	23.1	31.1	22.9	31.0	33.8	40.8
Unable.....	6.9	6.2	6.0	7.3	9.1	4.8	3.5	3.8	5.6	7.5	9.3	9.1	8.7	9.3	10.7
Lifting or carrying 10 pounds															
Difficulty.....	7.3	5.0	6.9	8.2	10.5	5.3	3.7	5.4	6.6	6.3	9.4	6.4	8.7	9.9	14.6
Unable.....	2.6	2.2	2.5	2.7	3.0	1.9	1.6	1.9	2.2	1.7	3.3	2.8	3.3	3.3	4.3

Table 2. Percent distribution of people 55-74 years of age who have worked since age 45 by employment status, according to sex and age: United States, 1984

Sex and age	Number in sample	Estimated population in thousands	Employment status				
			Total	Working	Reason for retirement		
					Total	Other than health	Health
Both sexes			Percent distribution				
55-74 years.....	9,805	32,305	100.0	45.7	54.3	37.6	16.7
55-59 years.....	2,000	9,645	100.0	78.7	21.3	12.0	9.3
60-64 years.....	1,968	9,235	100.0	52.4	47.6	31.4	16.2
65-69 years.....	3,285	7,561	100.0	21.4	78.6	56.5	22.1
70-74 years.....	2,552	5,864	100.0	12.6	87.4	65.0	22.4
Men							
55-74 years.....	5,100	16,936	100.0	48.9	51.1	33.7	17.4
55-59 years.....	1,036	5,023	100.0	83.0	17.0	8.3	8.7
60-64 years.....	1,067	5,037	100.0	55.5	44.5	27.1	17.4
65-69 years.....	1,731	3,969	100.0	22.0	78.0	54.0	23.9
70-74 years.....	1,266	2,907	100.0	15.2	84.8	61.1	23.7
Women							
55-74 years.....	4,705	15,368	100.0	42.3	57.7	41.9	15.8
55-59 years.....	964	4,622	100.0	73.9	26.1	16.0	10.0
60-64 years.....	901	4,197	100.0	48.6	51.4	36.7	14.8
65-69 years.....	1,554	3,592	100.0	20.6	79.4	59.2	20.2
70-74 years.....	1,286	2,957	100.0	10.1	89.9	68.8	21.1

Table 3. Percent of people 55-74 years of age who have worked since age 45 with difficulty or unable to perform specified activities by employment status, sex, and activity: United States, 1984

Activity	Total	Working	Reason for retirement		
			Total	Other than health	Health
BOTH SEXES					
Sample.....	9,805	3,625	Number 6,179	4,375	1,804
Estimated population.....	32,305	14,777	Number in thousands 17,527	12,146	5,382
Walking ¼ mile					
Difficulty.....	17.6	8.4	Percent of population 25.4	12.8	53.9
Unable.....	7.6	5.1	9.8	6.7	16.8
Walking up 10 steps					
Difficulty.....	15.2	6.6	22.5	11.0	48.4
Unable.....	6.9	4.2	9.2	6.0	16.4
Standing on feet for 2 hours					
Difficulty.....	22.0	10.2	31.9	18.2	62.8
Unable.....	9.0	5.9	11.6	9.3	16.7
Sitting for 2 hours					
Difficulty.....	9.7	5.4	13.4	6.8	28.3
Unable.....	5.9	3.9	7.6	4.7	14.2
Stooping, crouching, or kneeling					
Difficulty.....	27.8	17.0	36.9	24.4	65.2
Unable.....	12.6	9.7	15.0	13.2	19.3
Reaching up over head					
Difficulty.....	11.5	6.0	16.2	8.0	34.7
Unable.....	6.4	4.1	8.3	5.2	15.5
Reaching out to shake hands					
Difficulty.....	1.8	0.5	2.8	1.1	6.8
Unable.....	1.0	0.3	1.7	0.6	4.0
Grasping with fingers					
Difficulty.....	7.8	4.1	10.9	5.9	22.1
Unable.....	5.0	3.1	6.6	4.2	11.8
Lifting or carrying 25 pounds					
Difficulty.....	23.1	11.8	32.7	19.9	61.8
Unable.....	6.9	5.2	8.4	7.2	11.1
Lifting or carrying 10 pounds					
Difficulty.....	7.3	2.4	11.4	5.1	25.6
Unable.....	2.6	1.1	3.8	2.0	7.8
MEN					
Sample.....	5,100	2,034	Number 3,066	2,076	990
Estimated population.....	16,936	8,282	Number in thousands 8,654	5,704	2,950
Walking ¼ mile					
Difficulty.....	17.4	7.9	Percent of population 26.5	11.9	54.8
Unable.....	7.6	4.7	10.3	6.6	17.5
Walking up 10 steps					
Difficulty.....	12.8	4.6	20.7	8.1	45.1
Unable.....	5.6	2.5	8.5	4.7	15.9
Standing on feet for 2 hours					
Difficulty.....	20.6	8.6	32.0	16.1	62.7
Unable.....	8.1	4.9	11.3	8.9	15.7
Sitting for 2 hours					
Difficulty.....	8.4	4.2	12.4	5.3	26.0
Unable.....	4.9	3.0	6.7	3.7	12.5

Table 3. Percent of people 55-74 years of age who have worked since age 45 with difficulty or unable to perform specified activities by employment status, sex, and activity: United States, 1984—Con.

Activity	Total	Working	Reason for retirement		
			Total	Other than health	Health
MEN—Con.					
Stooping, crouching, or kneeling					
Difficulty	24.6	14.3	34.4	19.8	62.6
Unable	11.4	8.5	14.2	11.8	18.9
Reaching up over head					
Difficulty	10.5	5.4	15.4	5.8	33.9
Unable	5.7	3.5	7.8	3.6	15.8
Reaching out to shake hands					
Difficulty	1.6	0.4	2.7	0.9	6.2
Unable	1.0	0.3	1.6	0.5	3.6
Grasping with fingers					
Difficulty	6.3	2.7	9.7	4.0	20.7
Unable	4.0	2.0	5.8	3.1	11.0
Lifting or carrying 25 pounds					
Difficulty	15.9	5.9	25.6	10.9	53.8
Unable	4.8	2.6	6.8	5.0	10.3
Lifting or carrying 10 pounds					
Difficulty	5.3	1.3	9.2	2.9	21.5
Unable	1.9	0.7	3.0	1.2	6.5
WOMEN					
Sample	4,705	1,592	3,113	2,299	814
Estimated population.....					
	15,368	6,495	8,873	6,442	2,431
Walking ¼ mile					
Difficulty	17.9	9.1	24.4	13.6	52.9
Unable	7.7	5.5	9.3	6.8	15.9
Walking up 10 steps					
Difficulty	17.9	9.3	24.2	13.6	52.4
Unable	8.4	6.4	9.9	7.2	17.1
Standing on feet for 2 hours					
Difficulty	23.5	12.2	31.8	20.0	63.0
Unable	9.9	7.2	11.9	9.6	17.9
Sitting for 2 hours					
Difficulty	11.2	6.9	14.4	8.0	31.1
Unable	7.1	5.1	8.5	5.6	16.3
Stooping, crouching, or kneeling					
Difficulty	31.4	20.3	39.4	28.5	68.3
Unable	13.9	11.3	15.8	14.4	19.7
Reaching up over head					
Difficulty	12.7	6.7	17.0	10.0	35.6
Unable	7.2	4.8	8.9	6.6	15.1
Reaching out to shake hands					
Difficulty	2.0	0.7	2.9	1.2	7.4
Unable	1.1	0.3	1.8	0.7	4.5
Grasping with fingers					
Difficulty	9.4	5.8	12.1	7.6	23.9
Unable	6.1	4.4	7.3	5.2	12.8
Lifting or carrying 25 pounds					
Difficulty	31.1	19.3	39.7	27.8	71.5
Unable	9.3	8.5	10.0	9.2	12.1
Lifting or carrying 10 pounds					
Difficulty	9.4	3.8	13.5	7.1	30.5
Unable	3.0	1.7	4.5	2.7	9.4

Table 4. Percent of people 55-74 years of age who have worked since age 45 with difficulty or unable to perform selected activities by age, activity, and employment status: United States, 1984

<i>Activity and employment status</i>	<i>Total</i>	<i>55-59 years</i>	<i>60-64 years</i>	<i>65-69 years</i>	<i>70-74 years</i>
Walking ¼ mile					
Percent of population with difficulty					
Working	8.4	7.2	9.3	10.1	11.1
Retired: Other than health.....	12.8	6.5	9.8	11.9	18.1
Retired: Health	53.9	64.3	52.5	50.4	52.8
Walking up 10 steps					
Working	6.6	6.2	7.2	7.0	6.1
Retired: Other than health.....	11.0	7.4	8.8	9.9	15.0
Retired: Health	48.4	54.5	49.3	44.1	48.7
Standing on feet for 2 hours					
Working	10.2	9.4	10.5	11.5	13.9
Retired: Other than health.....	18.2	10.9	15.4	18.0	22.8
Retired: Health	62.8	68.5	63.8	60.9	60.4
Stooping, crouching, or kneeling					
Working	17.0	15.4	17.8	18.1	24.9
Retired: Other than health.....	24.4	16.4	21.6	22.1	31.6
Retired: Health	65.2	64.8	67.0	65.6	62.9
Walking ¼ mile					
Percent of population unable					
Working	5.1	3.9	6.1	6.4	7.3
Retired: Other than health.....	6.7	4.2	5.4	6.7	8.4
Retired: Health	16.8	19.6	18.9	15.8	13.8
Walking up 10 steps					
Working	4.2	3.9	4.7	4.8	4.0
Retired: Other than health.....	6.0	3.6	5.3	5.4	8.0
Retired: Health	16.4	18.2	16.9	14.8	16.8
Standing on feet for 2 hours					
Working	5.9	5.5	5.9	6.7	7.5
Retired: Other than health.....	9.3	5.0	7.7	10.0	11.0
Retired: Health	16.7	16.4	17.4	17.2	15.5
Stooping, crouching, or kneeling					
Working	9.7	8.7	9.9	11.4	14.8
Retired: Other than health.....	13.2	8.1	11.6	12.4	16.8
Retired: Health	19.3	17.2	22.8	19.2	16.7

Technical notes

Each week a probability sample of households in the United States is visited by U.S. Bureau of the Census interviewers to obtain a wide range of information about the health and health care characteristics of the people living in those households. A description of the survey design, methods used to make the national estimates, and general qualifications of the data are provided in a report in the *Vital and Health Statistics* series.¹

There was a special supplement for people age 55 and over to the NHIS in 1984, the Supplement on Aging (SOA). A report on the SOA design and procedures that contains the questionnaire is in press.² Two deviations from usual NHIS practice that are of importance for this report should be noted. First, although everyone age 65 and over in the NHIS households was included in the SOA sample, only one-half of the people 55-64 years of age were included. Second, extensive efforts were made to have each person answer the questions on the SOA personally regardless of whether he or she had been a self-respondent to the regular NHIS interview.

There were 11,744 people with responses to the SOA who were 55-74 years of age; 93 percent answered all questions for themselves (table I). There was little variation in whether people were self-respondents by age within this age range, but men were less likely to answer for themselves than women were, usually because the men, especially younger men, were away from home.

Table I. Response status of sample of people 55-74 years of age

Age and sex	All response statuses	Self	Not self	Percent self
		Number		
Total.....	11,744	10,927	817	93.0
Age				
55-59 years.....	2,341	2,150	191	91.8
60-64 years.....	2,310	2,134	176	92.4
65-69 years.....	3,956	3,706	250	93.7
70-74 years.....	3,137	2,937	200	93.6
Sex				
Men.....	5,233	4,694	539	89.7
Women.....	6,511	6,233	278	95.7

The estimates in this paper are based on a sample rather than on the entire population of people 55-74 years

of age in the civilian noninstitutionalized population. Therefore, they are subject to sampling error. In addition, the sample had a complex design which has the effect of making the sampling errors somewhat larger than they would be from a simple random sample of the same size using the same procedures.

Most of the tables in this report show the number of people in the sample, and table II provides some average design effects to enable the user to estimate sampling errors that incorporate the complex sample design.

Table II. Average design effects for estimates of percent with difficulty

Population	Design effect	Square root of design effect
Total.....	1.2328	1.11
Men.....	1.3409	1.15
Women.....	1.2791	1.13
55-64 years.....	0.9770	0.99
65-74 years.....	1.1759	1.08

To estimate the sampling errors, convert the percent to a proportion, calculate the variance of a proportion assuming simple random sampling, multiply that variance by the design effect to allow for the complex sample, then compute standard errors, confidence intervals, or significance tests.

For example, there were 1,592 women 55-74 years of age in the sample who were working. Twenty percent had difficulty stooping, crouching, or kneeling. Therefore,

$$\begin{aligned} \text{Variance (simple random sample)} &= \frac{pq}{n} \\ &= \frac{(0.203)(0.797)}{1,592} \\ &= 0.000102. \end{aligned}$$

The average design effect for women is 1.2791.

$$\begin{aligned} \text{Variance (complex sample)} &= (0.000102)(1.2791) \\ &= 0.000130. \end{aligned}$$

$$\begin{aligned} \text{Standard error} &= (0.000130)^{1/2} \\ &= 0.0114. \end{aligned}$$

$$\begin{aligned} 95\text{-percent confidence interval} &= 20.3 \pm (1.96)(1.14) \\ &= 20.3 \pm 2.2 \text{ percent.} \end{aligned}$$

It should be noted that this example gives a conservative estimate. Because of the half-sample of people ages 55-64 years, there is little clustering in households for people of that age and the design effects are so small that the complex sample design has little impact on the variance.

¹National Center for Health Statistics, M. G. Kovar and G. S. Poe: The National Health Interview Survey design, 1973-84, and procedures, 1975-83 *Vital and Health Statistics*, Series 1, No. 18, DHHIS Pub. No. (PHIS) 85-1320, Public Health Service, Washington, U.S. Government Printing Office, Aug. 1985.

²National Center for Health Statistics, J. Fitti and M. G. Kovar: The Supplement on Aging, design and procedures *Vital and Health Statistics*, Series 1, No. 21, DHHIS Pub. No. (PHIS) 87-1320, Public Health Service, Washington, U.S. Government Printing Office, In press.

Table III. Confidence intervals for selected estimates of percent with difficulty

Activity and sex	Estimated percent	95-percent confidence interval	
		Lower bound	Upper bound
Walking ¼ mile			
Both sexes	17.6	16.8	18.5
Men	17.4	16.1	18.7
Women.....	17.9	16.8	19.0
Walking up 10 steps without resting			
Both sexes	15.2	14.4	16.0
Men	12.8	11.8	13.8
Women.....	17.9	16.6	19.2
Standing for 2 hours			
Both sexes	22.0	21.0	23.0
Men	20.6	19.3	21.9
Women.....	23.5	22.1	24.9
Sitting for 2 hours			
Both sexes	9.7	9.0	10.4
Men	8.4	7.5	9.3
Women.....	11.2	10.3	12.1
Stooping, crouching, or kneeling			
Both sexes	17.8	16.8	18.8
Men	24.6	23.4	25.8
Women.....	31.4	29.7	33.0
Reaching up over head			
Both sexes	11.5	10.9	12.2
Men	10.5	9.6	11.4
Women.....	12.7	11.7	13.6
Reaching out to shake hands			
Both sexes	1.8	1.5	2.0
Men	1.6	1.2	1.9
Women.....	2.0	1.6	2.4
Grasping with fingers			
Both sexes	7.8	7.1	8.4
Men	6.3	5.5	7.1
Women.....	9.4	8.3	10.5
Lifting or carrying 25 pounds			
Both sexes	23.1	22.2	24.1
Men	15.9	14.6	17.3
Women.....	31.1	29.5	32.7
Lifting or carrying 10 pounds			
Both sexes	7.3	6.8	7.8
Men	5.3	4.7	6.0
Women.....	9.4	8.5	10.4

Also, because the sample is so large, the standard errors are relatively small despite the complex sample. Confidence intervals are shown for each functional disability for both sexes and for men and women in table III for people who wish to use them.

Perhaps more important for interpretation than sampling errors, however, is a thorough understanding of what data from this, or any other, cross-sectional survey can provide.

The NHIS is a point-in-time study. Associations at one point in time should not be interpreted as causality. The differences in functional disability among the employment groups, for example, should not be interpreted to mean that these specific disabilities caused the people to retire because of health. A specific disability could have begun before or after retirement; data from a cross-sectional survey do not enable one to make that distinction. Nor can the data from a cross-sectional survey be used to estimate the total number of people who have done any specific thing in the past such as the number who retired because of health; there may have been differential mortality preceding the interview. The data serve only to point out that when they were interviewed, people who had retired, and especially those who had retired because of health, were more likely than those who were still working to report any of the disabilities that were investigated.

This may be enough to suggest, however, that data based solely on working populations are not sufficient for investigating age-related changes in the proportion of people with difficulty or inability to perform a specified task.

Diagnosis-Related Groups Using Data From the National Hospital Discharge Survey: United States, 1985

by Edmund J. Graves, Division of Health Care Statistics

Introduction

Diagnosis-related groups (DRG's) are used by the Health Care Financing Administration, some States, and some third-party payers as the basis for reimbursing hospitals for inpatient care.¹ The Federal application of DRG's is the prospective payment system for Medicare inpatients. The necessary patient information (diagnoses, procedures, age, and discharge status) to generate national estimates on hospital utilization for these categories is collected for the National Center for Health Statistics by means of the National Hospital Discharge Survey (NHDS). This report presents selected estimates for 1985 from NHDS on patients discharged from non-Federal short-stay hospitals by DRG.

In an attempt to control rising Medicare costs, the Health Care Financing Administration changed the basis for determining how hospitals are reimbursed for inpatient care. Under the Tax Equity and Fiscal Responsibility Act of 1983,² reimbursement for inpatient care changed from fee-for-service to a prospective payment system. Under this system a hospital is reimbursed a preestablished amount based on a series of calculations used to compute the average cost of care for patients with similar conditions and treatments. These similar conditions and treatments are defined as a set of mutually exclusive categories called diagnosis-related groups, or DRG's.

The prospective payment system using DRG's was implemented on October 1, 1983. Individual hospitals started in the system beginning with their first fiscal year after this date. Therefore, by September 30, 1984, all hospitals designated to be under DRG reimbursement were in the system. Two previous reports on DRG's published by the National Center for Health Statistics^{3,4} included data on the most frequent DRG's. A more detailed report on DRG's was published in a series 13 *Vital and Health Statistics* report.⁵

DRG's were developed at the Yale School of Organization and Management under the guiding principle that "The primary objective in the construction of DRG's was a definition of case type, each of which could be expected to receive similar outputs or services from a hospital."⁶ Initially there were 470 DRG's used in the prospective payment system, each with an associated relative cost weight used to establish the prospective payment for a patient in each DRG. This approach to health care reimbursement operates on the premise that patients with similar medical conditions should receive similar care and use approximately the same resources. Therefore, although there is a variation in resource consumption among patients within a DRG, this variation is expected to balance out across the range of all patients.

A detailed description of the development and construction of DRG's is available,⁶ and current DRG's and relative cost weights are published in the Federal Register. DRG's and the relative cost weights are subject to modification for a number of reasons. Therefore, it is important for anyone using DRG data to examine changes in the system that could affect their analysis.

The statistics in this report are based on data collected by the National Center for Health Statistics by means of the National Hospital Discharge Survey (NHDS), which is a continuous voluntary survey conducted since 1965. The data for the survey are obtained from a sample of inpatient medical records from a national sample of short-stay general and specialty hospitals located in the United States. A detailed report on the design of NHDS was published in 1970.⁷ In 1985, for the first time, two data collection procedures were used in NHDS. The traditional procedure involves a manual system of data abstraction in the hospitals; the new procedure is an automated method that involves the purchase of data tapes from commercial abstracting services. The new procedure is used in 17 percent of the hospitals.

Approximately 194,800 medical records from 414 hospitals were included in the 1985 survey. The relevant variables required to produce DRG's (diagnoses, procedures, sex, age, and other variables) were abstracted from the face sheet of each sampled medical record, and NHDS data thereby could be used to produce national estimates of DRG's. These estimates may be of value for hospitals to compare their experience with that of other hospitals. For this reason, statistics in this report are frequency estimates and associated average length of stay for DRG's by U.S. totals, hospital size, and region of the country.

Highlights

The frequency and average length of stay for the most common DRG's are presented by age, region of the country, and hospital size in tables 1-4. Age is dichotomized as under 65 years of age and 65 years of age and over. This allows a comparison with the Medicare population because Medicare covers most hospital costs for approximately 95 percent of discharges 65 years of age and over. Tables 1 and 2 provide regional data, and tables 3 and 4 provide bed-size data for these DRG's. Tables 1 and 3 contain findings for patients under 65 years of age, and tables 2 and 4 include the survey results for patients 65 years of age and over.

By definition, some DRG's are only for patients in a specific age range. In such a case the DRG title and the table title (tables 1-4) together define the age group of the estimate. That is, the most restrictive case of either the table or DRG title determines the age group of the estimate. For example, "diabetes, age 36 or over" in table 2 refers only to patients 65 years of age and over because of the table title; "simple pneumonia and pleurisy, age 70 or over and/or substantial comorbidity and complication" in table 2 would not include a patient under 70 years of age because of the restriction in the DRG title.

The most common DRG for patients under 65 years of age was "vaginal delivery without complicating diagnoses" (table 1), with an estimated 2.6 million discharges in 1985. "Cesarean section without substantial comorbidity and/or complication," with 761,000 discharges, and "medical back problems," with 741,000 discharges, also were among the most frequent DRG's in this age group. For patients 65 years of age and older (table 2) "heart failure and shock" was the most common DRG (469,000 discharges), and "simple pneumonia and pleurisy, age 70 or over and/or substantial comorbidity and complication" and "specific cerebrovascular disorders except transient ischemic attacks," with 357,000 and 350,000 discharges respectively, were the next most common DRG's for the elderly.

The average length of stay for specific DRG's in the four regions of the country generally reflected the pattern

found for all patients. Regional length-of-stay differences were greater for patients 65 years of age or over than for younger patients. The Northeast had an average length of stay of 6.1 days for patients under 65 years of age, and the West had an average length of stay of 4.7 days, a difference of 1.4 days, or 30 percent greater. For older patients, however, the Northeast had an average length of stay 3.8 days greater than for the elderly patients in the West (11.0 versus 7.2 days), a difference of 53 percent.

Overall there was a tendency for length of stay to increase with hospital size (tables 3 and 4) for patients under 65 years of age as well as for older patients. However, the average length of stay in small and medium-size hospitals for some of the individual DRG's is equal to or greater than the average length of stay in large hospitals (500 or more beds).

The average length of stay associated with a DRG (tables 1-4) allows hospitals to compare their experience with that of other hospitals. Though comparison is tenuous on a case-by-case basis, an administrator of a hospital with an average length of stay 2, 3, or more days longer than the national average for a specific DRG may want to examine why the hospital is so far from the norm. This kind of comparison may be worthwhile as a starting point, but it is important to remember that, even within a DRG, average length of stay is not an exact measure of resource consumption.

When making these comparisons of average length of stay, the general downward trend in the lengths of hospital visits for the previous 16 years should be noted. There has been a steady decline in average length of stay in all regions of the country since 1970, with a more precipitous fall in the last 5 years.⁵ That is, although average length of stay for all patients aged 65 and over declined 2.6 days during the 11-year period 1970-81, an average drop of 0.24 days per year, the drop from 1981 through 1985 was 1.8 days, or 0.36 days per year.

One of the expected outcomes of the prospective payment system was an overall reduction in length of stay. Given the existing trend it may be difficult to evaluate the effects of DRG's on average length of stay because it decreased significantly before the DRG program and because there is a threshold effect for this variable. That is, at a certain point, length of stay cannot be further reduced. The data in table 5 give the year-to-year percent change in length of stay from 1980 through 1985. It is evident from this table that in 1984 there was a larger reduction in average length of stay than in previous years for patients 65 years of age and over—patients most affected by changes in the Medicare system. However, the change in average length of stay was not significant in 1985 when compared with 1984 for patients under 65 years of age, and it is possible that further reduction in average length of stay may be difficult to obtain.

Table 1. Number of discharges and average length of stay of patients under 65 years of age discharged from short-stay hospitals, by selected diagnosis-related groups and geographic region: United States, 1985

[Discharges from non-Federal short-stay hospitals. Excludes newborn infants.]

Diagnosis-related group	All regions					All regions				
	Northeast	Midwest	South	West	Northeast	Midwest	South	West		
	Number in thousands					Average length of stay in days				
All discharges	24,548	4,816	6,288	8,930	4,514	5.5	6.1	5.9	5.2	4.7
Vaginal delivery without complicating diagnoses	2,552	463	638	853	599	2.6	3.0	2.9	2.6	2.0
Cesarean section without substantial comorbidity and or complication	761	133	181	277	170	5.0	5.8	5.3	4.9	4.4
Medical back problems	741	123	171	316	131	5.6	6.9	5.8	5.6	3.8
Nonradical hysterectomy, age less than 70 years without substantial comorbidity and or complication	503	60	115	221	107	5.9	6.8	6.2	6.1	4.9
Psychoses	478	125	144	119	90	15.5	19.0	15.9	13.6	12.4
Esophagitis, gastroenteritis, and miscellaneous digestive disease age 18-69 without substantial comorbidity and or complication	412	62	104	201	46	3.5	3.8	3.6	3.5	2.8
Unrelated operating room procedure	317	58	89	115	55	10.4	12.7	10.1	10.3	8.5
Alcohol and substance-induced organic mental syndrome	310	132	92	51	35	9.9	9.3	12.8	7.3	8.2
Bronchitis and asthma age under 18	302	54	80	130	38	3.5	3.3	3.9	3.6	2.8
Back and neck procedures age under 70 without substantial comorbidity and/or complication	273	35	65	114	60	8.9	10.0	8.6	9.3	7.7
Esophagitis, gastroenteritis, and miscellaneous digestive disorders age under 18	268	46	77	114	31	3.3	3.0	3.4	3.7	2.3
Angina pectoris	234	63	49	83	39	4.0	4.6	4.1	3.9	3.0
Other antepartum diagnoses with medical complications	230	37	60	88	45	3.6	4.3	3.7	3.5	2.9
Vaginal delivery with sterilization and or dilation and curettage of uterus	222	32	44	106	39	3.2	3.5	3.5	3.2	2.8
Abortion with dilation and curettage of uterus	221	81	38	72	30	1.6	1.7	1.6	1.5	1.4
Uterus and adnexa procedure for non-malignancy except tubal interruption	217	44	53	75	45	5.0	5.2	4.9	5.4	4.3
Esophagitis, gastroenteritis, and miscellaneous digestive disease age 70 or over and or substantial comorbidity and or complication	216	34	52	94	37	4.7	4.9	5.1	4.7	4.0
Simple pneumonia and pleurisy age under 18	211	25	59	102	25	4.2	4.5	4.4	4.0	4.5
Circulatory disorders except acute myocardial infarction, with cardiac catheterization without complex diagnosis	211	38	70	73	31	2.8	2.9	2.7	3.3	2.0
Foot procedures	211	28	50	92	40	3.1	3.5	3.7	2.9	2.9
Inguinal and femoral hernia procedures age 18-69 without substantial comorbidity and/or complication	202	49	52	67	34	2.8	2.7	2.7	3.3	1.7
Bronchitis and asthma age 18-69 without substantial comorbidity and or complication	194	41	47	73	34	4.5	4.9	4.2	4.8	3.6
Circulatory disorders with acute myocardial infarction without cardiovascular complications, discharged alive	192	40	44	77	31	7.7	9.1	8.1	7.3	6.5
Vaginal delivery with complicating diagnoses	190	29	49	70	42	3.5	4.2	3.6	3.7	2.7
Appendectomy without complicated principal diagnosis age under 70 without substantial comorbidity and or complication	189	35	49	63	43	3.7	4.1	3.8	3.7	3.4
Tonsillectomy and or adenoidectomy only, age under 18	187	33	54	75	27	1.5	2.0	1.3	1.6	1.1
Other factors influencing health status	186	39	44	59	45	3.8	4.2	4.5	3.1	3.6

Table 2. Number of discharges and average length of stay of patients 65 years of age and over discharged from short-stay hospitals, by selected diagnosis-related groups and geographic region: United States, 1985

[Discharges from non-Federal short-stay hospitals. Excludes newborn infants]

Diagnosis-related group	All regions					All regions				
	Northeast	Midwest	South	West	Northeast	Midwest	South	West		
	Number in thousands					Average length of stay in days				
All discharges	10,508	2,353	2,823	3,344	1,988	8.7	11.0	8.6	8.2	7.2
Heart failure and shock	469	123	128	142	76	7.9	9.7	8.0	7.1	6.7
Simple pneumonia and pleurisy age 70 or over and or substantial comorbidity and complication	357	74	98	117	68	9.2	11.7	9.0	8.3	8.2
Specific cerebrovascular disorders except transient ischemic attacks	350	75	87	120	68	12.0	17.1	12.4	10.5	8.3
Angina pectoris	316	78	75	107	55	5.2	6.0	5.1	5.3	4.0
Esophagitis, gastroenteritis, and miscellaneous digestive disease age 70 or over and or substantial comorbidity and complication	296	63	79	110	45	6.2	8.1	6.3	5.5	4.7
Chronic obstructive pulmonary disease	257	60	53	92	52	8.2	10.3	8.7	7.5	6.4
Cardiac arrhythmia and conduction disorders age 70 or over and or substantial comorbidity and complication	248	56	67	77	49	5.9	7.1	5.7	5.8	5.2
Nutritional and miscellaneous metabolic disorders age 70 or over and/or substantial comorbidity and complication	217	42	57	76	42	7.4	8.8	7.2	7.4	6.2
Unrelated operating room procedure	196	57	51	52	36	16.1	21.0	15.5	15.0	11.1
Bronchitis and asthma age 70 or over and/or substantial comorbidity and complication	188	41	45	68	34	7.0	7.8	6.4	7.4	6.0
Transient ischemic attacks	184	42	52	58	33	5.7	8.4	5.3	5.2	3.9
Atherosclerosis age 70 or over and or substantial comorbidity and complication	179	43	38	67	30	7.0	10.2	6.0	6.4	4.8
Circulatory disorders with acute myocardial infarction without cardiovascular complications, discharged alive	172	38	41	62	31	8.9	11.1	9.1	8.2	7.6
Transurethral prostatectomy age 70 or over and or substantial comorbidity and complication	169	33	48	57	31	7.0	9.3	6.7	7.0	4.8
Kidney and urinary tract infections age 70 or over and or substantial comorbidity or complication	168	32	42	70	25	7.7	10.4	7.3	7.0	6.7
Major joint procedures	168	33	59	38	37	14.9	19.3	14.0	14.7	12.7
Medical back problems	158	33	42	51	31	7.7	10.2	6.7	8.3	5.3
Gastrointestinal hemorrhage age 70 or over and/or substantial comorbidity and complication	153	36	39	47	31	6.9	8.2	7.1	6.9	5.3
Hip and femur procedures except major joint age 70 or over and/or substantial comorbidity and complication	148	34	41	40	33	15.8	22.5	13.6	13.7	14.2
Respiratory neoplasms	139	33	35	49	21	7.9	10.4	7.4	7.4	5.9
Lens procedures	138	49	44	18	26	1.8	1.9	1.9	1.9	1.3
Diabetes age 36 or over	137	35	35	50	18	7.7	9.6	7.4	7.6	4.9
Circulatory disorders with acute myocardial infarction and cardiovascular complications, discharged alive	134	34	32	47	22	11.2	13.1	11.8	9.8	10.1
Major small and large bowel procedures age 70 or over and or substantial comorbidity and complication	123	26	34	39	24	16.3	18.8	15.8	15.7	15.3
Red blood cell disorders age 18 or over	106	24	26	32	24	6.6	8.8	6.8	6.1	4.8

Table 3. Number of discharges and average length of stay of patients under 65 years of age discharged from short-stay hospitals, by selected diagnosis-related groups and hospital bed size: United States, 1985

*Discharges from non-Federal short-stay hospitals. Excludes newborn infants)

Diagnosis-related group	All hospitals	6-99 beds	100-199 beds	200-299 beds	300-499 beds	500 beds or more	All hospitals	6-99 beds	100-199 beds	200-299 beds	300-499 beds	500 beds or more
	Number in thousands						Average length of stay in days					
All discharges	24,548	3,550	4,625	4,618	5,982	5,773	5.5	4.5	4.9	5.3	5.7	6.4
Vaginal delivery without complicating diagnoses	2,552	355	437	440	690	630	2.6	2.1	2.5	2.5	2.7	2.9
Cesarean section without substantial comorbidity and/or complication	761	81	137	130	212	201	5.0	4.5	4.7	4.8	5.1	5.6
Medical back problems	741	130	170	166	147	127	5.6	6.1	5.2	5.0	6.2	5.5
Nonradical hysterectomy, age less than 70 years without substantial comorbidity and/or complication	503	65	123	96	112	106	5.9	5.6	5.8	5.9	6.1	6.3
Psychoses	478	67	78	71	142	121	15.5	17.0	16.0	13.1	13.9	17.6
Esophagitis, gastroenteritis, and miscellaneous digestive disease age 18-69 without substantial comorbidity and/or complication	412	94	87	82	81	69	3.5	2.8	3.4	3.6	3.9	3.8
Unrelated operating room procedure	317	21	48	59	84	105	10.4	6.4	9.0	10.5	10.0	12.0
Alcohol and substance-induced organic mental syndrome	310	100	36	51	80	43	9.9	8.8	8.8	11.3	11.3	8.7
Bronchitis and asthma age under 18	302	50	83	64	55	50	3.5	3.3	3.4	3.9	3.3	3.6
Back and neck procedures age under 70 without substantial comorbidity and/or complication	273	25	44	54	57	94	8.9	9.8	7.9	8.5	9.5	8.9
Esophagitis, gastroenteritis, and miscellaneous digestive disorders age under 18	268	42	64	53	57	53	3.3	2.6	3.2	3.0	3.5	4.2
Angina pectoris	234	49	54	55	45	30	4.0	3.4	3.8	4.2	4.3	4.7
Other antepartum diagnoses with medical complications	230	35	44	33	58	60	3.6	2.7	3.1	3.3	3.8	4.3
Vaginal delivery with sterilization and/or dilation and curettage of uterus	222	42	47	37	44	53	3.2	3.0	3.1	3.2	3.3	3.4
Abortion with dilation and curettage of uterus	221	22	36	39	54	70	1.6	1.5	1.5	1.6	1.7	1.5
Uterus and adnexa procedure for non-malignancy except tubal interruption	217	28	49	38	50	51	5.0	4.8	4.9	4.6	5.2	5.3
Esophagitis, gastroenteritis, and miscellaneous digestive disease age 70 or over and/or substantial comorbidity and/or complication	216	54	41	47	44	30	4.7	4.0	5.0	5.1	4.6	5.4
Simple pneumonia and pleurisy age under 18	211	57	57	40	27	30	4.2	3.5	4.4	4.4	4.4	4.8
Circulatory disorders except acute myocardial infarction, with cardiac catheterization	211	-	*8	39	63	101	2.8		*2.5	2.4	2.6	3.2
Foot procedures	211	48	82	28	32	21	3.1	2.7	2.5	3.2	3.5	5.8
Inguinal and femoral hernia procedures age 18-69 without substantial comorbidity and/or complication	202	32	37	44	49	40	2.8	2.8	3.3	2.5	2.6	2.8
Bronchitis and asthma age 18-69 without substantial comorbidity and/or complication	194	36	46	42	34	36	4.5	4.2	4.5	4.4	4.4	4.9
Circulatory disorders with acute myocardial infarction without cardiovascular complications, discharged alive	192	34	34	44	43	38	7.7	6.0	3.1	8.1	7.7	8.5
Vaginal delivery with complicating diagnoses	190	25	31	32	49	54	3.5	2.3	3.5	3.2	3.5	4.2
Appendectomy without complicated principal diagnosis age under 70 without substantial comorbidity and/or complication	189	37	36	37	46	32	3.7	3.9	3.5	3.5	3.3	3.9
Tonsillectomy and/or adenoidectomy only, age under 18	187	29	50	40	43	26	1.5	*.4	1.5	1.3	1.8	1.4
Other factors influencing health status	186	18	28	38	47	55	3.8	4.0	3.2	5.1	3.1	3.7

Table 4. Number of discharges and average length of stay of patients 65 years of age and over discharged from short-stay hospitals, by selected diagnosis-related groups and hospital bed size: United States, 1985

[Discharges from non-Federal short-stay hospitals. Excludes newborn infants]

Diagnosis-related group	All	6-99	100-199	200-299	300-499	500 beds	All	6-99	100-199	200-299	300-499	500 beds
	hospitals	beds	beds	beds	beds	or more	hospitals	beds	beds	beds	beds	or more
	Number in thousands						Average length of stay in days					
All discharges	10,508	1,781	1,818	2,335	2,643	1,930	8.7	6.6	7.9	8.9	9.4	10.3
Heart failure and shock	469	103	91	106	107	62	7.9	6.6	7.8	8.4	8.6	8.7
Simple pneumonia and pleurisy age 70 or over and or substantial												
comorbidity and complication	357	103	59	75	74	46	9.2	8.1	8.0	9.6	10.3	10.8
Specific cerebrovascular disorders except transient ischemic attacks	350	65	61	82	81	62	12.0	8.5	9.6	14.3	12.4	14.3
Angina pectoris	316	76	64	75	65	35	5.2	4.1	5.2	5.0	6.0	6.2
Esophagitis, gastroenteritis, and miscellaneous digestive disease age 70 or over and or substantial												
comorbidity and complication	296	77	59	61	60	39	6.2	5.0	5.6	7.0	7.3	6.3
Chronic obstructive pulmonary disease	257	54	57	58	60	28	8.2	6.6	7.3	8.7	8.7	11.1
Cardiac arrhythmia and conduction disorders age 70 or over and or substantial												
comorbidity and complication	248	49	47	57	61	34	5.9	4.8	5.6	6.0	6.3	7.3
Nutritional and miscellaneous metabolic disorders age 70 or over and/or substantial												
comorbidity and complication	217	51	40	48	50	28	7.4	6.4	7.5	7.5	7.5	8.5
Unrelated operating room procedure	196	15	33	47	59	42	16.1	16.0	13.7	16.0	16.8	17.4
Bronchitis and asthma age 70 or over and/or substantial comorbidity and complication	188	41	32	47	39	28	7.0	6.1	7.1	7.4	6.6	8.1
Transient ischemic attacks	184	37	36	42	43	26	5.7	4.4	4.8	6.2	6.4	7.1
Atherosclerosis age 70 or over and/or substantial comorbidity and complication	179	36	31	46	43	23	7.0	5.0	6.4	7.5	7.8	8.3
Circulatory disorders with acute myocardial infarction without cardiovascular complications, discharged alive	172	32	31	42	34	32	8.9	7.0	8.9	9.0	9.9	9.7
Transurethral prostatectomy age 70 or over and or substantial comorbidity or complication	169	19	32	41	46	31	7.0	5.6	6.8	6.1	7.9	7.8
Kidney and urinary tract infections age 70 or over and or substantial comorbidity or complication	168	45	29	34	36	25	7.7	5.9	7.2	9.5	7.7	8.9
Major joint procedures	168	12	30	41	50	34	14.9	13.8	13.4	15.2	15.5	15.4
Medical back problems	158	33	29	34	39	23	7.7	6.3	7.3	8.6	7.6	8.7
Gastrointestinal hemorrhage age 70 or over and or substantial												
comorbidity and complication	153	32	29	33	34	25	6.9	5.8	6.5	6.4	8.5	7.2
Hip and femur procedures except major joint age 70 or over and/or substantial												
comorbidity and complication	148	20	28	34	41	25	15.8	12.4	15.2	15.7	15.9	19.0
Respiratory neoplasms	139	14	23	31	39	31	7.9	6.7	7.4	7.9	7.5	9.2
Lens procedures	138	14	25	30	40	29	1.8	1.2	1.7	1.9	1.8	2.0
Diabetes age 36 or over	137	31	26	24	32	24	7.7	5.8	6.7	8.7	8.3	9.5
Circulatory disorders with acute myocardial infarction and cardiovascular complications, discharged alive	134	24	24	28	40	18	11.2	8.8	10.4	12.4	11.6	12.4
Major small and large bowel procedures age 70 or over and/or substantial												
comorbidity and complication	123	20	24	30	27	23	16.3	13.7	16.6	15.4	17.4	18.4
Red blood cell disorders age 18 or over	106	20	15	27	27	17	6.6	4.8	5.5	7.2	7.6	7.0

Table 5. Annual percent change in average length of stay by age and region, United States, 1980–85

¹Discharges from non-Federal short-stay hospitals. Excludes newborn infants.

Age and region	Year					
	1980	1981	1982	1983	1984	1985
Percent						
Under 65 years						
Northeast	+0.27	-1.73	-1.88	-3.10	-2.64	-0.32
Midwest	+1.64	-2.22	+1.20	-2.72	-2.12	-1.40
South	-0.58	-0.04	-2.17	-0.54	-6.23	-0.34
West	+1.92	-0.35	-2.76	-1.75	-0.22	-5.67
65 years and over						
Northeast	-0.59	-0.46	-6.16	-1.32	-6.57	-2.88
Midwest	+1.50	-2.56	-2.30	-6.42	-9.68	-1.63
South	-0.99	-0.39	-4.38	-3.41	-8.05	-2.71
West	-4.37	-3.49	-0.52	-2.87	-7.81	-2.25

Symbols

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

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Technical notes

Survey methodology

Source of data

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

The universe of the survey consists of 6,965 short-stay hospitals contained in the 1963 Master Facility Inventory of Hospitals and Institutions. New hospitals were sampled for inclusion in the survey in 1972, 1975, 1977, 1979, 1981, 1983, and 1985. In all, 558 hospitals were sampled in 1985. Of these hospitals, 82 refused to participate, and 62 were out of scope. The 414 participating hospitals provided approximately 194,800 abstracts of medical records.

Sample design and data collection

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

In the 1985 survey, two data-collection procedures were used for the first time. One was the traditional manual system of sample selection and data abstraction. The other was an automated method used in approximately 17 percent of the sample hospitals, involving the purchase of data tapes from commercial abstracting services.

In the manual hospitals, sample discharges were selected using the daily listing sheet of discharges as the sampling frame. These discharges were selected by a random technique, usually on the basis of the terminal digit or digits of the patient's medical record number. The sample selection and abstraction of data from the face sheet and discharge summary of the medical records were performed by the hospital staff or by representatives of the National Center for Health Statistics (NCHS). The completed forms were forwarded to NCHS for coding, editing, and weighting procedures.

For the automated hospitals, tapes containing machine-readable medical record data were purchased from commercial abstracting services. These tapes are subject to NCHS sampling, editing, and weighting procedures. A detailed description of the automated process is to be published.

The Medical Abstract Form and the abstract service data tapes contain items relating to the personal characteristics of the patient, including birth date, sex, race, and marital status but not name and address; administrative information, including admission and discharge dates, discharge status, and medical record number; and medical information, including diagnoses and surgical and nonsurgical operations or procedures. Since 1977, patient zip code, expected source of payment, and dates of surgery also have been collected. (The medical record number and patient zip code are considered confidential information and are not available to the public.)

Presentation of estimates

Statistics produced by NHDS are derived by a complex estimating procedure. The basic unit of estimation is the sample inpatient discharge abstract. The estimating procedure used to produce essentially unbiased national estimates in NHDS has three principal components: inflation by reciprocals of the probabilities of sample selection, adjustment for nonresponse, and ratio adjustment to fixed totals. These components of estimation are described in appendix I of two earlier publications.^{8,9}

Based on consideration of the complete sample design of NHDS, the following guidelines are used for presenting NHDS estimates in this report.

- If the sample is less than 30, the value of the estimate is not reported. Only an asterisk (*) is shown in the tables.
- If the sample size is 30–59, the value of the estimate is reported but should be used with caution. The estimate is preceded by an asterisk (*) in the tables.

Diagnosis-related groups

The DRG's to which this report refers were produced using the DRG program available in the summer of 1983 and are identical to those in the Friday, August 31, 1984, issue of the Federal Register. This is a computer program that groups patients into DRG's based on diagnostic, surgical, and patient information. The actual program used to produce estimates in this report was obtained from the Health Care Financing Administration. The entire NHDS file, including outliers, was used to produce estimates. No data were excluded or trimmed because of abnormal length of stay.

In publications from the National Center for Health Statistics using NHDS data, several schemes have been used to group patients into categories based on either their diagnose or the procedures performed. These groups were developed to report general purpose statistics to the many users of NHDS data, and any similarity between the titles of those categories and DRG titles is coincidental.

Sampling errors and rounding of numbers

The standard error is a measure of the sampling variability that occurs by chance because only a sample, rather than an entire universe, is surveyed. The relative standard error of the estimate is obtained by dividing the standard error by the estimate itself and is expressed as a percent of the estimate. Table I shows 1985 relative standard errors for discharges. The standard errors for average lengths of stay are shown in table II. Estimates have been rounded to the nearest thousand. For this reason detailed figures within tables do not always add to the totals.

Table I. Approximate relative standard errors of estimated number of discharges and first-listed diagnoses: United States, 1985

Size of estimate	Relative standard error
10,000	10.6
50,000	6.7
100,000	5.7
300,000	4.4
500,000	4.0
1,000,000	3.5
4,000,000	2.1

Table II. Approximate standard errors of average lengths of stay by number of discharges: United States, 1985

Number of discharges	Average length of stay in days			
	2	6	10	20
	Standard error in days			
10,000	0.4	0.9	1.5	2.7
50,000	0.2	0.6	1.0	1.8
100,000	0.2	0.5	0.8	1.6
500,000	0.1	0.4	0.6	1.1
1,000,000	0.1	0.3	0.5	1.0
5,000,000	0.1	0.3	0.4	0.8

Tests of significance

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

Definitions of terms used in this report

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

Discharge—Discharge is the formal release of a patient by a hospital; that is, the termination of a period of hospitalization by death or by disposition to place of residence, nursing home, or another hospital. The terms "discharges" and "patients discharged" are used synonymously.

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

Age—Patient's age refers to age at birthday prior to admission to the hospital inpatient service.

Geographic region—Hospitals are classified by location in one of the four geographic regions of the United States that correspond to those used by the U.S. Bureau of the Census.

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

Hospitals—Short-stay special and general hospitals have six beds or more for inpatient use and an average length of stay of less than 30 days. Federal hospitals and hospital units of institutions are not included.

Bed size of hospital—Size is measured by the number of beds, cribs, and pediatric bassinets regularly maintained (set up and staffed for use) for patients; bassinets for newborn infants are not included. In this report the classification of hospitals by bed size is based on the number of beds at or near midyear reported by the hospitals.

Highlights of Osteopathic Office Practice, National Ambulatory Medical Care Survey, 1985

by Hugo Koch, M.H.A., and Tommy McLemore, M.S.P.H., Division of Health Care Statistics

Introduction

In this report, the findings of the National Ambulatory Medical Care Survey (NAMCS) are used to describe the ambulatory care provided in the offices of osteopathic physicians over the period from March 1985 through February 1986. The National Center for Health Statistics, which periodically conducts the survey, obtains the NAMCS data base from a sample of non-Federal physicians selected from the doctors of medicine and osteopathy who are primarily engaged in office-based practice throughout the coterminous United States. Anesthesiologists, radiologists, and pathologists are not included in the sample. Further excluded are telephone contacts (including prescription refills) and all nonoffice visits to patients. General findings from the 1985 survey have been published.¹

Osteopathic medicine—background facts

(Based on information supplied by the American Osteopathic Association.)

- Osteopathic physicians are licensed for the full practice of medicine and surgery in all 50 States and the District of Columbia.
- Osteopathic medicine uses all accepted methods of preventing, diagnosing, and treating illness and injury, including the appropriate use of drugs and surgery.
- Central to the philosophy and practice of osteopathic medicine is the musculoskeletal system and its importance to a patient's total well-being. Doctors of osteopathy (D.O.'s) are especially trained in the use of palpatory

techniques to diagnose underlying problems and in manipulative therapy as an aid to correcting structural problems such as poor posture, slight dislocations, and limited mobility.

- At the time the 1985 NAMCS sample was selected, about 21,000 D.O.'s were professionally active in the United States, two-thirds of them in office-based practice. (A universe of 11,776 physicians was identified as falling within the NAMCS scope.) Strong concentrations were found in Michigan, Pennsylvania, Ohio, New Jersey, Florida, Texas, and Missouri. About 86 percent of D.O.'s were primary care physicians, predominantly in general or family practice. The remaining 14 percent were certified in 18 other medical or surgical specialties, notably anesthesiology, emergency medicine, general surgery, osteopathic manipulative treatment, orthopedic surgery, psychiatry, and radiology.

Data base

The data base for this report is the estimated 35.9 million office visits made over the year-long period to osteopathic physicians within the NAMCS scope and the 43.0 million drug mentions associated with these visits. The following tables offer statistical detail about salient features of osteopathic office care. In most of the tables, D.O. care is contrasted with overall office care and with the specific portion of that care provided by doctors of medicine (M.D.'s) in general or family practice.

- Table 1 — Specialty and type of practice
- Table 2 — Patients' most frequent reasons for visiting the D.O.
- Table 3 — Diagnostic procedures
- Table 4 — Most frequent principal diagnoses
- Table 5 — Major diagnostic groups
- Table 6 — Patient age and sex
- Table 7 — Patient race and ethnicity

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

Table 8 — Referral status and prior visit status
 Table 9 — Drug utilization indicators
 Table 10 — Specific drugs most frequently utilized
 Table 11 — Drug utilization by drug class
 Table 12 — Nonmedication therapy
 Table 13 — Disposition
 Table 14 — Duration

Because the estimates presented in this report are based on a sample rather than on the entire universe of office visits or drug mentions, the data are subject to sampling variability. The technical notes at the end of the report, along with supplying a brief description of the sample design, provide guidelines to judge the precision of the estimates.

Data highlights

From March 1985 through February 1986, an estimated 35,872,000 visits were made to the offices of osteopathic physicians, comprising about 6 percent of the 636,386,000 office visits made to all physicians within the NAMCS scope.

Physician characteristics

The findings in table 1 reinforce the emphatic preference, noted earlier, that D.O.'s show for primary care in general and for general or family practice in particular, a preference that is compatible with their avowed concern for holistic medicine. D.O.'s in general practice arrangements accounted for nearly 8 of every 10 office visits. Thus, they contrast sharply with M.D.'s, among whom general or family physicians accounted for fewer than 3 of every 10 visits.

Visit distribution by type of practice indicates the D.O.'s tendency to favor solo practice over the multiple-member forms (table 1). The tendency, however, is not a pronounced one. There is evidence that osteopathic physicians, like their counterparts among the M.D.'s, are being increasingly drawn to multiple-member arrangements, especially to partnerships and small-group practices. Indeed, according to the NAMCS findings for all office-based physicians, the visit share claimed by solo practitioners declined from 60 percent in 1975 to 51 percent in the current survey.

Patients' reasons for visiting the D.O.

Table 2 offers a ranked listing of the 20 most frequent reasons that patients gave for visiting the osteopathic physician, contrasting them with a similar listing for M.D. general or family physicians (M.D. GFP's). The data illustrate the following salient features of osteopathic office care.

- The generalist nature of D.O. care is demonstrated by the sheer diversity of the reasons that motivated patients to seek that care, and by the fact that 16 of the 20 reasons are shared by D.O.'s with their M.D. counterparts in general or family practice
- The D.O.'s special concern for the musculoskeletal system is evident in the finding that back symptoms led the list in table 2 and that back and neck symptoms alone

motivated about 1 of every 10 visits to the osteopathic physician.

- The presence on the top-20 list of general, pre-natal, and well-baby examinations, along with such specific procedures as "pap smear" and "blood pressure test" bears partial witness to the D.O.'s involvement with the preventive and screening functions of health care.

Diagnostic procedures

Table 3 supplies data on the diagnostic or screening procedures that D.O.'s provided or ordered in the course of their office visits. At 65 percent of the visits, D.O.'s used one or more of these probative mechanisms. Most of the procedures were understandably applied at that 40 percent of visits where the patient presented a new problem, and the physician needed to forge a chain of clinical evidence that would assess the presenting symptoms and produce an appropriate diagnosis. At other visits, the procedures were used to monitor the course of a known morbidity or—largely at nonillness visits—to act as preventive or screening mechanisms. The exact extent of this monitoring or preventive activity is impossible to quantify.

The data in table 3 invite the following comments:

- M.D. GFP's somewhat exceeded D.O.'s in their total utilization of the diagnostic mechanisms and in their use of most of the specific procedures. One exception lay in the D.O.'s specialized use of palpatory diagnostics.
- In view of an above-average involvement with musculoskeletal disease and injury (see table 5), the D.O.'s reliance on x ray procedures ("other radiology") seems conservative. Apparently, the use of palpatory techniques reduced the need for x ray in many cases.

Diagnoses

The clinical core of osteopathic office practice lies in the formal diagnoses that D.O.'s render. Tables 4 and 5 describe this core, table 4 by listing the 20 principal (first-listed) diagnoses most frequently assigned at D.O. office visits, and table 5 by gathering these specific diagnoses into their diagnostic classes.

- In both tables, the broad range and diversity of the diagnoses further underscore the generalized nature of osteopathic office care.
- A comparison between D.O.'s and M.D. GFP's (table 5) shows a marked similarity between the two in the clinical content of their office care.
- Predictably, D.O.'s exceeded the overall norm and the norm for M.D. GFP's in their treatment of injuries and of musculoskeletal disease. About one of every four principal diagnoses was assigned to these diagnostic classes.
- Visits for nonillness care ("supplemental classification") were relatively fewer for D.O.'s than they were for office-based physicians in general or for M.D. GFP's in particular; obversely, it may be said that osteopathic office care tends to be somewhat more illness-oriented than the office care to which it is compared in table 5.

Patient characteristics

Again accenting the generalist nature of their office practice, D.O.'s treated patients of all ages (table 6). Visits by female patients outnumbered visits by males in a ratio of 6 to 4, a disproportion also typical of office practice in general and of M.D. GFP practice in particular. Between D.O. and M.D. GFP practice, however, significant differences in visit volume were apparent among two patient groups along the age continuum. Visits by oldest patients (65 years and over) were relatively less frequent among D.O. practitioners; visits by patients from the 25th through the 44th year were relatively more frequent. These findings are compatible with the fact that D.O.'s focus to a greater extent on the treatment of musculoskeletal injuries, problems that are generally most troublesome in the 25-44 age interval.

Though the difference was a modest one, D.O.'s reported a fraction of visits by black patients that exceeded both the comparable proportion found in all office practice and that found among M.D. GFP's (table 7). To some extent, the difference may be explained by the D.O.'s special focus on musculoskeletal disease and injury, problems that were proportionately more troublesome among black office patients. The infrequent presence of Hispanic patients in the office of the osteopathic physician probably has more to do with the geographic concentrations of D.O. practitioners than with any clinical considerations.

New patients accounted for 12 percent of the visits to osteopathic physicians (table 8). Of these new-patient visits, about 1 of every 5 was a referral by another physician. The remainder resulted either from voluntary walk-in or by referral from a source other than a fellow physician.

By far the greater body of D.O. visits (88 percent) were made by continuing patients, testimony to a very stable practice base. Indeed, referral to more specialized colleagues occurred at only 4 percent of D.O. visits (see table 13).

Not only did the D.O.'s office practice chiefly involve encounters with continuing patients, the largest proportion of visits (60 percent) required the management of continuing problems as well (table 8). Many of these continuing problems, of course, were chronic diseases of the musculoskeletal system. The D.O.'s involvement with new problems, although it occurred at a considerable 40 percent of visits, was less than that of M.D. GFP's, who encountered a new problem at roughly every other one of their visits.

Drug therapy

The importance of drug therapy in osteopathic office practice is made graphically evident in figure 1. An estimated 68 percent of all visits were "drug visits"—that is, visits at which one or more drugs were prescribed or provided. Furthermore, at a sharply prominent 72 percent of these 24.4 million drug visits, drug therapy was the *only* form of treatment used.

In the frequency and intensity of their drug utilization, D.O.'s exceeded the general norm for office-based practitioners (table 9). This noteworthy reliance on drug therapy, how-

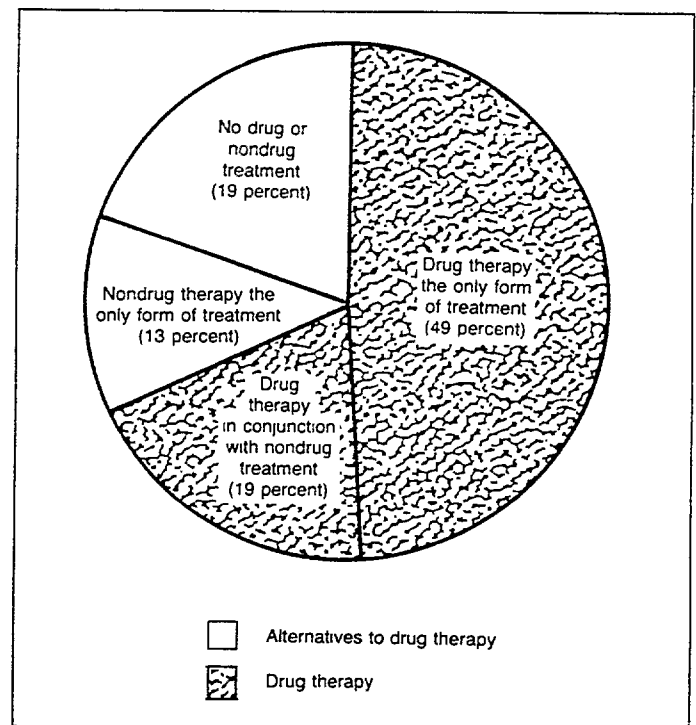


Figure 1. Percent distribution of office visits to osteopathic physicians by treatment modality: United States, 1985

ever, was not unique to osteopathic medicine as a profession. Rather it is a feature of primary care practice in general and of general practice in particular.² As the indicators in table 9 reveal, it was matched and even somewhat exceeded by the M.D. in general or family practice.

Tables 10 and 11 show the range and diversity of the drugs utilized in osteopathic office practice, table 10 by a ranked listing of the 25 generic families that were most frequently mentioned, and table 11 by classifying the 43 million drug mentions according to the therapeutic effect that each was intended to produce. Most of the drugs prescribed or provided by office-based D.O.'s could be grouped into four therapeutic classes: antibiotics, cardiovascular-renal drugs, analgesics, and respiratory agents. Together these classes accounted for 51 percent of the D.O.'s drug mentions. Between the D.O. and M.D. GFP, there was fairly close agreement in the utilization of the drug classes (table 11). When they differed significantly, as with the use of cardiovascular drugs, the disparity could usually be explained by a reference to the diagnostic correlates shown in table 5. It is arresting to note, then, that the D.O.'s use of analgesics did not exceed their use by the M.D. GFP. After all, D.O.'s were more focally involved with injuries and musculoskeletal disease, conditions which, according to past NAMCS studies, were among the most likely to be associated with symptomatic

²National Center for Health Statistics, H. Koch and D. Knapp: Highlights of Drug Utilization in Office Practice, National Ambulatory Medical Care Survey, 1985. *Advance Data From Vital and Health Statistics*, No. 134, DHHS Pub. No. (PHS) 87-1250, Public Health Service, Hyattsville, Md., May 19, 1987.

pain.^{3,4} Apparently, although to an unknown extent, the use of manipulative therapy reduced the perceived need for pain medication.

Nondrug therapy

In sheer volume, the role of nondrug therapy in osteopathic office practice is by no means as imposing as that played by drug therapy. This is apparent from figure 1, which shows that nondrug procedures were provided or ordered during 32 percent of D.O. visits, more than one-half of which also involved drug therapy. Predictably, manipulative therapy was the nondrug procedure most favored by the D.O. (table 12). Except for this specialized emphasis, there was little significant difference between D.O.'s and M.D. GFP's in their utilization of nondrug therapy.

Disposition

In their disposition instructions at the end of the office visit, D.O.'s and M.D. GFP's agreed in the limited extent to which they relied on telephone followup, referred patients to colleagues, or admitted them to the hospital (table 13). The notable difference between the two professional groups lay in the degree of specificity used in arranging future personal contact with the patient. Probably because of a greater need to provide closely monitored maintenance therapy, especially for chronic, musculoskeletal problems, D.O.'s tended to schedule specific followup visits more frequently than M.D. GFP's did. The relatively greater use by M.D. GFP's of the more tentative "return if needed" probably signaled the management of more cases of acute, short-term morbidity.

³National Center for Health Statistics, D. Knapp and H. Koch: The Management of New Pain in Office-based Ambulatory Care, National Ambulatory Medical Care Survey, *Advance Data From Vital and Health Statistics*, No. 97, DHHS Pub. No. (PHS) 84-1250, Public Health Service, Hyattsville, Md., June 13, 1984.

⁴National Center for Health Statistics, H. Koch: The Management of Chronic Pain in Office-based Ambulatory Care, National Ambulatory Medical Care Survey, *Advance Data From Vital and Health Statistics*, No. 123, DHHS Pub. No. (PHS) 86-1250, Public Health Service, Hyattsville, Md., Aug. 29, 1986.

with which the physician was helped substantially by the self-restorative capacities of the body.

Duration

Measured by face-to-face contact between physician and patient, the average visit to the office of the D.O. lasted between 13 and 14 minutes (table 14). Thus, D.O. visits were somewhat shorter than office visits in general or visits to M.D. GFP's in particular. Probably this was due in part to the D.O.'s less intensive use of certain diagnostic procedures (table 3).

Conclusion

Although office-based D.O.'s gave ample evidence of their prominent concern with the musculoskeletal system, this concern did not appear to dominate their office practice. The closest counterpart to osteopathic office care was found in the care provided in the offices of M.D.'s in general or family practice. Most D.O.'s in office practice were best characterized as generalists who brought the added dimension of a specialized philosophy and training to the conduct of their professional tasks.

Symbols

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

Table 1. Percent distribution of office visits to doctors of osteopathy and doctors of medicine by physician specialty and type of practice: United States, 1985

<i>Physician specialty and type of practice</i>	<i>Doctors of osteopathy</i>	<i>Doctors of medicine</i>
Al: visits	100.0	100.0
Specialty		
Primary care specialties	89.0	60.7
General or family practice	78.1	27.6
Internal medicine	3.8	12.0
Pediatrics	4.0	11.9
Obstetrics and gynecology	3.1	9.2
Al: other specialties	11.0	39.3
Type of practice		
Solo	52.6	50.8
Multiple member	47.4	49.3

Table 2. Percent and cumulative percent of the 20 most frequent reasons that patients gave for visiting doctors of osteopathy (D.O.'s) and doctors of medicine in general or family practice (M.D. GFP's) (in rank order): United States, 1985

Rank	Patients' most frequent reasons for visiting the D.O.	Percent	Cumulative percent	Rank	Patients' most frequent reasons for visiting the M.D. GFP	Percent	Cumulative percent
	All visits [35,872,000]	100.0	46.0		All visits [165,987,000]	100.0	44.0
1	Back symptoms [upper and lower]	6.6	6.6	1	Symptoms referable to throat	4.5	4.5
2	Symptoms referable to throat	4.5	11.1	2	General medical examination	4.4	8.9
3	General medical examination	3.7	14.8	3	Cough	3.5	12.4
4	Neck symptoms	3.2	18.0	4	Back symptoms [upper and lower]	3.3	15.7
5	Cough	2.8	20.8	5	Blood pressure test	3.1	18.8
6	Prenatal examination, routine	2.4	23.2	6	Prenatal examination, routine	2.8	21.6
7	Blood pressure test	2.3	25.5	7	Head cold, upper respiratory infection	2.6	24.2
8	Head cold, upper respiratory infection	2.1	27.6	8	Earache	2.2	26.4
9	Headache	2.0	29.6	9	Headache	2.1	28.5
10	Hypertension, established diagnosis	1.9	31.5	10	Hypertension, established diagnosis	2.0	30.5
11	Skin rash	1.8	33.3	11	Skin rash	1.8	32.3
12	Chest pain	1.6	34.9	12	Abdominal pain	1.6	33.9
13	Abdominal pain	1.5	36.4	13	Fever	1.5	35.4
14	Pap smear	1.4	37.8	14	Chest pain	1.4	36.8
15	Earache	1.4	39.2	15	Well baby examination	1.3	38.1
16	Well baby examination	1.4	40.6	16	Vertigo	1.3	39.4
17	Knee symptoms	1.4	42.0	17	Diabetes, established diagnosis	1.2	40.6
18	Fever	1.3	43.3	18	Progress visit, not otherwise specified	1.1	41.7
19	Progress visit, not otherwise specified	1.2	44.5	19	Leg symptoms	1.1	42.8
20	Shoulder symptoms	1.1	45.6	20	Allergy medication	1.0	43.8

Table 3. Percent of office visits to all physicians, to doctors of osteopathy (D.O.'s), and to doctors of medicine in general or family practice (M.D. GFP's), by diagnostic procedures ordered or provided: United States, 1985

Diagnostic procedure ordered or provided	All physicians	D.O.'s	M.D. GFP's
	Percent of visits		
None	36.1	34.5	30.8
Breast examination	6.8	3.7	5.2
Pelvic examination	8.6	5.7	6.3
Rectal examination	5.4	2.3	4.7
Visual acuity	6.4	1.9	1.9
Urinalysis	13.8	9.9	16.2
Hematology	9.3	6.5	10.0
Blood chemistry	6.9	8.1	7.9
Pap test	4.5	3.5	3.7
Other lab test	8.4	7.4	8.2
Blood pressure test	38.6	46.6	52.7
Electrocardiogram	3.2	2.5	3.1
Chest x ray	2.8	2.6	3.2
Other radiology	5.9	4.9	5.3
Ultrasound	0.9	1.5	0.5
Other	10.7	9.5	7.2

¹Includes palpatory diagnostics

Table 4. Percent and cumulative percent of the 20 principal diagnoses most frequently rendered at visits to doctors of osteopathy (D.O.'s) (in rank order): United States, 1985

Rank	Most common principal diagnoses and ICD-9-CM codes ¹	D.O.'s	
		Number of visits in thousands	
	All principal diagnoses	35,872	35,872
		Percent	Cumulative percent
	All principal diagnoses	100.0	40.0
1	Essential hypertension 401	6.0	6.0
2	Acute upper respiratory infections of multiple or unspecified sites 465	3.7	9.7
3	Sprains and strains of other and unspecified parts of back 847	3.2	12.9
4	General medical examination V70	2.4	15.3
5	Diabetes mellitus 250	2.4	17.7
6	Acute pharyngitis 462	2.4	20.1
7	Normal pregnancy V22	2.2	22.3
8	Suppurative and unspecified otitis media 382	2.1	24.4
9	Sprains and strains of sacroiliac region 846	1.9	26.3
10	Health supervision of infant or child V20	1.5	27.8
11	Other disorders of soft tissues 729	1.4	29.2
12	Bronchitis, not specified as acute or chronic 490	1.4	30.6
13	Osteoarthritis and allied disorders 715	1.3	31.9
14	Other and unspecified disorders of back 724	1.3	33.2
15	Chronic sinusitis 473	1.3	34.5
16	Neurotic disorders 300	1.2	35.7
17	Other noninfectious gastroenteritis and colitis 558	1.2	36.9
18	Certain adverse effects not elsewhere classified ² 995	1.2	38.1
19	Nonallopathic lesions, not elsewhere classified 739	1.1	39.2
20	Allergic rhinitis 477	1.0	40.2

¹Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* [ICD-9-CM]²Primarily allergy, unspecified**Table 5. Percent distribution of office visits to all physicians, to doctors of osteopathy (D.O.'s), and to doctors of medicine in general or family practice (M.D. GFP's), by principal diagnoses (in major diagnostic groups): United States, 1985**

Principal diagnosis and ICD-9-CM code ¹ [in major diagnostic groups]	All		
	physicians	D.O.'s	M.D. GFP's
	Number of visits in thousands		
Total	636,386	35,872	165,987
	Percent distribution		
Total	100.0	100.0	100.0
Infectious and parasitic diseases 001-139	3.9	3.8	5.1
Neoplasms 140-239	3.1	1.9	1.2
Endocrine, nutritional and metabolic diseases, and immunity disorders 240-279	3.5	5.2	5.5
Mental disorders 290-319	4.1	2.8	2.2
Diseases of the nervous system and sense organs 320-389	11.0	6.1	6.5
Diseases of the circulatory system 390-459	8.8	9.8	11.7
Diseases of the respiratory system 460-519	12.1	15.9	16.6
Diseases of the digestive system 520-579	4.3	4.7	4.8
Diseases of the genitourinary system 580-629	6.1	4.6	5.6
Diseases of the skin and subcutaneous tissue 680-709	5.7	4.2	4.7
Diseases of the musculoskeletal system and connective tissue 710-739	7.1	11.2	7.1
Symptoms, signs, and ill-defined conditions 780-799	3.5	3.1	4.2
Injury and poisoning 800-999	8.3	13.1	9.7
Supplemental classification ² V01-V82	15.3	10.7	12.3
Other or unknown	3.1	2.8	2.6

¹Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* [ICD-9-CM]²Chiefly non-illness care

Table 6. Percent distribution of office visits to all physicians, to doctors of osteopathy (D.O.'s), and to doctors of medicine in general or family practice (M.D. GFP's), by age and sex of patient: United States, 1985

<i>Patient characteristic</i>	<i>All physicians</i>	<i>D O 's</i>	<i>M D GFP's</i>
Number of visits in thousands			
Total	636,386	35,872	165,987
Percent distribution			
Total	100.0	100.0	100.0
Age			
Under 15 years	18.7	15.2	15.6
15-24 years	11.6	13.5	13.5
25-44 years	27.6	31.6	28.4
45-64 years	21.6	22.7	22.5
65 years and over	20.5	17.0	20.0
Mean patient age	39.6 years	39.0 years	40.3 years
SEX AND AGE			
Female			
All ages	60.9	60.2	60.7
Under 15 years	9.1	7.7	7.7
15-24 years	7.7	8.3	8.6
25-44 years	18.6	19.4	18.3
45-64 years	12.9	14.2	13.7
65 years and over	12.5	10.6	12.4
Male			
All ages	39.1	39.8	39.3
Under 15 years	9.5	7.5	7.9
15-24 years	3.9	5.2	4.9
25-44 years	9.0	12.2	10.1
45-64 years	8.7	8.5	8.8
65 years and over	8.0	6.4	7.6

Table 7. Percent distribution of office visits to all physicians, to doctors of osteopathy (D.O.'s), and to doctors of medicine in general or family practice (M.D. GFP's), by race and ethnicity of patient: United States, 1985

<i>Patient characteristic</i>	<i>All physicians</i>	<i>D O 's</i>	<i>M D GFP's</i>
Number of visits in thousands			
Total	636,386	35,872	165,987
Percent distribution			
Total	100.0	100.0	100.0
Race			
White	90.0	87.8	88.7
Black	8.2	11.7	9.9
Other ¹	1.8	0.5	2.4
Ethnicity			
Hispanic	6.4	2.9	6.9
Non-Hispanic	93.6	97.1	93.1

¹Asian, Pacific islander, American Indian, Alaskan native.

Table 8. Percent distribution of office visits to all physicians, to doctors of osteopathy (D.O.'s), and to doctors of medicine in general or family practice (M.D. GFP's), by referral status and prior visit status: United States, 1985

<i>Visit characteristic</i>	<i>All physicians</i>	<i>D.O.'s</i>	<i>M.D. GFP's</i>
Number of visits in thousands			
Total	636,386	35,872	165,987
Percent distribution			
Total	100.0	100.0	100.0
Referral status			
Referred by another physician	5.6	2.5	1.7
Not referred by another physician	94.4	97.5	98.3
Prior visit status			
New patient	16.9	12.1	14.7
Old patient	83.1	87.9	85.3
New problem	22.7	27.7	33.1
Old problem	60.4	60.2	52.2

Table 9. Percent of office visits with at least 1 drug mention; percent of visits with multiple drug mentions; and Drug Utilization Index, by selected physician groups: United States, 1985

<i>Physician group</i>	<i>Percent of office visits with 1 or more drug mentions</i>	<i>Percent of office visits with 2 or more drug mentions</i>	<i>Drug Utilization Index¹</i>
All physicians	61.2	27.7	89
Doctors of osteopathy	68.1	32.8	101
M.D.'s in general or family practice	72.7	33.6	106

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

Table 10. The 25 drugs most frequently prescribed or provided in the office practice of doctors of osteopathy, by their generic ingredients, number of mentions, rank, and therapeutic use: United States, 1985

<i>Rank</i>	<i>Generic ingredient</i>	<i>Number of mentions in thousands¹</i>	<i>Therapeutic use</i>
	All drugs	63,094	
1	Hydrochlorothiazide	1,670	Diuretic, antihypertensive
2	Acetaminophen	1,646	Analgesic, antipyretic
3	Erythromycin	1,385	Antibiotic
4	Codeine	1,334	Analgesic, antitussive
5	Phenylpropanolamine	1,324	Sympathomimetic
6	Chlorpheniramine	1,302	Antihistaminic
7	Amoxicillin	1,297	Antibiotic
8	Phenylephrine	1,251	Sympathomimetic
9	Aspirin	1,043	Analgesic, antipyretic, anti-inflammatory
10	Pseudoephedrine	1,004	Sympathomimetic
11	Cephalexin	706	Antibiotic
12	Caffeine	692	Stimulant
13	Ibuprofen	682	Nonsteroidal anti-inflammatory agent
14	Ampicillin	678	Antibiotic
15	Theophylline	659	Bronchodilator
16	Guafenesin	575	Expectorant
17	Penicillin V potassium	555	Antibiotic
18	Methylprednisolone	541	Steroidal anti-inflammatory agent
19	Promethazine	520	Antihistaminic
20	Naproxen	513	Nonsteroidal anti-inflammatory agent
21	Atropine	478	Anticholinergic
22	Triamterene	467	Diuretic, antihypertensive
23	Digoxin	466	Cardiotonic
24	Neomycin	462	Antibiotic
25	Sulfamethoxazole	452	Antibiotic

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

Table 11. Percent distribution of drug mentions by all physicians, by doctors of osteopathy (D.O.'s), and by doctors of medicine in general or family practice (M.D. GFP's), by drug class: United States, 1985

Drug class ¹	All physicians	D.O.s	M.D. GFP's
	Number of drug mentions in thousands		
Total	693.355	43.002	214.281
	Percent distribution		
Total	100.0	100.0	100.0
Systemic anti-infective agents	14.7	17.8	18.1
Antibiotics	12.3	15.8	15.8
Autonomic drugs	3.7	6.1	3.9
Anticholinergic agents	1.2	1.9	1.3
Sympathomimetic [adrenergic] agents	1.4	2.1	1.1
Skeletal muscle relaxants	0.9	2.0	1.3
Cardiovascular drugs	11.6	8.4	11.4
Cardiac drugs	4.6	2.7	3.9
Antihypertensive agents	4.2	3.6	5.3
Vasodilating agents	2.6	2.0	2.1
Analgesics and antipyretics	9.8	11.6	11.2
Nonsteroidal anti-inflammatory agents	6.2	7.3	7.1
Psychotropic drugs	6.0	5.7	5.5
Anxiolytics, sedatives, and hypnotics	3.3	3.5	3.3
Antidepressants	1.7	1.2	1.4
Electrolytic, caloric, and water balance	7.4	7.2	8.8
Diuretics	5.0	5.0	6.1
Replacement solutions	1.9	1.4	2.0
Antihistamines, antitussives, expectorants, and mucolytic agents	6.9	10.1	8.4
Eye, ear, nose, and throat preparations	4.4	1.8	1.6
Gastrointestinal drugs	3.8	3.2	4.3
Hormones and synthetic substances	7.6	6.9	7.7
Systemic corticosteroids	2.5	2.4	2.5
Estrogens	1.0	0.9	0.9
Antidiabetic agents	1.3	1.6	2.2
Serums, toxoids, and vaccines	3.0	2.4	2.1
Skin and mucuous membrane agents	6.0	4.5	4.3
Smooth muscle relaxants	1.7	1.8	1.4
Vitamins	2.7	3.5	2.3
Other or undetermined	10.7	9.0	9.0

¹Based on American Hospital Formulary Service Classification System, *Drug Product Information File*, The American Druggist Blue Book Data Center, San Bruno, California, 1985

Table 12. Percent of office visits to all physicians, to doctors of osteopathy (D.O.'s), and to doctors of medicine in general or family practice (M.D. GFP's), by nonmedication therapy ordered or provided: United States, 1985

Nonmedication therapy ordered or provided	All physicians	D.O.s	M.D. GFP's
	Percent of visits		
None	68.9	67.8	72.2
Physiotherapy	4.2	¹ 12.9	4.1
Ambulatory surgery	6.6	5.0	5.5
Psychotherapy	3.4	1.5	1.1
Family planning	1.9	1.7	1.6
Diet counseling	6.5	7.2	9.1
Other counseling	9.3	5.8	8.5
Other	3.0	1.8	1.1

¹Chiefly techniques of osteopathic manipulative therapy

Table 13. Percent of office visits to all physicians, to doctors of osteopathy (D.O.'s), and to doctors of medicine in general or family practice (M.D. GFP's), by disposition of the visits: United States, 1985

<i>Disposition</i>	<i>All physicians</i>	<i>D.O.'s</i>	<i>M.D. GFP's</i>
	Percent of visits		
No followup planned	9.8	11.4	12.3
Return at specified time	61.5	57.9	50.0
Return if needed	22.9	24.2	32.3
Telephone followup planned	4.0	3.4	3.7
Referred to other physician	3.2	4.3	4.2
Admit to hospital	1.6	0.7	0.9
Other	1.3	1.1	0.5

Table 14. Percent distribution of drug mentions by all physicians, by doctors of osteopathy (D.O.'s), and by doctors of medicine in general or family practice (M.D. GFP's), by duration of visit: United States, 1985

<i>Duration</i>	<i>All physicians</i>	<i>D.O.'s</i>	<i>M.D. GFP's</i>
	Percent distribution		
Total	100.0	100.0	100.0
0 minutes ¹	2.3	2.4	3.2
1-5 minutes	10.3	10.4	8.7
6-10 minutes	28.5	33.8	33.9
11-15 minutes	30.0	31.7	31.5
16-30 minutes	22.7	19.3	20.0
31 minutes and longer	6.3	2.4	2.6
Mean duration of visit ²	16.1 minutes	13.5 minutes	14.6 minutes

¹Visits at which there was no face-to-face contact between physician and patient²Excludes 0 minutes visits

Technical notes

Source of data and sample design

The information presented in this report is based on data collected by means of the National Ambulatory Medical Care Survey (NAMCS) from March 1985 through February 1986. The target universe of NAMCS includes office visits made within the coterminous United States by ambulatory patients to nonfederally employed physicians who are principally engaged in office practice, but not in the specialties of anesthesiology, pathology, or radiology. Telephone contacts and nonoffice visits are excluded.

The NAMCS utilizes a multistage probability sample design that involves samples of Primary Sampling Units (PSU's), physician practices within PSU's, and patient visits within physician's practices. Physician specialty was used as a stratification variable. For 1985, a sample of 5,032 nonfederal, office-based physicians was selected from master files maintained by the American Medical Association and American Osteopathic Association. Of the 4,104 inscope physicians, 70 percent responded to the 1985 NAMCS.

For the 1985 study, doctors of osteopathy (D.O.'s) were included as a separate sampling strata. From this strata 511 osteopathic physicians were selected, 427 were inscope, and 294 responded to the study, a response rate of 69 percent. The 1985 NAMCS sample design was different from that used in earlier NAMCS cycles where doctors of osteopathy were sampled along with doctors of medicine according to their proportional distribution in nine major specialty groups. The increase in physician sample size and the modification

of the sample design in 1985 had the effect of improving reliability of survey estimates relative to earlier data years.

Sample physicians were asked to complete Patient Records (figure I) for a systematic random sample of office visits taking place during a randomly assigned one-week reporting period. Responding physicians completed 71,594 Patient Records. Of these Patient Records, 7,375 were completed by responding D.O.'s. Characteristics of the physician's practice, such as primary specialty and type of practice, were obtained during an induction interview. The National Opinion Research Center, under contract to NCHS, was responsible for the survey's data collection and processing operations.

Sampling errors

The standard error is primarily a measure of the sampling variability that occurs by chance because only a sample, rather than an entire universe, is surveyed. The relative standard error of an estimate is obtained by dividing the standard error by the estimate itself and is expressed as a percent of the estimate. Approximate relative standard errors of aggregate estimates based on all specialties have been published. Approximate relative standard errors for aggregate estimates of visits to D.O.'s and to M.D. general and family practitioners are shown in table I. Approximate relative standard errors for aggregate estimates of drug mentions for D.O.'s and for M.D. general and family practitioners are shown in table II.

Assurance of Confidentiality—All information which would permit identification of an individual a practice or an establishment will be held confidential will be used only by persons engaged in and for the purposes of the survey and will not be disclosed or released to other persons or used for any other purpose.

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

B 467339

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 456-232

PATIENT RECORD NATIONAL AMBULATORY MEDICAL CARE SURVEY

1. DATE OF VISIT

Month Day year

2. DATE OF BIRTH

Month Day year

3. SEX
 1 FEMALE
 2 MALE

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

5. ETHNICITY
 1 HISPANIC ORIGIN
 2 NOT HISPANIC

6. EXPECTED SOURCE(S) OF PAYMENT
Check all that apply
 1 SELF PAY 4 BLUE CROSS/BLUE SHIELD 7 NO CHARGE
 2 MEDICARE 5 OTHER COMMERCIAL INSURANCE 8 OTHER *Specify* _____
 3 MEDICAID 6 HMO/PRE-PAID PLAN

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

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

 b OTHER

9. GLUCOSE TESTS THIS VISIT
Check all ordered or provided
 1 NONE
 2 BLOOD
 3 URINE
 4 ORAL

10. OTHER DIAGNOSTIC SERVICES THIS VISIT
Check all ordered or provided
 1 NONE 6 URINALYSIS 11 BLOOD PRESSURE CHECK
 2 BREAST EXAM 7 HEMATOLOGY 12 EKG
 3 PELVIC EXAM 8 BLOOD CHEMISTRY 13 CHEST X-RAY
 4 RECTAL EXAM 9 PAP TEST 14 OTHER RADIOLOGY
 5 VISUAL ACUITY 10 OTHER LAB TEST 15 ULTRASOUND
 16 OTHER SERVICE *Specify* _____

11. PHYSICIAN'S DIAGNOSES
 a PRINCIPAL DIAGNOSIS/PROBLEM ASSOCIATED WITH ITEM 8a

 b OTHER SIGNIFICANT CURRENT DIAGNOSES

12. HAVE YOU SEEN PATIENT BEFORE?
 1 YES 2 NO
 IF YES FOR THE CONDITION IN ITEM 11a?
 1 YES 2 NO

13. NON-MEDICATION THERAPY
Check all services ordered or provided this visit
 1 NONE 5 PSYCHOTHERAPY 9 CORRECTIVE LENSES
 2 PHYSIOTHERAPY 6 FAMILY PLANNING 10 OTHER *Specify* _____
 3 AMBULATORY SURGERY 7 DIET COUNSELING
 4 RADIATION THERAPY 8 OTHER COUNSELING

14. MEDICATION THERAPY *Record all new or continued medications ordered or provided at this visit. Use the same brand name or generic name entered on any Rx or office medical record.*
 IF NONE, CHECK HERE

	a NEW MEDICATION?		b FOR RX IN ITEM 11a?	
	YES	NO	YES	NO
1 _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>
2 _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>
3 _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>
4 _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>
5 _____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>

15. DISPOSITION THIS VISIT
Check all that apply
 1 NO FOLLOW UP PLANNED
 2 RETURN AT SPECIFIED TIME
 3 RETURN IF NEEDED FROM
 4 TELEPHONE FOLLOW UP PLANNED
 5 REFERRED TO OTHER PHYSICIAN
 6 RETURNED TO REFERRING PHYSICIAN
 7 ADMIT TO HOSPITAL
 8 OTHER *Specify* _____

16. DURATION OF THIS VISIT
Time actually spent with physician

Minutes

Figure 1. Patient Record Form

Table I. Approximate relative standard errors of estimated numbers of office visits to doctors of osteopathy and to M.D. general and family practitioners: NAMCS, 1985

Estimated number of office visits in thousands	Relative standard error in percent
200	39.3
500	25.5
1,000	18.8
2,000	14.4
5,000	10.8
10,000	9.4
20,000	8.5
50,000	8.0
100,000	7.8
150,000	7.7

Example of use of table: An aggregate estimate of 7,500,000 visits to doctors of osteopathy has a relative standard error of 10.1 percent, or a standard error of 757,500 visits (1.1 percent of 7,500,000).

Table II. Approximate relative standard errors of estimated numbers of drug mentions based on visits to doctors of osteopathy and to M.D. general and family practitioners: NAMCS, 1985

Estimated number of drug mentions in thousands	Relative standard error in percent
200	44.2
500	28.7
1,000	21.1
2,000	16.0
5,000	12.0
10,000	10.3
20,000	9.3
50,000	8.7
100,000	8.5
200,000	8.3

Example of use of table: An aggregate estimate of 10,000 drug mentions based on visits to M.D. general and family practitioners has a relative standard error of 10.3 percent, or a standard error of 3,500 drug mentions (3.5 percent of 10,000).

Rounding of numbers

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

Definitions of terms

Ambulatory patient—An ambulatory patient is an individual seeking personal health services who is not currently admitted to any health care institution on the premises.

Physician—A physician is a duly licensed doctor of medicine (M.D.) or doctor of osteopathy (D.O.) who is currently in office-based practice, and whose major professional effort is devoted to 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; who are employed full time by an institution, or who

either spend no time seeing ambulatory patients or whose care of ambulatory patients is secondary to another major professional function.

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

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

Drug mention—A drug mention is the physician's entry of a pharmaceutical agent prescribed or provided—by any route of administration—for prevention, diagnosis, or treatment. Generic names as well as brand-name drugs are included, as are nonprescription as well as prescription drugs. Along with all new drugs, the physician also records continued medications, if the patient was specifically instructed during the visit to continue the medication.

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Health Care Coverage by Age, Sex, Race, and Family Income: United States, 1986

by Peter Ries, Division of Health Interview Statistics

Introduction

This report on the health-care coverage of the civilian noninstitutionalized population residing in the United States during 1986 presents estimates of coverage under private health insurance, Medicare, public assistance, and military-Veterans Administration (hereafter military-VA) health benefits. The estimates for each of these forms of coverage are shown by age, sex, race, and family income. Persons are also classified in relation to whether they are covered by none or by at least one of these four types of health-care plans, and their coverage status is described in terms of the same sociodemographic characteristics.

The main purpose of this report is to update the 1984 estimates shown in another report.¹ The 1986 data in this report were collected with the same questionnaire and procedures used for the 1984 data. The more detailed discussion of the meaning and limitations of the data included in the 1984 report should be consulted to better understand the 1986 estimates included in this report.

The coverage of persons under each of the four forms of coverage named above are described in the following sections. Persons then are described in terms of whether they are covered by at least one of the four forms of coverage or by none of them (the so-called "uninsured population").

Private health insurance coverage

Household respondents were asked whether any family member was covered by a health insurance plan that paid any part of a hospital bill or of a doctor's or surgeon's bill for operations. The names of all plans were listed for which

a positive response was obtained to either of these questions. Questions then were asked for each plan that covered at least one family member. Included were questions about whether the plan was obtained through an employer or union, the type of coverage associated with the plan, and the status of each family member's coverage in relation to each of the plans. In tabulating the data, persons were classified as "covered by private health insurance" if they were covered by at least one plan, and as "not covered" if they were classified as "not covered" under all of the plans listed for the family. They were classified as "unknown" if their coverage was not determined for at least one plan and if they were not covered by any of the other plans (if any) listed for the family.

Table 1 shows that about 76.6 percent of the civilian noninstitutionalized population was covered by private health

Table 1. Percent distribution and number of persons by private health insurance coverage status, according to age: United States, 1986

Age	Coverage status		
	All ¹	Covered	Not covered
Percent distribution			
All ages	100.0	76.6	23.4
Under 18 years	100.0	72.7	27.3
18-24 years	100.0	68.2	31.8
25-44 years	100.0	79.7	20.3
45-64 years	100.0	83.2	16.8
65 years and over	100.0	75.3	24.7
Number in thousands			
All ages	236,348	179,470	54,696
Under 18 years	63,132	45,429	17,101
18-24 years	26,721	18,017	8,405
25-44 years	74,260	58,654	14,977
45-64 years	44,698	36,834	7,460
65 years and over	27,538	20,535	6,752

¹Percent distribution excludes unknown coverage status; frequency includes unknown coverage status

¹National Center for Health Statistics, P. Ries: Health care coverage by sociodemographic and health characteristics, United States, 1984. *Vital and Health Statistics*, Series 10, No. 162. DHHS Pub. No. (PHS) 87-1590. Public Health Service, Washington, U.S. Government Printing Office. In press.

Table 2. Percent and number of persons, by private health insurance coverage status, age, sex, race, and family income: United States, 1986

Sex, race and family income	Covered			Not covered			Covered			Not covered		
	All ages	Under 65 years	65 years and over	All ages	Under 65 years	65 years and over	All ages	Under 65 years	65 years and over	All ages	Under 65 years	65 years and over
	Percent ¹						Number in thousands ²					
All persons ³	76.6	76.8	75.3	23.4	23.2	24.7	179,470	158,935	20,535	54,696	47,944	6,752
Sex												
Male	77.2	77.3	76.6	22.8	22.7	23.4	87,464	78,820	8,644	25,815	23,174	2,641
Female	76.1	76.4	74.3	23.9	23.6	25.7	92,006	80,115	11,891	28,881	24,770	4,111
Race												
White	79.9	80.0	79.0	20.1	20.0	21.0	158,427	139,058	19,369	39,914	34,761	5,153
Black	55.7	57.2	38.5	44.3	42.8	61.5	15,758	14,879	879	12,542	11,138	1,404
Other	70.2	71.0	59.5	29.8	29.0	40.7	5,285	4,999	287	2,240	2,044	196
Family income												
Less than \$5,000	32.9	32.1	37.3	67.1	67.9	62.7	4,300	3,561	739	8,765	7,523	1,242
\$5,000-\$9,999	39.9	31.7	64.4	60.1	68.3	35.6	8,108	4,800	3,308	12,193	10,364	1,829
\$10,000-\$19,999	68.8	66.0	83.2	31.2	34.0	16.8	30,857	24,579	6,278	13,961	12,690	1,271
\$20,000-\$34,999	88.5	88.5	87.8	11.5	11.5	12.2	55,116	50,724	4,391	7,195	6,584	611
\$35,000-\$49,999	92.9	93.2	85.6	7.1	6.8	14.3	34,612	33,280	1,331	2,642	2,420	222
\$50,000 or more	94.9	95.4	85.1	5.1	4.7	14.9	24,832	23,920	913	1,327	1,167	160

¹Excludes unknown coverage status

²Number of persons covered and not covered do not equal total population because unknown coverage status is not included. See table III for population estimates

³Includes unknown family income

insurance in 1986. This is almost identical to the 1984 estimate of the percent covered (76.4 percent). In relation to age, the highest percent of coverage was for persons 45-64 years of age (83.2 percent) and the lowest percent of coverage was for persons 18-24 years of age (68.2 percent).

It should be noted that the nature of the private health insurance plans for persons under 65 years of age and for persons 65 years and over is quite different. For almost all persons 65 years of age and over the private plans are a secondary form of insurance intended to supplement Medicare coverage (the so-called "Med-Sup" plans). For most persons under 65 years of age the private plans are their primary or only source of coverage.

Table 2 shows that black persons had the lowest percent of coverage of the three racial groups shown (55.7 percent compared with 79.9 percent for white persons). Family income has an even larger impact on coverage status, with the percent covered ranging from 32.9 percent for persons in families with an annual income of less than \$5,000 to 94.9 percent for persons in families earning more than \$50,000 per year.

Medicare coverage

Household respondents were asked whether anyone in the family was covered by Medicare, and, if so, to indicate which persons were covered. Those classified as covered were then asked whether they were covered by the types of benefits that pay for hospital bills (part A), physician care (part B), or both. Because almost everyone covered by either part is covered by the other part, the estimates of Medicare coverage shown in this report include persons covered by either part A or part B, or by both part A and part B.

In 1986 about 12.1 percent of the civilian noninstitutionalized population were covered by Medicare (data

Table 3. Percent and number of persons 65 years and over, by Medicare coverage status, sex, race, and family income: United States, 1986

Sex, race, and family income	Covered		Not covered	
	Percent ¹	Number in thousands ²	Percent ¹	Number in thousands ²
All persons ³	95.0	25,970	5.0	1,370
Sex				
Male	94.8	10,683	5.2	589
Female	95.1	15,287	4.9	781
Race				
White	95.8	23,550	4.2	1,041
Black	88.2	1,995	11.8	267
Other	87.4	425	*12.8	62
Family income				
Less than \$5,000	93.1	1,850	7.0	139
\$5,000-\$9,999	95.9	4,924	4.1	209
\$10,000-\$19,999	96.5	7,318	3.5	264
\$20,000-\$34,999	93.9	4,702	6.1	308
\$35,000-\$49,999	91.4	1,424	8.6	134
\$50,000 or more	93.6	1,006	*6.4	69

¹Excludes unknown coverage status

²Number of persons covered and not covered do not equal total population because unknown coverage status is not included. See table III for population estimates

³Includes unknown family income

not shown). This estimate is about the same as the 1984 estimate of 12.0 percent. Because very few persons under age 65 were reported to be covered by Medicare (1.2 percent), table 3 shows Medicare coverage for persons 65 years of age and over only.

Almost all persons 65 years of age and over (95.0 percent) were covered by Medicare. The percent of this age group covered varied little from 95 percent in different sex or family-income groups. With regard to race, the percent of white

persons covered (95.8 percent) was higher than that for black persons (88.2 percent) or for persons of races other than white or black (87.4 percent).

Public assistance health care

The 1986 NHIS questionnaire included several questions related to eligibility for public assistance health care. Among these were questions on the receipt of Aid to Families with Dependent Children (AFDC) and Supplemental Security Income (SSI), whether the person had a valid Medicaid card, and whether he or she was covered by any public assistance program that paid for medical care. In this report coverage by public assistance is ascribed to the person if a positive response was obtained to any one of these questions. Persons are classified as "not covered" by public assistance for medical care if a negative response was obtained for all four questions.

It should be noted that "public assistance" as used in this report is not synonymous with "Medicaid coverage." This is because those classified as "covered" only on the basis of an affirmative response to the questions about public assistance coverage may or may not have been covered by Medicaid. However, since three of the four criteria noted above relate to Medicaid coverage ("categorical" coverage associated with the receipt of AFDC or SSI, and possession of a valid Medicaid card), it is highly likely that almost all of the persons classified in this report as covered by public assistance are in fact covered by Medicaid. But, because of the ambiguity for a relatively small number of cases noted above, the more general term "public assistance" will be used to describe this type of coverage.

Because the criteria for Medicaid coverage are defined by each of the States, and because many people are not aware of the criteria used in their State, it is difficult to obtain point-prevalence estimates of this population based on a household survey using a national rather than a State sampling frame. Two important implications of this fact are that (1) national household surveys based on only one interview tend to underestimate the prevalence of this type of coverage, and (2) the persons who are identified tend to have more illness, impairments, and injuries than persons in the noninstitutionalized population who are not identified. This follows from the fact that many persons become aware that they are covered by Medicaid (or other forms of public assistance) only after they become ill or disabled and seek medical help for their problem.

Given these considerations, extreme caution should be used in comparing the results described in this section with other sources of estimates on the number and characteristics of the Medicaid or public assistance population. Any such comparison should focus on the criteria used to define this type of coverage and the procedure used to collect the data that serves as the basis of the estimates.

On the basis of the NHIS data collected during 1986, approximately 5.9 percent (table 4) of persons in the civilian noninstitutionalized population were eligible for public assistance for health care. This is compared with the 1984 estimate of 6.0 percent. The percent covered was highest for persons under 18 years of age.

Table 4. Percent distribution and number of persons by public-assistance health-care coverage status, according to age: United States, 1986

Age	Coverage status		
	All ¹	Covered	Not covered
Percent distribution			
All ages	100.0	5.9	94.1
Under 18 years	100.0	10.4	89.6
18-24 years	100.0	5.0	95.0
25-44 years	100.0	3.8	96.2
45-64 years	100.0	3.1	96.9
65 years and over	100.0	6.6	93.4
Number in thousands			
All ages	236,348	13,801	220,285
Under 18 years	63,132	6,440	55,675
18-24 years	26,721	1,319	25,141
25-44 years	74,260	2,837	70,955
45-64 years	44,698	1,396	43,047
65 years and over	27,538	1,809	25,467

¹Percent distribution excludes unknown coverage status, frequency includes unknown coverage status

Table 5 shows that the percent of persons covered by public assistance was highest for females (7.2 percent), black persons (18.8 percent), and not unexpectedly for persons with low annual family income (34.1 percent for persons with an annual family income of less than \$5,000).

Military-Veterans Administration health care coverage

As was the case with public assistance health-care plans, coverage for civilians under military or VA health benefits is much more difficult to define than coverage under private health insurance or Medicare. This is especially so in the case of VA health benefits which operate for most veterans and their eligible dependents under a system of priority eligibility. Veterans with a certified service-connected disability are almost certain to receive care. However, those who may qualify for care on the basis of other criteria may or may not receive care depending on the capacity of the VA facilities in their area. Therefore, the estimates presented in this section should be considered in terms of the types of information collected in NHIS on this topic rather than as a definitive statement of the number and characteristics of veterans and their family members who are covered by military-VA health benefits.

In this report persons are classified as covered by military-VA health benefits if it was determined that (1) they receive a military or VA pension, (2) they were covered by CHAMPUS, CHAMP-VA, or any other program that provides health care for military dependents or survivors of military persons, or (3) they received compensation for a disability from VA. Other circumstantial criteria by which a person might qualify for military-VA health-care benefits (such as advanced age or low income) are not included among the criteria used to define eligibility.

Finally, it should be noted that even though the military and VA health-care systems are administratively distinct, coverage by one or both of these is considered as a single form of health-care coverage in this report. The main reason

Table 5. Percent and number of persons, by public-assistance health-care coverage status, age, sex, race, and family income: United States, 1986

Sex, race, and family income	Covered			Not covered			Covered			Not covered		
	All ages	Under 65 years	65 years and over	All ages	Under 65 years	65 years and over	All ages	Under 65 years	65 years and over	All ages	Under 65 years	65 years and over
	Percent ¹						Number in thousands ²					
All persons ³	5.9	5.8	6.6	94.1	94.2	93.4	13,801	11,992	1,809	220,285	194,818	25,467
Sex												
Male	4.6	4.6	4.2	95.4	95.4	95.8	5,164	4,693	471	108,242	97,409	10,834
Female	7.2	7.0	8.4	92.8	93.0	91.6	8,636	7,299	1,337	112,043	97,409	14,634
Race												
White	4.0	3.9	5.0	96.0	96.1	95.0	8,014	6,784	1,230	190,951	167,627	23,324
Black	18.8	18.3	23.9	81.2	81.7	76.1	5,192	4,655	537	22,486	20,777	1,709
Other	8.0	7.9	*8.6	92.0	92.1	91.2	595	553	*41	6,848	6,414	434
Family income												
Less than \$5,000	34.1	34.9	29.9	65.9	65.1	70.1	4,335	3,751	584	8,374	7,007	1,367
\$5,000-\$9,999	22.6	26.6	11.0	77.4	73.4	89.0	4,472	3,909	564	15,310	10,764	4,546
\$10,000-\$19,999	5.3	5.7	3.4	94.7	94.3	96.6	2,364	2,110	254	42,231	34,934	7,297
\$20,000-\$34,999	1.3	1.1	2.6	98.7	98.9	97.4	784	652	131	61,714	56,842	4,873
\$35,000-\$49,999	0.6	0.5	*1.9	99.4	99.5	98.0	212	182	*30	37,112	35,588	1,524
\$50,000 or more	0.4	0.4	*1.7	99.6	99.6	98.3	113	95	*18	26,177	25,122	1,056

¹Excludes unknown coverage status²Number of persons covered and not covered do not equal total population because unknown coverage status is not included. See table III for population estimates.³Includes unknown family income

for this is that the NHIS questions on this topic do not allow for a clear distinction between these two forms of coverage.

According to the criteria used in this report, table 6 shows that about 3.0 percent of persons in the civilian noninstitutionalized population were covered by military-VA health benefits during 1986. This is similar to the 1984 estimate of 3.4 percent. Because of the relatively large proportion of retirees and of veterans and their dependents whose rights derive from service during World War II and the Korean War, two important age groups to consider for this type of coverage are those under 45 years of age and those 45 years of age and over. As may be noted, the percents of coverage were similar for persons 45-64 years of age (5.8 percent) and persons 65 years of age and over (5.0 percent); and these were much higher than for the younger age groups (for instance, 1.8 percent for persons 25-44 years of age).

Table 7 shows that the percent of persons covered was somewhat higher for persons in families with an annual income in the middle of the income range (from \$10,000 to \$49,999). Regarding sex and race, the percent covered by this type of health-care plan was highest for males (3.7 percent) and lowest for black persons (2.6 percent).

The four forms of coverage combined

Previous sections have described the characteristics of persons in terms of a single form of health-care coverage. In this section estimates of coverage under private health insurance, Medicare, public assistance, and military-VA health benefits are cross-classified, and persons are characterized in terms of whether they had at least one of these four forms of coverage or none of them. (Relatively few persons classified as not covered by any of the four plans were reclassified

Table 6. Percent distribution and number of persons by military-Veterans Administration health-care coverage status, according to age: United States, 1986

Age	Coverage status		
	All ¹	Covered	Not covered
Percent distribution			
All ages	100.0	3.0	97.0
Under 18 years	100.0	2.2	97.8
18-24 years	100.0	1.9	98.1
25-44 years	100.0	1.8	98.2
45-64 years	100.0	5.8	94.2
65 years and over	100.0	5.0	95.0
Number in thousands			
All ages	236,348	7,139	227,384
Under 18 years	63,132	1,410	61,690
18-24 years	26,721	496	26,095
25-44 years	74,260	1,326	72,248
45-64 years	44,698	2,545	41,462
65 years and over	27,538	1,363	25,889

¹Percent distribution excludes unknown coverage status; frequency includes unknown coverage status

as covered because, in response to questions not discussed in this report, they had indicated that they were covered by some type of health-care plan.) Also, the focus will shift from describing the characteristics of persons covered by a specific health-care plan to describing the characteristics of persons not covered by any of the four plans.

Table 8 shows that about 13.3 percent of persons in the civilian noninstitutionalized population were not covered by health-care plans during 1986. This is similar to the 1984 estimate of 13.0 percent. A previously published report on health-care coverage during 1978 estimated that about 11 percent of the civilian noninstitutionalized population lacked

Table 7. Percent and number of persons, by military-Veterans Administration health-care coverage status, age, sex, race, and family income: United States, 1986

Sex, race, and family income	Covered			Not covered			Covered			Not covered		
	All ages	Under 65 years	65 years and over	All ages	Under 65 years	65 years and over	All ages	Under 65 years	65 years and over	All ages	Under 65 years	65 years and over
	Percent ¹						Number in thousands ²					
All persons ³	3.0	2.8	5.0	97.0	97.2	95.0	7,139	5,776	1,363	227,384	201,495	25,889
Sex												
Male	3.7	3.1	9.0	96.3	96.9	91.0	4,125	3,120	1,005	108,641	98,503	10,138
Female	2.5	2.5	2.2	97.5	97.5	97.8	3,014	2,656	357	118,743	102,992	15,751
Race												
White	3.1	2.8	5.1	96.9	97.2	94.9	6,184	4,930	1,254	192,502	169,258	23,244
Black	2.6	2.5	3.9	97.4	97.5	96.1	734	645	89	27,597	25,408	2,189
Other	2.9	2.9	*4.2	97.1	97.1	96.0	221	201	*20	7,285	6,829	456
Family income												
Less than \$5,000	2.3	1.8	4.6	97.7	98.2	95.4	295	205	91	12,796	10,892	1,904
\$5,000-\$9,999	2.6	2.0	4.2	97.4	98.0	95.8	521	305	216	19,736	14,825	4,910
\$10,000-\$19,999	3.3	2.9	5.2	96.7	97.1	94.8	1,454	1,067	387	43,220	36,115	7,106
\$20,000-\$34,999	3.6	3.2	7.5	96.4	96.8	92.5	2,225	1,851	373	59,924	55,329	4,594
\$35,000-\$49,999	3.1	2.9	7.2	96.9	97.1	92.8	1,137	1,025	112	35,985	34,549	1,436
\$50,000 or more	3.2	3.2	*3.2	96.8	96.8	96.8	842	808	*34	25,229	24,186	1,043

¹Excludes unknown coverage status.

²Number of persons covered and not covered do not equal total population because unknown coverage status is not included. See table III for population estimates.

³Includes unknown family income.

Table 8. Percent distribution and number of persons by coverage status under private health insurance, Medicare, public-assistance health care, or military-Veterans Administration health care, according to age: United States, 1986

Age	Coverage status		
	All ¹	Covered ²	Not covered ³
Percent distribution			
All ages	100.0	86.7	13.3
Under 18 years	100.0	85.4	14.6
18-24 years	100.0	75.3	24.7
25-44 years	100.0	85.2	14.8
45-64 years	100.0	90.0	10.0
65 years and over	100.0	99.3	0.7
Number in thousands			
All ages	236,348	201,830	31,010
Under 18 years	63,132	52,862	9,071
18-24 years	26,721	19,751	6,466
25-44 years	74,260	62,382	10,853
45-64 years	44,698	39,708	4,418
65 years and over	27,538	27,126	202

¹Percent distribution excludes unknown coverage status; frequency includes unknown coverage status.

²Covered by at least one of the four health-care plans.

³Not covered under any of the four health-care plans.

coverage under the four types of plans included in this report.² The age group with the highest percent of noncoverage was 18-24 years of age (24.7 percent) and the one with the lowest percent of noncoverage was the 65 years and over age group (0.7 percent).

Table 9 shows that proportionately more males (14.3 percent), black persons (19.6 percent), and persons in low annual family-income groups lacked any form of health-care coverage during 1986.

²National Center for Health Statistics: Health care coverage under private health insurance, Medicare, Medicaid, and military or Veterans Administration health benefits, United States, 1978 *Advance Data From Vital and Health Statistics*, No. 71. DHHS Pub. No. (PHS) 81-1250. Public Health Service, Hyattsville, Md., June 29, 1981.

Table 9. Percent and number of persons, by coverage status under private health insurance, Medicare, public-assistance health care, or military-Veterans Administration health care, age, sex, race, and family income: United States, 1986

Sex, race, and family income	Covered			Not covered			Covered			Not covered		
	All ages	Under 65 years	65 years and over	All ages	Under 65 years	65 years and over	All ages	Under 65 years	65 years and over	All ages	Under 65 years	65 years and over
	Percent ¹						Number in thousands ²					
All persons ³	86.7	85.0	99.3	13.3	15.0	0.7	201,830	174,704	27,126	31,010	30,808	202
Sex												
Male	85.7	84.2	99.2	14.3	15.8	0.8	96,526	85,333	11,193	16,096	16,004	91
Female	87.6	85.8	99.3	12.4	14.2	0.7	105,304	89,371	15,933	14,914	14,803	111
Race												
White	87.6	86.0	99.5	12.4	14.0	0.5	173,238	148,766	24,471	24,422	24,304	118
Black	80.4	79.0	96.6	19.6	21.0	*3.4	22,299	20,115	2,184	5,436	5,360	*76
Other	84.5	83.6	98.3	15.5	16.4	*1.7	6,294	5,822	471	1,152	1,144	*80
Family income												
Less than \$5,000	74.4	70.2	97.3	25.6	29.8	*2.7	9,559	7,619	1,940	3,294	3,240	*54
\$5,000-\$9,999	71.8	62.2	99.3	28.2	37.8	*0.7	14,283	9,200	5,083	5,621	5,584	*37
\$10,000-\$19,999	78.9	74.6	99.6	21.1	25.4	*0.4	35,141	27,596	7,545	9,414	9,381	*33
\$20,000-\$34,999	92.1	91.4	99.7	7.9	8.6	*0.3	57,316	52,316	4,999	4,910	4,896	*15
\$35,000-\$49,999	95.2	95.0	99.4	4.8	5.0	*0.6	35,457	33,906	1,551	1,779	1,769	*10
\$50,000 or more	96.8	96.6	99.6	3.2	3.4	*0.4	25,309	24,236	1,073	846	842	*4

¹Excludes unknown coverage status

²Number of persons covered and not covered do not equal total population because unknown coverage status is not included. See table III for population estimates.

³Includes unknown family income.

Symbols

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

Technical notes

The estimates shown in this report are based on data obtained in household interviews in a continuing nationwide survey. Each week a probability sample of households is interviewed by personnel of the U.S. Bureau of the Census to obtain information about the health and other characteristics of the civilian noninstitutionalized population of the United States.

During 1986, interviews were conducted in approximately 24,700 households containing about 62,000 family members and unrelated individuals. The total noninterview rate was about 3.4 percent. The weights of interviewed persons in the segments containing sample households for whom data were not obtained were inflated to compensate for household nonresponse.

All persons 17 years of age and over were asked to participate in the interview. When this was not possible, proxy

responses were accepted from family members meeting the NHIS respondent rules. All information on persons under 17 years of age was obtained from adult family members or guardians.

The appendixes of *Vital and Health Statistics*, Series 10, No. 164, should be consulted for a more detailed discussion of the sample design and weighting procedures (appendix I) and for a copy of the questionnaire used during 1986.³ Approximate sampling errors for typical estimates contained in this report are shown in table I (aggregates) and table II (percents).

The population estimates for tables 2, 3, 5, 7, and 9 are shown in table III.

Table I. Standard errors of estimates of aggregates

Size of estimate in thousands	Standard error in thousands
35	16
100	27
300	47
500	61
1,000	87
5,000	202
10,000	298
20,000	454
30,000	594
150,000	2,087

Table II. Standard errors, expressed in percentage points, of estimated percents

Base of percents in thousands	Estimated percents				
	2 or 98	5 or 95	10 or 90	20 or 80	50
100	3.8	6.0	8.2	10.9	13.7
300	2.2	3.4	4.7	6.3	7.9
500	1.7	2.7	3.7	4.9	6.1
1,000	1.2	1.9	2.6	3.5	4.3
5,000	0.5	0.8	1.2	1.5	1.9
10,000	0.4	0.6	0.8	1.1	1.4
20,000	0.3	0.4	0.6	0.8	1.0
30,000	0.2	0.3	0.5	0.6	0.8
150,000	0.1	0.2	0.2	0.3	0.4

Table III. Population estimates by sex, race, and family income: United States, 1986

Sex, race, and family income	Number in thousands
Total ¹	236,348
Sex	
Male	114,330
Female	122,018
Race	
White	200,247
Black	28,549
Other	7,552
Family income	
Less than \$5,000	13,123
\$5,000-\$9,999	20,363
\$10,000-\$19,999	45,033
\$20,000-\$34,999	62,620
\$35,000-\$49,999	37,412
\$50,000 or more	26,310

¹Includes unknown family income

³National Center for Health Statistics, D. A. Dawson: Current estimates from the National Health Interview Survey, United States, 1986. *Vital and Health Statistics*, Series 10, No. 164. DHHS Pub. No. (PHS) 87-1592. Public Health Service, Washington, U.S. Government Printing Office. In press.

Recent Declines in Hospitalization: United States, 1982–86 Data From the National Health Interview Survey and the National Hospital Discharge Survey

by Abigail J. Moss, Division of Health Interview Statistics, and Mary A. Moien, Division of Health Care Statistics

Introduction

Throughout the 1970's, the rate of hospitalizations for short-stay hospitals steadily increased for all persons. Based on data from the National Hospital Discharge Survey (NHDS), between 1970–79 the hospital discharge rate (that is, the number of hospital discharges per 1,000 civilian persons) increased from 144.3 to 164.8 discharges per 1,000 persons. The greatest increase during this period occurred among the elderly where the discharge rate rose about 23 percent for those persons 65 years of age and over. However, substantial differences in the hospital discharge rates were also observed for persons under 65 years of age, amounting to about a 10-percent increase between 1970 and 1979. By age group, the hospital discharge rates increased about 7 percent for children under 15 years and about 21 percent for persons aged 45–64 years, although among those 15–44 years of age, the overall rate remained about the same.¹

While the hospital discharge rate was gradually climbing during this period, a different trend was occurring in another hospital use measure, the average length of a hospital stay. Between 1970 and 1979, the average number of days per hospital stay based on NHDS estimates declined 8 percent, from 7.8 to 7.2 days. This reduction in the average length of time people were spending in the hospital for each stay occurred among all age groups. The largest percent of decline, though, was found again among the hospitalized elderly, where an average stay dropped from 13.1 to 10.8 days, an 18-percent reduction.^{2,3}

The changes in hospital utilization during the 1970's were the result of several phenomena. Implementation of the Medicare program in July 1966 provided greater access to inpatient hospital care for the majority of elderly individuals. Lubitz and

Deacon state that "most of the increase in the discharge rate among the aged was associated with an increase in the percentage of persons using the hospital rather than with an increase in the rate of multiple hospitalizations."⁴

Increases in numbers of hospitalizations of shorter duration contributed to the decrease in average length of stay and at the same time to the increase in discharge rates during this period. Technical improvements in selected surgical procedures also had an effect on both of these trends. The average length of stay for cataract operations, for example, dropped significantly during the 1970's while the number of these procedures increased substantially.⁵ The development of new materials for prostheses and new cements in the field of orthopedics and advances in cardiology, including bypass surgery and heart pacemakers, also contributed to increased hospitalizations involving surgery for this period.⁴

In an attempt to contain the Medicare costs for hospital treatment, which have continued to escalate since the onset of the program, the Health Care Financing Administration (HCFA) of the Department of Health and Human Services initiated a new system of hospital payment in 1983. Under the Tax Equity and Fiscal Responsibility Act of 1983,⁶ reimbursement for inpatient care for Medicare patients changed from a fee-for-service system to a prospective payment system. The phasing in of this system began on October 1, 1983, and by September 30, 1984, all designated hospitals were in the system.

Under this cost-containment system, hospitals are reimbursed a preestablished amount based on calculations of the average cost of care for Medicare patients with similar conditions and treatments. These mutually exclusive categories of similar conditions and treatments are referred to as diagnosis-related groups or, more commonly, DRG's.⁷

Average costs of treatment have been established for about

467 DRG's, and hospital payments are determined by the DRG group to which the patient's illness is assigned. Because treatment costs for a given illness vary by type of hospital (for example, university teaching hospitals are more costly to operate than community hospitals), the system compensates for this variation by adjusting the fixed DRG reimbursement rates according to the ratio of medical residents to hospital beds.⁸ DRG's are now also being used by some States and some other third party payers to reimburse hospitals for inpatient care of the non-medicare population on a prospective basis.⁹

Just as medicare in the late 1960's subsequently brought about dramatic increases in hospitalization rates for the elderly, the major changes in the financing of medical care as just described also appear to have significantly altered the pattern of hospital utilization, but in the opposite direction. Between 1980 and 1983, the overall hospital discharge rates showed little change, fluctuating between 167 and 169 discharges per 1,000 population based on NHDS estimates (figure 1). However, in 1984, after the HCFA prospective payment system based on DRG's began to be phased in, the NHDS hospital discharge rate declined 5 percent, from 167.0 discharges per 1,000 persons in 1983 to 158.5 discharges in 1984.¹⁰ A similar rate of decline is found in the hospital discharge estimates obtained from the National Health Interview Survey (NHIS).^{11,12} This marked the first year since the onset of medicare that the discharge rate declined. In 1985, the downward trend continued with the discharge rates from both the NHDS and the NHIS declining another 7 to 8 percent from the 1984 rates.^{13,14}

While the 1986 NHDS hospital discharge rates are still incomplete at this printing and the NHIS rates for this period have only recently become available, preliminary indications are that the rate of decline has subsided. Based on NHIS quarter 1 estimates, during the first 3 months of 1986, the

downward trend in hospital discharges appeared to be continuing (table 1). However, when the NHIS hospital discharge rates for the remaining three quarters of 1986 were reviewed, they more closely resembled the rates in the last two quarters of 1985.

Changes in hospital utilization as measured by the average length of a hospital stay also have occurred during the last several years. Between 1980 and 1983, estimates of the average length of a hospital stay continued the gradual decline characteristic of the 1970's, from 7.6 to 7.3 days according to the NHIS and from 7.3 to 6.9 days according to the NHDS (figure 2). However, upon implementation of the prospective payment system in 1983, the rate of decline appeared to accelerate.

Between 1983 and 1985, the average length of a hospital stay declined about 8 percent for the NHIS (to 6.7 days) and about 6 percent for the NHDS (to 6.5 days). However, between October 1985 and December 1986, except for one 3-month period, the NHIS quarterly estimates for average length of stay remained at about the same level—6.3 to 6.4 days. The 1986 NHIS annual estimate of 6.6 days per hospital stay is similar to its 1985 estimate. While it now appears that the initial effects of this recent cost-containment system on hospital utilization as measured by hospital discharge rates and average length of stay estimates have subsided, it is still too soon to conclude that further declines will not occur.

Differences between the NHDS and the NHIS

The NHDS obtains its information directly from hospital records of inpatients discharged from short-stay hospitals, exclusive of Federal hospitals, located throughout the 50 States and the District of Columbia. Information is abstracted each year from approximately 200,000 records in over 400 short-stay non-Federal hospitals. The NHIS, in contrast, obtains its information through personal interviews. In a typical year, the NHIS interviewed sample consists of approximately 40,000 households containing about 105,000 persons. Persons sampled in the NHIS represent the U.S. civilian noninstitutionalized population living at the time of interview. Unlike the NHDS, their reported hospitalization estimates include discharges from Federal hospitals, over one-half of which are Veterans Administration hospitals. (Discharges from Federal hospitals constitute approximately 3 percent of the total reported hospitalizations.)

There are a number of differences in the definitions of hospital utilization as measured by the two surveys and the NHDS estimates of utilization and diagnostic and procedure data are usually accepted as the more accurate. The NHDS includes patients who die in the hospital as well as admissions from nursing homes, two areas not included by NHIS. These result in noticeably higher hospitalization estimates, particularly among patients 65 years and over. In addition, hospitalizations of inpatients for durations of less than 1 day are included in the NHDS, but not the NHIS. Further, NHDS information is obtained directly from hospital records, thus minimizing under-reporting, which is characteristic of interview surveys, such as the NHIS, that rely on respondent reports of events. In contrast, the advantage of the NHIS is that it collects extensive

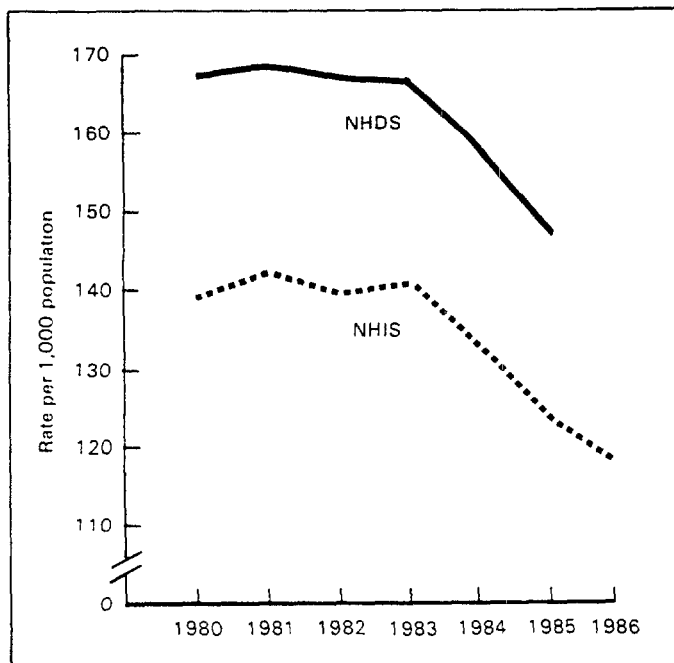


Figure 1. National Hospital Discharge Survey (NHDS) and National Health Interview Survey (NHIS) short-stay hospital discharge rates: United States, 1980-86

Table 1. Number of discharges from short-stay hospitals per 1,000 persons and average length of stay, by quarter, age, and sex based on data from the National Health Interview Survey and the National Hospital Discharge Survey: United States, 1984-86

Age and sex	1984				1985				1986			
	Jan.- Mar.	Apr.- Jun.	Jul.- Sept.	Oct.- Dec.	Jan.- Mar.	Apr.- Jun.	Jul.- Sept.	Oct.- Dec.	Jan.- Mar.	Apr.- Jun.	Jul.- Sept.	Oct.- Dec.
National Health Interview Survey												
	Discharge rate per 1,000 persons											
All ages	34.3	33.1	33.2	33.0	32.0	31.1	30.2	30.4	28.1	30.2	29.5	30.2
Under 65 years	28.1	26.8	27.7	27.3	25.9	26.6	25.4	25.1	24.9	23.3	23.9	25.3
Under 15 years	17.8	15.8	15.1	12.4	11.8	14.1	13.6	11.9	12.0	10.0	12.7	13.4
15-44 years	27.8	27.7	27.9	28.9	26.1	25.8	25.4	26.2	26.8	24.8	24.4	26.3
45-64 years	40.6	37.5	41.8	40.7	41.9	43.2	39.4	37.6	35.1	34.7	35.5	36.6
65 years and over	83.0	82.2	75.9	76.9	78.7	65.8	66.6	70.4	52.6	83.1	72.4	67.2
Male	30.0	27.3	28.5	26.3	28.0	26.0	25.2	26.3	23.3	25.6	26.0	26.4
Female, including deliveries	38.3	38.5	37.6	39.2	35.8	36.0	34.9	34.1	32.6	34.5	32.8	33.7
Female, excluding deliveries	31.5	31.7	30.4	32.2	30.1	28.7	28.0	26.2	24.6	27.1	25.7	26.6
National Hospital Discharge Survey												
All ages	41.5	40.2	38.9	37.7	37.9	37.2	36.9	35.9	---	---	---	---
Under 65 years	32.8	31.6	31.2	29.9	29.7	29.6	29.8	28.6	---	---	---	---
Under 15 years	17.7	15.5	14.1	14.6	15.4	13.8	13.7	14.3	---	---	---	---
15-44 years	33.4	32.8	34.0	31.7	30.7	31.6	32.4	30.4	---	---	---	---
45-64 years	48.8	47.1	43.8	43.3	44.0	42.9	42.0	40.6	---	---	---	---
65 years and over	105.2	103.5	95.9	95.3	97.7	92.4	89.1	89.2	---	---	---	---
Male	34.8	33.3	31.6	31.7	32.0	30.9	30.6	30.1	---	---	---	---
Female	47.7	46.6	45.7	43.4	43.5	43.0	42.9	41.3	---	---	---	---
National Health Interview Survey												
	Average length of stay											
All ages	7.4	7.0	7.2	7.2	7.3	6.6	6.6	6.4	6.4	6.4	7.1	6.3
Under 65 years	6.8	6.4	6.4	6.4	6.8	5.9	6.0	5.5	6.0	5.7	6.0	5.7
Under 15 years	5.1	6.8	4.8	5.3	6.4	5.0	5.0	4.8	5.8	7.2	6.2	5.1
15-44 years	6.0	5.7	5.9	5.1	5.3	5.2	5.1	4.4	5.1	4.4	5.9	5.7
45-64 years	8.8	7.5	8.0	9.1	9.2	7.1	7.9	7.6	7.8	7.5	6.0	5.9
65 years and over	9.2	8.7	9.5	9.3	8.4	9.0	8.5	9.0	7.9	8.0	10.0	8.1
Male	8.2	7.5	8.8	8.0	8.2	7.4	7.4	6.5	7.3	6.9	7.9	6.6
Female, including deliveries	6.9	6.7	6.1	6.7	6.6	6.1	6.1	6.4	5.8	6.1	6.5	6.1
Female, excluding deliveries	7.6	7.4	6.7	7.4	7.2	6.8	6.8	7.2	6.5	6.9	7.5	6.8
National Hospital Discharge Survey												
All ages	6.9	6.6	6.4	6.5	6.7	6.4	6.3	6.4	---	---	---	---
Under 65 years	5.7	5.5	5.4	5.6	5.6	5.5	5.4	5.5	---	---	---	---
Under 15 years	4.5	4.3	4.5	4.6	4.5	4.7	4.5	4.4	---	---	---	---
15-44 years	5.1	4.9	4.7	4.9	4.9	4.9	4.8	4.8	---	---	---	---
45-64 years	7.4	7.1	7.0	7.2	7.3	6.9	6.9	7.1	---	---	---	---
65 years and over	9.4	8.9	8.7	8.7	9.0	8.6	8.6	8.6	---	---	---	---
Male	7.3	7.0	6.8	6.9	7.0	6.8	6.8	6.9	---	---	---	---
Female	6.5	6.3	6.1	6.2	6.5	6.2	6.0	6.0	---	---	---	---

demographic and other health-related information not available from hospital records.

Data highlights

This report presents the latest available estimates of hospital discharges and average days per hospital stay from the NHDS and the NHIS. Estimates produced from both surveys when viewed together provide a more complete description of the changes in hospital utilization that have recently taken place among the hospitalized population.

Table 1 contains NHIS and NHDS quarterly estimates of hospital discharge rates and estimates of average length of stay per discharge by age and sex, beginning with the January-March 1984 period and including the most recent quarterly

estimates available from each survey. Table 2 covers the period from 1982-86 (1985 for the NHDS) and includes estimates from both surveys of hospital discharge rates by age and sex. In table 3, unadjusted and age-adjusted hospital discharge rates for the years 1982-86 based on the NHIS are shown by sex, race, family income, poverty level, respondent-assessed health status, and geographic region. These estimates are only for persons under 65 years of age, however, because of the previously mentioned underreporting problems associated with the NHIS hospitalization estimates for the older populations. Table 4 is included for comparative purposes only, showing 1983 and 1985 NHIS hospital discharge rates and estimates of average length of stay for the population 65 years and over by sex, race, family income, poverty level, respondent-assessed health status, and geographic region. Table 5 shows 1982-86

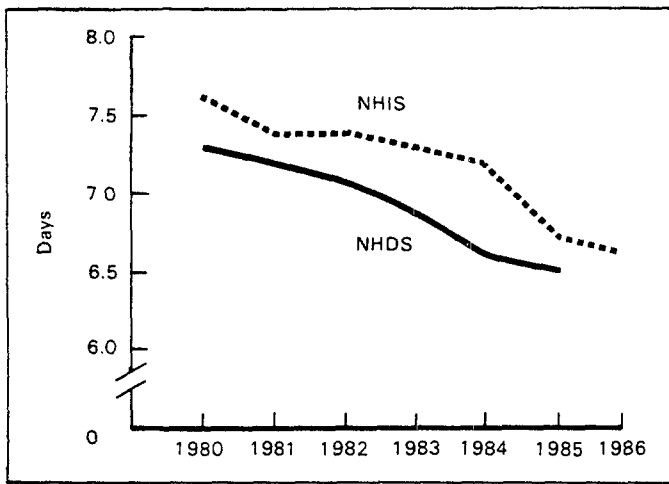


Figure 2. National Hospital Discharge Survey (NHDS) and National Health Interview Survey (NHIS) average length of stay in short-stay hospitals: United States, 1980-86

NHIS estimates and 1982-85 NHDS estimates of average length of stay per hospitalization by age and sex. Table 6 contains unadjusted and age-adjusted NHIS 1982-86 estimates of average number of days per hospital stay for persons under the age of 65 years by sex, race, family income, poverty level, respondent-assessed health status, and geographic region.

The "Technical notes" contain a brief description of the sample design, the methods used in estimation, and general qualifications of the data for both surveys. The definitions of terms used in this report can also be found in this section. A detailed discussion of these items and the survey forms used to collect the data from both surveys have been published.¹⁵⁻¹⁷

The 1986 NHIS hospital discharge rates and average length of stay estimates are presented in tables 1-6, and the text primarily focuses on a comparison between the 1983 and 1985 estimates. The 1985 estimates are highlighted instead of the 1986 figures because the 1985 estimates are available from both surveys.

Table 2. Number of discharges from short-stay hospitals per 1,000 persons per year by sex and age based on data from the National Health Interview Survey and the National Hospital Discharge Survey: United States, 1982-86

Sex and age	National Health Interview Survey					National Hospital Discharge Survey				
	1982	1983	1984	1985	1986	1982	1983	1984	1985	1986
Discharge rate per 1,000 persons										
Both sexes										
All ages	139.8	140.3	133.6	123.7	118.0	167.9	167.0	158.5	147.9	---
Under 15 years	59.4	58.2	61.0	51.3	48.1	71.2	70.8	62.0	57.2	---
Under 5 years	91.4	90.1	96.7	81.4	73.8	115.9	116.8	101.5	94.7	---
5-14 years	43.0	41.3	41.7	35.3	34.2	48.3	46.6	41.2	37.3	---
15-44 years	125.1	122.7	112.2	103.5	102.3	145.0	140.3	132.2	125.1	---
15-24 years	113.1	115.2	107.1	92.7	94.5	133.8	129.1	121.4	116.7	---
25-44 years	132.3	127.0	115.1	109.3	106.2	151.9	146.9	138.1	129.5	---
45-64 years	176.6	172.8	160.6	162.2	142.0	195.5	192.2	183.3	169.5	---
45-54 years	152.7	139.3	141.5	141.6	110.6	174.3	167.0	158.3	146.2	---
55-64 years	200.8	206.6	179.8	183.0	174.2	217.0	217.5	208.4	193.1	---
65 years and over	299.6	321.7	318.0	281.5	275.3	398.8	412.7	400.4	368.3	---
65-74 years	265.1	280.7	277.7	247.4	236.8	324.2	334.2	319.6	294.9	---
75 years and over	356.7	388.5	382.6	336.5	337.3	511.4	529.4	520.1	476.5	---
Male										
All ages	119.8	117.9	112.1	105.5	101.4	139.4	138.8	131.6	123.5	---
Under 15 years	65.1	66.9	66.2	60.6	50.7	79.9	79.0	69.2	63.8	---
Under 5 years	106.6	107.4	107.1	99.1	85.8	132.9	132.2	114.8	107.3	---
5-14 years	43.7	45.4	44.1	40.0	31.8	52.8	50.8	45.2	40.8	---
15-44 years	82.8	73.9	65.1	57.6	62.2	87.4	84.3	79.6	75.4	---
15-24 years	69.9	68.6	58.2	41.5	48.4	71.3	68.0	63.7	59.9	---
25-44 years	90.7	77.0	69.0	66.3	69.2	97.3	94.0	88.5	83.8	---
45-64 years	176.2	178.6	175.7	176.6	161.1	196.3	196.6	185.8	176.2	---
45-54 years	139.3	133.4	152.2	150.0	118.7	163.9	160.3	153.5	146.1	---
55-64 years	215.0	225.7	200.3	204.4	206.1	230.1	234.3	219.4	207.6	---
65 years and over	330.0	344.7	334.6	309.7	298.0	428.1	437.2	424.8	393.2	---
65-74 years	302.0	312.3	299.6	273.4	264.6	353.3	361.4	345.2	319.9	---
75 years and over	384.7	407.1	401.3	379.5	362.6	566.8	575.8	571.2	528.2	---
Female										
All ages	158.4	161.2	153.5	140.8	133.6	194.5	193.2	183.6	170.7	---
Under 15 years	53.4	49.1	55.6	41.7	45.3	62.0	62.3	54.5	50.2	---
Under 5 years	75.3	72.0	85.7	62.8	61.2	98.3	100.6	87.8	81.5	---
5-14 years	42.3	37.0	39.4	30.4	36.8	43.5	42.1	37.1	33.6	---
15-44 years	165.6	169.6	157.7	147.6	141.0	201.0	194.8	183.1	173.4	---
15-24 years	155.1	160.8	155.0	142.7	139.6	195.6	189.6	178.2	172.7	---
25-44 years	171.8	174.6	159.1	150.2	141.7	204.2	197.8	185.8	173.8	---
45-64 years	176.9	167.6	147.0	149.1	124.6	194.8	188.3	180.9	163.4	---
45-54 years	165.3	144.9	131.6	133.8	103.1	183.9	173.3	162.8	146.3	---
55-64 years	188.4	189.8	162.0	164.1	146.0	205.5	202.9	198.6	180.2	---
65 years and over	278.6	305.9	306.5	261.8	259.4	379.1	396.3	383.9	351.4	---
65-74 years	236.8	256.4	260.9	227.1	214.9	301.9	313.3	299.8	275.2	---
75 years and over	340.6	377.8	371.7	311.5	322.7	481.2	503.9	492.3	448.5	---

Table 3. Unadjusted and age-adjusted number of discharges from short-stay hospitals per 1,000 persons per year under 65 years of age, by selected characteristics based on data from the National Health Interview Survey (NHIS): United States, 1982-86

Characteristic	Unadjusted discharges					Age-adjusted ¹ discharges				
	1982	1983	1984	1985	1986	1982	1983	1984	1985	1986
Discharge rate per 1,000 persons										
Sex										
Male.....	92.5	94.0	88.4	83.2	79.7	97.4	95.2	89.6	84.4	81.2
Female.....	137.0	139.8	130.6	122.4	114.4	139.5	140.7	131.2	123.0	114.8
Race										
White.....	113.2	116.7	109.7	103.3	96.9	116.2	116.8	109.7	103.4	97.1
Black.....	131.9	126.5	119.4	110.4	104.9	142.9	136.1	127.8	118.5	111.4
Family income										
Under \$10,000.....	159.4	153.2	146.1	139.3	131.2	173.4	162.9	154.2	148.0	140.5
Under \$5,000.....	173.8	155.4	144.6	138.5	130.9	187.7	165.9	154.8	149.9	140.0
\$5,000-\$9,999.....	150.5	151.7	147.1	139.9	131.5	164.3	160.1	154.5	147.1	140.6
\$10,000-\$19,999.....	118.1	117.9	125.8	117.4	112.3	125.1	120.8	128.8	121.1	115.9
\$10,000-\$14,999.....	125.0	119.8	136.4	122.7	122.5	133.2	122.7	139.3	126.1	127.5
\$15,000-\$19,999.....	112.1	116.2	116.3	113.0	103.6	118.2	119.3	119.4	116.8	106.0
\$20,000-\$34,999.....	102.5	112.5	102.6	102.5	96.2	106.5	114.5	104.7	105.8	98.1
\$20,000-\$24,999.....	107.3	111.5	111.9	106.3	104.1	112.1	113.9	113.4	110.5	105.3
\$25,000-\$34,999.....	99.7	113.2	97.4	100.5	92.4	103.2	114.9	99.7	103.3	94.8
\$35,000 or more.....	95.7	96.2	86.0	80.6	78.2	95.4	94.4	84.8	79.5	77.5
\$35,000-\$49,999.....	93.5	99.5	86.7	85.3	78.1	93.7	98.9	86.6	85.2	78.4
\$50,000 or more.....	100.4	89.6	84.7	73.5	78.3	98.6	85.7	80.4	71.0	76.3
NHIS poverty index										
Below poverty line.....	154.2	140.1	145.6	128.5	128.5	177.1	161.0	165.4	150.4	148.1
Above poverty line.....	110.4	114.8	105.2	100.7	92.6	113.6	115.3	105.2	100.8	92.2
Assessed health status										
Excellent or good.....	89.4	90.9	83.5	79.5	75.2	91.4	92.7	85.0	81.1	76.3
Excellent.....	75.2	73.9	66.1	63.0	61.0	77.0	75.9	67.5	64.4	62.6
Good.....	133.7	143.1	136.7	132.7	120.6	133.6	142.2	135.2	130.0	120.4
Fair or poor.....	438.1	410.9	403.0	391.5	372.9	422.0	388.2	393.8	355.3	338.9
Fair.....	309.2	301.9	297.3	274.7	253.0	310.6	303.7	310.7	265.2	243.2
Poor.....	843.0	728.2	734.9	721.4	718.0	376.8	215.5	255.8	221.5	196.4
Geographic region										
Northeast.....	99.3	105.3	101.2	96.2	87.2	101.1	104.1	100.8	95.1	86.3
North Central/Midwest.....	119.1	122.5	117.1	105.7	98.9	123.9	124.3	118.3	106.9	99.9
South.....	135.0	133.0	117.7	113.3	112.3	140.4	135.0	119.6	115.4	114.5
West.....	93.6	96.8	96.1	89.3	80.2	96.6	98.6	97.6	91.0	81.2

¹Age adjusted by the direct method to the age distribution of the 1980 total civilian noninstitutionalized population of the United States (under 15, 15-24, 25-44, and 45-64 years).

Terms used in this report such as "similar" and "the same" indicate that no statistical significance exists between the statistics being compared. Terms that relate to differences (such as "greater" or "less") indicate that differences are statistically significant. The *t*-test with a critical value of 1.96 (0.05 level of significance) was used to test all comparisons that are discussed. Lack of comment regarding the difference between any two statistics does not mean that the difference was tested and found to be not significant.

Hospital discharges

In the 2-year period since HCFA introduced its prospective payment system for medicare patients, the overall hospital discharge rate from short-stay non-Federal hospitals dropped from 167.0 discharges per 1,000 civilian population in 1983 to 147.9 discharges in 1985, a decline of about 11 percent according to NHIS figures (table 2). The discharge estimates

from the NHIS, although lower, show about a 12-percent decline over this same period.

Although the prospective payment system based on DRG's was initially developed for the population covered by medicare, it was introduced during a period of time of substantial hospital utilization decreases for each of the four major age groups. Indeed, for children there was about a 19-percent reduction in the discharge rate between 1983 and 1985 (from 70.8 to 57.2 discharges per 1,000 population under 15 years of age), the largest decrease of any age group. The discharge estimates for persons 65 years of age and over and all other age groups declined at about the same rate (from 10 to 12 percent).

The overall hospital discharge rate is always higher for females than for males because of the large number of women in their childbearing years (15-44 years of age) who are hospitalized for deliveries and other obstetrical conditions. Nevertheless, proportionately the rate of decline in discharges for males and females during this period was also about the same

Table 4. Number of discharges from short-stay hospitals per 1,000 persons per year and average length of stay for persons 65 years and over, by selected characteristics based on data from the National Health Interview Survey (NHIS): United States, 1983 and 1985

Characteristic	All discharges		Days per hospital stay	
	1983	1985	1983	1985
	Discharge rate per 1,000 persons		Average length of stay	
Sex				
Male	344.7	309.7	9.7	8.4
Female	305.9	261.8	9.2	9.0
Race				
White	316.9	282.8	9.4	8.6
Black	384.1	280.5	10.3	10.0
Family income				
Under \$10,000	364.5	295.3	9.3	9.5
\$10,000–\$19,999	299.8	275.8	9.6	8.5
\$20,000–\$34,999	239.9	261.2	8.3	7.5
\$35,000 or more	300.1	268.7	7.9	7.5
NHIS poverty index				
Below poverty line	367.0	321.2	10.1	11.6
Above poverty line	314.6	272.2	9.1	8.0
Assessed health status				
Excellent or good	198.8	177.0	8.0	8.6
Excellent	159.9	141.9	7.5	7.4
Good	244.0	216.1	8.4	9.5
Fair or poor	569.8	508.5	10.4	8.8
Fair	383.0	339.7	9.5	8.2
Poor	940.7	876.9	11.2	9.2
Geographic region				
Northeast	275.3	265.5	11.7	9.9
North Central/Midwest	323.9	280.1	8.9	8.9
South	367.6	306.8	9.3	8.8
West	297.3	254.3	7.9	6.6

(from 138.8 to 123.5 and from 193.2 to 170.7 discharges per 1,000 males and females, respectively). Hospital discharges also decreased between 1983 and 1985 at about the same rate for men and women aged 65 years and over (437.2 to 393.2 and 396.3 to 351.4 discharges per 1,000 persons, respectively).

Table 3 shows the unadjusted and age-adjusted number of short-stay hospital discharges per 1,000 persons for selected sociodemographic and health-related characteristics. Because the age distributions in the groups shown may differ considerably, comparisons should be made by using the adjusted rates. Age-adjusted data can be compared directly because the rates assume identical distributions in broad age categories for all groups. However, these adjusted or standardized rates do not describe any actual population. They are meaningful only in comparing other similarly adjusted rates. The unadjusted rates are the actual ones, which should be used when describing the hospital rates for the civilian noninstitutionalized population. The procedure for the age adjustment by the direct method is described in the "Technical notes."

Table 3 contains hospital discharge data from the NHIS only because, as previously mentioned, much of the sociodemographic

and health-related information contained in the table is not available from the hospital records used by the NHDS to obtain its information. Race, while available from both surveys, is included only from the NHIS. The NHDS cautions its use because race is not stated on approximately 9 percent of all of the medical records the NHDS uses to obtain its information.

Data in table 3 are further limited to persons under 65 years of age because hospitalizations for persons 65 years of age and over are not well reported in the NHIS. Elderly persons are more likely to die or transfer to a long-term-care institution between the hospitalization and the scheduled interview, and as a result are not part of the population represented by the NHIS household sample. In contrast, most persons under 65 years when discharged from the hospital return to a household, and thus are part of the population whose experience is covered by the NHIS household sample. Also, if a sample household member is hospitalized at the time of the survey, other household members are less likely to be found at home to interview, and the hospitalization is not represented in the survey. Although this problem occurs for hospitalizations at all ages, it is greater for hospitalized persons 65 years and over, because there are usually fewer persons in their households to be potential survey respondents.

The hospital discharge rate for black persons under 65 years exceeded that for white persons in all years. The rate of decline in hospital discharges for black and white persons between 1983 and 1985 was similar, approximately 12.7 percent and 11.5 percent, respectively (from 126.5 to 110.4 discharges per 1,000 black persons and from 116.7 to 103.3 discharges per 1,000 white persons).

Data for the 5 years covered in table 3 show a distinct pattern of lower rates of hospital discharges associated with higher levels of family income. In 1985, for instance, the age-adjusted hospital discharge rate was about twice as high for persons with family incomes under \$10,000 compared with family incomes of \$50,000 or more (148.0 and 71.0 discharges per 1,000 persons aged under 65 years).

Between 1983 and 1985, the (unadjusted) hospital discharge rate declined about 9 percent for persons with family incomes under \$10,000 and about 18 percent for persons with incomes of \$50,000 or more. The differences between the estimates over this 2-year period for most of the individual income categories shown in table 3, however, are not statistically significant.

The NHIS determinants for classifying persons above or below the poverty level include three variables—family size, number of children under 18 years of age, and family income. The "Technical notes" contain a description of this variable. The change in the hospital discharge rates between 1983 and 1985 for the two poverty status categories included in table 3 mirrors the change found by family income categories.

Data on assessed health status result from asking respondents to assess their own health and that of other family members as excellent, very good, good, fair, or poor. The finding that hospital discharges among persons considered in fair or poor health far exceed the rate for persons in excellent or good health is not surprising. Between 1983 and 1985, hospital discharges (unadjusted) for persons aged under 65 years assessed in excellent or good health declined about 13 percent. While

Table 5. Average length of stay for persons discharged from short-stay hospitals by sex and age based on data from the National Health Interview Survey and the National Hospital Discharge Survey: United States, 1982-86

Sex and age	National Health Interview Survey					National Hospital Discharge Survey				
	1982	1983	1984	1985	1986	1982	1983	1984	1985	1986
Both sexes										
All ages	7.4	7.3	7.2	6.7	6.6	7.1	6.9	6.6	6.5	---
Under 15 years	6.4	6.0	5.5	5.3	6.0	4.6	4.6	4.5	4.6	---
Under 5 years	6.8	6.7	6.2	5.1	7.6	5.0	5.0	4.8	4.9	---
5-14 years	6.0	5.1	4.6	5.5	4.2	4.1	4.0	4.0	4.1	---
15-44 years	5.8	5.5	5.7	5.0	5.3	5.1	5.0	4.9	4.8	---
15-24 years	4.8	4.4	4.5	4.3	4.0	4.5	4.4	4.2	4.2	---
25-44 years	6.3	6.1	6.3	5.3	5.8	5.5	5.4	5.2	5.1	---
45-64 years	8.4	8.4	8.4	8.0	6.8	7.9	7.6	7.2	7.0	---
45-54 years	8.0	7.7	7.6	7.0	6.5	7.3	7.1	6.8	6.6	---
55-64 years	8.8	8.9	8.9	8.7	7.0	8.3	8.0	7.5	7.4	---
65 years and over	9.6	9.4	9.2	8.7	8.5	10.1	9.7	8.9	8.7	---
65-74 years	9.8	9.1	9.1	8.4	8.7	9.6	9.2	8.5	8.2	---
75 years and over	9.4	9.9	9.3	9.1	8.3	10.6	10.2	9.3	9.2	---
Male										
All ages	8.0	8.2	8.2	7.4	7.2	7.5	7.4	7.0	6.9	---
Under 15 years	5.0	6.0	4.9	5.4	4.7	4.6	4.5	4.4	4.5	---
Under 5 years	4.7	7.0	5.3	5.0	4.9	5.0	4.9	4.6	4.7	---
5-14 years	5.4	4.6	4.4	6.0	4.4	4.1	4.0	4.1	4.3	---
15-44 years	7.2	7.3	7.4	5.9	6.9	6.3	6.2	6.0	6.1	---
15-24 years	5.8	5.4	4.8	5.2	5.2	6.0	5.8	5.6	5.7	---
25-44 years	7.8	8.3	8.7	6.2	7.5	6.4	6.3	6.2	6.2	---
45-64 years	8.5	8.5	9.1	8.5	7.2	7.8	7.6	7.1	6.9	---
45-54 years	7.6	8.2	7.5	6.9	6.8	7.3	7.1	6.7	6.5	---
55-64 years	9.1	8.7	10.4	9.8	7.4	8.1	7.9	7.4	7.3	---
65 years and over	10.1	9.7	9.5	8.4	8.5	9.8	9.6	8.8	8.4	---
65-74 years	10.2	9.6	9.6	8.6	9.4	9.4	9.1	8.4	8.1	---
75 years and over	10.1	10.0	9.3	8.1	7.1	10.3	10.2	9.3	8.8	---
Female										
All ages	7.0	6.7	6.6	6.3	6.1	6.8	6.6	6.3	6.2	---
Under 15 years	8.2	6.0	6.2	5.0	7.5	4.6	4.6	4.6	4.6	---
Under 5 years	9.8	6.3	7.3	5.2	11.6	5.1	5.1	5.2	5.3	---
5-14 years	6.6	5.7	5.0	4.7	3.9	4.0	4.1	3.9	3.8	---
15-44 years	5.1	4.8	5.0	4.7	4.5	4.6	4.6	4.4	4.3	---
15-24 years	4.3	4.0	4.4	4.1	3.6	4.0	3.9	3.8	3.7	---
25-44 years	5.6	5.2	5.3	5.0	5.0	5.0	5.0	4.8	4.6	---
45-64 years	8.4	8.3	7.6	7.4	6.3	8.0	7.6	7.2	7.1	---
45-54 years	8.3	7.3	7.8	7.1	6.1	7.3	7.0	6.9	6.7	---
55-64 years	8.5	9.1	7.4	7.6	6.5	8.5	8.1	7.5	7.5	---
65 years and over	9.2	9.2	9.0	9.0	8.6	10.3	9.8	9.0	9.0	---
65-74 years	9.4	8.6	8.7	8.2	8.1	9.7	9.3	8.5	8.3	---
75 years and over	9.0	9.8	9.3	9.9	9.1	10.8	10.2	9.3	9.4	---

the rate of hospital discharges appears lower for persons in fair health in 1985 than in 1983, this difference may be due to sampling variation. Similarly, hospital discharges did not decline significantly for persons under age 65 years who were considered to be in poor health.

The distribution of hospital discharge rates by region is quite similar for 1983 and 1985: that is, the discharge rates were higher in the North Central or Midwest and the South regions in both years. The hospital discharge rates for the regions with the highest rates declined about 14 percent between 1983 and 1985. The apparent difference in the hospital discharge rates for the same period for the West and Northeast regions, in contrast, were within sampling variation.

Although it is recognized that the NHIS hospital discharge estimates for older persons reflect a substantial undercount, selected NHIS hospital discharge estimates for the older pop-

ulation group are nevertheless shown in table 4 to enable a comparison between the 1983 and 1985 estimates for persons under and over 65 years of age. Among persons 65 years and over living in the community, the hospital discharge rates between 1983 and 1985 declined about 11 percent for white persons and about 27 percent for black persons while for persons under 65 years, the decline was similar for white and black persons, about 12 percent. Hospital discharge rates for persons aged 65 years and over with family income under \$10,000 declined about 19 percent while rates for persons of similar age with incomes of \$35,000 or more declined about 11 percent. In contrast, among persons under 65 years of age the hospital discharge rate for persons with family income under \$10,000 declined about 9 percent and for those with family incomes of \$50,000 or more, the hospital discharge rate declined about 18 percent.

Table 6. Unadjusted and age-adjusted average length of stay for all discharges from short-stay hospitals among persons under 65 years of age, by selected characteristics based on data from the National Health Interview Survey (NHIS): United States, 1982-86

Characteristic	Unadjusted average length of stay					Age-adjusted ¹ average length of stay				
	1982	1983	1984	1985	1986	1982	1983	1984	1985	1986
Sex										
Days per hospital stay										
Male.....	7.1	7.5	7.6	7.0	6.7	6.9	7.2	7.2	6.3	6.5
Female.....	6.2	5.8	5.8	5.4	5.3	6.6	5.8	5.9	5.3	5.6
Race										
White.....	6.3	6.3	6.2	5.9	5.6	6.1	6.0	5.8	5.5	5.5
Black.....	8.4	7.9	8.5	7.1	7.6	8.7	7.7	8.4	6.8	7.7
Family income										
Under \$10,000.....	7.8	7.5	8.3	7.7	5.5	7.9	7.3	8.0	6.9	5.5
Under \$5,000.....	7.2	8.2	7.6	7.7	6.1	7.0	8.1	7.8	7.2	6.2
\$5,000-\$9,999.....	8.3	7.1	8.7	7.7	5.0	8.4	6.8	8.1	6.6	5.0
\$10,000-\$19,999.....	6.6	6.6	6.9	6.0	6.6	6.6	6.3	6.5	5.8	6.4
\$10,000-\$14,999.....	6.1	6.8	7.2	5.6	6.2	6.1	6.6	6.6	5.3	5.7
\$15,000-\$19,999.....	7.0	6.5	6.5	6.4	7.0	6.9	6.1	6.3	6.3	7.1
\$20,000-\$34,999.....	6.1	5.5	5.4	5.5	5.8	6.1	5.5	5.1	5.3	5.9
\$20,000-\$24,999.....	6.2	5.7	5.3	5.6	5.6	6.3	5.5	5.0	5.1	5.7
\$25,000-\$34,999.....	6.1	5.4	5.4	5.5	5.9	6.0	5.4	5.1	5.4	6.1
\$35,000 or more.....	5.5	6.2	5.1	5.3	4.8	5.3	6.1	5.1	5.0	4.7
\$35,000-\$49,999.....	5.3	6.4	5.2	5.2	4.7	5.1	6.3	5.2	5.0	4.5
\$50,000 or more.....	5.9	5.9	4.9	5.3	4.9	5.7	5.6	4.8	5.1	5.2
NHIS poverty index										
Below poverty line.....	7.3	7.4	7.0	6.5	5.5	7.4	7.6	7.0	6.3	5.6
Above poverty line.....	6.4	6.2	6.2	5.9	5.7	6.4	6.1	5.9	5.6	5.7
Assessed health status										
Excellent or good.....	5.3	5.4	5.2	5.0	4.7	5.5	5.4	5.2	5.0	4.8
Excellent.....	4.6	5.0	4.6	4.4	4.3	4.7	5.1	4.7	4.5	4.3
Good.....	6.6	6.0	6.0	5.8	5.5	6.9	5.8	5.8	5.7	5.5
Fair or poor.....	9.7	9.4	9.5	8.6	8.5	9.1	9.1	9.1	7.5	9.8
Fair.....	8.2	8.2	9.4	8.3	6.7	8.0	8.1	9.0	7.6	6.6
Poor.....	11.4	10.8	9.7	9.0	10.4	10.8	10.6	9.4	7.5	15.3
Geographic region										
Northeast.....	7.4	7.0	7.1	7.0	6.0	7.4	6.6	6.7	6.7	5.8
North Central/Midwest.....	6.7	7.0	6.7	6.3	6.0	6.4	6.6	6.6	6.0	6.0
South.....	6.4	6.2	6.6	6.0	5.8	6.4	6.0	6.3	5.6	5.7
West.....	5.8	6.0	5.2	4.7	5.4	6.0	6.0	5.1	4.4	5.6

¹Age adjusted by the direct method to the age distribution of the 1980 total civilian noninstitutionalized population of the United States (under 15, 15-24, 25-44, and 45-64 years).

Length of hospital stay

Table 5 contains the NHDS and NHIS estimates of average lengths of hospital stay by age and sex. Although the NHDS and the NHIS data sets produce somewhat different results for specific age and sex groups, both data sources reveal longer stays among the older age groups and shorter stays for females of childbearing age compared with males in the same age group.

As mentioned previously, the overall average length of stay for hospitalized patients has gradually declined since the early 1970's. The year-to-year differences, which are relatively small, however, are seldom statistically significant. This is illustrated in the 1983-85 period as well.

While the 1985 NHDS estimate of 6.5 days per hospital discharge is significantly lower than the 6.9-day-per-stay average in 1983 (about 6 percent), the apparent decline in NHIS corresponding length of stay estimates during this 2-year period

is not statistically significant. Both the NHDS and the NHIS length-of-stay estimates were significantly lower in 1985 than in 1983, however, for males 45-54 years, 65 years and over, and 75 years and over.

Although there is a high level of general agreement between the two surveys, within the specific age and sex groups there are some different findings. Based on the NHIS, hospital stays for children under 5 years of age were significantly shorter, for example, declining from 6.7 days in 1983 to 5.1 days in 1985. The NHDS length-of-stay estimates for children these ages, however, did not indicate a significant decline. Differences were also noted in the NHDS and NHIS length-of-stay estimates among males 15-44 years of age. According to NHIS figures, the average length of a hospital stay among males these ages declined about 19 percent between 1983 and 1985; the corresponding NHDS rates remained virtually unchanged.

Table 6 shows unadjusted and age-adjusted average lengths of stay per hospital discharge for selected sociodemographic

and health-related characteristics. The table is similar to table 3 in that it only contains data from the NHIS for persons under 15 years. This table shows an inverse relationship between family income and length of hospital stay even after adjusting for age. In 1985, for example, the age-adjusted figures show that persons under 65 years of age with family incomes under \$10,000 averaged 6.9 days per hospital stay while those with family incomes at \$35,000 or more averaged 5.0 days. Between 1983 and 1985, the (unadjusted) average-length-of-stay estimates were about the same for persons these ages whose family income was less than \$10,000 while for persons reporting incomes at \$35,000 or above, the rates declined about 15 percent.

An inverse relationship is also found in the length-of-stay estimates by respondent-assessed health status. The length-of-stay estimates for persons in poor health declined about 17 percent between 1983 and 1985, from 10.8 to 9.0 days. This is the only health status category in which the 1985 estimate was significantly lower than the 1983 estimate. Similarly, the West was the only region of the country where the 1985 estimate for average length of a hospital stay was significantly different from the 1983 estimate. Specifically, the length-of-stay estimates for the West region declined over 20 percent during this period, from 6.0 to 4.7 days per hospital stay.

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Technical notes

National Hospital Discharge Survey methodology

Source and description of data

The National Hospital Discharge Survey (NHDS) samples the records of inpatients discharged from noninstitutional hospitals, exclusive of military and Veterans Administration hospitals, located in the 50 States and the District of Columbia. Only hospitals with six beds or more for patient use and those in which the average length of stay for all patients is less than 30 days are included in the survey. Discharges of all patients from Federal hospitals are excluded. In this report, discharges of newborn infants are also excluded.

The Master Facility Inventory of Hospitals (MFI) is the universe from which the NHDS sample is drawn. The original universe for the survey consisted of 6,965 short-stay hospitals contained in the 1963 MFI. New hospitals were sampled for inclusion in the survey in 1972, 1975, 1977, 1979, 1981, 1983, and 1985.

The number of hospitals participating in the survey varies from year to year, as do the number of abstracts of medical records provided by participating hospitals. This is because each year some of the sampled hospitals refuse to participate in the survey or are found to be out of scope either because they have gone out of business or fail to meet the definition of a short-stay hospital. In all, 558 hospitals were sampled in 1985. Of these hospitals, 82 refused to participate, and 62 were out of scope. The 414 participating hospitals provided approximately 194,000 abstracts of medical records.

The medical record data consist of items relating to the personal characteristics of the patient, including birth date, sex, race, and marital status but not name and address; administrative information, including admission and discharge dates, discharge status, and medical record number; and medical information, including diagnoses and surgical and nonsurgical operations or procedures. Since 1977, patient zip code, expected source of payment, and dates of surgery have also been collected.

Sample design

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

Until 1985, all sample discharges were selected using the daily listing sheet of discharges as the sampling frame. These discharges were selected by a random technique, usually on the basis of the terminal digit or digits of the patient's medical record number. The within-hospital sampling ratio for selecting sample discharges varied inversely with the probability of selection of the hospital. The sample selection and abstraction of

data from the face sheet and discharge summary of the medical records were performed by the hospital staff or by representatives of the National Center for Health Statistics (NCHS), after which the completed forms were forwarded to NCHS for coding, editing, and weighting procedures.

In 1985, there were two data collection procedures used by the NHDS. The first was the traditional manual system of sample selection and data abstraction previously described. The second was an automated method used in approximately 17 percent of the sample hospitals that involved the purchase of data tapes from commercial abstracting services. For the automated hospitals, tapes containing machine-readable medical record data are subject to NCHS sampling, editing, and weighting procedures. A detailed description of the automated process is to be published.

Presentation of estimates

Statistics produced by NHDS are derived by a complex estimating procedure. The basic unit of estimation is the sample inpatient discharge abstract. The estimating procedure used to produce essentially unbiased national estimates in NHDS has three principal components: inflation by reciprocals of the probabilities of sample selection, adjustment for nonresponse, and ratio adjustment to fixed totals. These components of estimation are described in appendix I of two earlier publications.^{18,19}

As in any survey, results are subject to nonsampling or measurement errors, which include errors resulting from hospital nonresponse, missing abstracts, information incompletely or inaccurately recorded on the abstract forms, and processing errors. For example, the age and sex of the patient are not stated on the hospital records for about one-half of 1 percent of the discharges. Imputations of these missing items are made by assigning the patient an age or sex consistent with the age or sex of other patients with the same diagnostic code.

If the dates of admission or discharge are not given and cannot be obtained from the monthly sample listing sheet transmitted by the sample hospital, a length of stay is imputed by assigning the patient a length of stay characteristic of the stays of other patients of the same age. About one-tenth of 1 percent of the records are missing the date of admission or discharge.

National Health Interview Survey methodology

Source and description of data

The National Health Interview Survey (NHIS) is a continuous, cross-sectional, nationwide survey conducted by household interview. Each week a probability sample of households is interviewed by personnel of the U.S. Bureau of the Census (as agents for NCHS) to obtain information on the health and other characteristics of each member of the household.

The population covered by the NHIS is the civilian, resident, noninstitutionalized population of the United States living

at the time of interview. The sample does not include persons residing in nursing homes, members of the Armed Forces, institutionalized persons, or U.S. nationals living abroad.

The completion rate for the survey has been between 96 and 98 percent over the years. The interviewed sample for 1985 was composed of 34,844 households containing 91,531 persons. The total noninterview rate for the basic health and demographic household questionnaire was 4.3 percent—2.6 percent was due to respondent refusal and the remainder was primarily due to an inability to locate an eligible respondent at home after repeated calls.

The NHIS questionnaire contains two major parts: The first consists of topics that remain the same from year to year. Among these topics are the incidence of acute conditions, the prevalence of chronic conditions, persons limited in activity due to chronic conditions, restriction in activity due to impairment or health problems, and utilization of health care services involving physician care and short-stay hospitalization. The second part consists of questions on special health topics that change each year.

Sample design

The sample of the NHIS follows a multistage probability design that permits a continuous sampling of the civilian noninstitutionalized population residing in the United States. The survey is designed so that the sample scheduled for each week is representative of the target population and the weekly samples are additive over time. In 1985, the NHIS adopted several new sample design features although, conceptually, the sampling plan remained the same as the previous design. The major changes included (a) reducing the number of primary sampling locations from 376 to 198 for sampling efficiency, (b) oversampling the black population to improve the precision of the statistics, (c) subdividing the NHIS sample into four separate representative panels to facilitate linkage to other NCHS surveys, and (d) using an all-area frame not based on the decennial census to facilitate NCHS survey linkage and to conduct NHIS followback surveys.

The first stage of the sample design consists of drawing a sample of primary sampling units (PSU's) (376 prior to 1985 and 198 PSU's afterward) from the universe of 1,900 PSU's. Beginning in 1985, the 52 largest PSU's, referred to as self-representing PSU's, are selected into the sample with certainty. The other PSU's, referred to as non-self-representing PSU's, are clustered into 73 strata, and 2 sample PSU's are chosen from each stratum with probability proportional to size.

For purposes of this discussion, the remaining stages can be combined. Ultimately, these "second stage" units, or segments, are defined so that within each, all occupied households are targeted for interview.

Prior to 1985, three types of segments were used: (a) area segments, which are defined geographically; (b) list segments, using 1980 census registers as the frame; and (c) permit segments, using updated lists of building permits issued in sample PSU's since 1980. In the 1985 design, only two types of segments within a PSU are used: area segments, containing an expected eight households, and permit segments, containing an expected four households.

Presentation of estimates

Because the design of NHIS is a complex multistage probability sample, it is necessary to reflect these complex procedures in the derivation of estimates. The NHIS estimates presented in this report are based upon sample person counts for each year weighted to produce national estimates. The weight for each sample person is the product of four component weights: probability of selection, household nonresponse adjustment within segment, first-stage ratio adjustment, and poststratification by age, sex, and race.

The main effect of the ratio-estimating process is to make the sample more closely representative of the target population by age, sex, race, and residence. The poststratification adjustment helps to reduce the component of bias resulting from sampling frame undercoverage; furthermore, this adjustment frequently reduces sampling variance.

Because NHIS estimates are based on a sample, they may differ somewhat from the figures that would have been obtained had a complete census been taken using the same survey and processing procedures. To the extent possible, sampling and nonsampling errors are kept to a minimum by methods built into the survey procedures.

NHIS hospital discharge data are based on hospital discharges reported to have occurred within 6 months of the week of interview. Analysis has shown that there is an increase in underreporting of hospitalizations with an increase in the time interval between the discharge and the interview. The underreporting of discharges within 6 months of the week of interview is estimated to be about 5 percent.²⁰ Because hospitalization is common in the period immediately preceding death or institutionalization and older persons are much more likely to die than younger ones, the underrepresentation for this specific NHIS estimate of elderly persons in particular may be sizable.

Descriptive material on data collection, field procedures, and questionnaire development in NHIS have been published as well as a detailed description of the sample design, estimation procedure, and qualifications of the data.^{14,17}

Age-adjusted rates

This report includes data that have been adjusted by the direct method to the age distribution of the selected standard population, in this case the 1980 total civilian noninstitutionalized population of the United States. Age adjustment by the direct method is accomplished by multiplying the age-specific rate for each age group by the population for the corresponding age group in the standard population. The cross products of the multiplications are summed and divided by the total of the standard population to obtain the age-adjusted rate. Four age groups were used for the age adjustment in this report: under 15, 15–24, 25–44, and 45–64 years.

Sampling errors

The standard error is a measure of the sampling variability that occurs by chance because only a sample, rather than an entire universe, is surveyed. The chances are about 68 out of

100 that an estimate from the sample would differ from a complete census by less than the standard error. The chances are about 95 out of 100 that the difference would be less than twice the standard error and about 99 out of 100 that it would be less than 2½ times as large. The relative standard error of the estimate is obtained by dividing the standard error by the estimate itself and is expressed as a percent of the estimate. Relative standard errors of estimated numbers of hospital discharges are shown in table I. The standard errors for average lengths of stay are shown in table II. Table III contains estimated numbers of discharges based on the NHDS and the NHIS to enable interested readers to derive approximate standard errors of the rates presented in this report.

Definitions of terms

Hospital

NHDS—Short-stay special and general hospitals having six beds or more for inpatient use and an average length of stay

Table I. Approximate relative standard errors (in percent) of estimated numbers of hospital discharges based on data from the National Hospital Discharge Survey and the National Health Interview Survey: United States, 1983 and 1985

Size of estimate	National Hospital Discharge Survey		National Health Interview Survey	
	1983	1985	1983	1985
	Relative standard error			
500,000	4.8	4.0	11.5	13.0
1,000,000	4.2	3.5	8.2	9.2
1,500,000	3.9	3.3	6.7	7.5
2,000,000	3.7	3.1	5.8	6.5
3,000,000	3.5	2.9	4.7	5.4
4,000,000	3.3	2.8	4.1	4.7
5,000,000	3.2	2.7	3.7	4.2
10,000,000	2.9	2.4	2.7	3.0
15,000,000	2.8	2.3	2.2	2.5
20,000,000	2.7	2.2	1.9	2.2
30,000,000	2.5	2.1	1.6	1.8
40,000,000	2.5	2.1	1.4	1.6

Table II. Approximate standard errors of average lengths of stay by number of discharges based on data from the National Hospital Discharge Survey and the National Health Interview Survey: United States, 1983 and 1985

Number of discharges	NHDS average length of stay				NHIS average length of stay			
	4 days	6 days	8 days	10 days	4 days	6 days	8 days	10 days
1983								
	Standard error in days							
500,000	0.2	0.2	0.3	0.4	0.8	1.0	1.2	1.3
1,000,000	0.2	0.2	0.3	0.3	0.6	0.7	0.8	0.9
5,000,000	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4
10,000,000	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3
30,000,000	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2
1985								
50,000	0.1	0.2	0.3	0.3	0.8	0.9	1.2	1.4
1,000,000	0.1	0.2	0.2	0.3	0.6	0.8	0.9	1.1
5,000,000	0.1	0.1	0.2	0.2	0.4	0.5	0.6	0.8
10,000,000	0.1	0.1	0.2	0.2	0.3	0.5	0.6	0.8
30,000,000	0.1	0.1	0.1	0.2	0.3	0.5	0.6	0.8

of less than 30 days. Federal hospitals and hospital units of institutions are not included.

NHIS—Any institution that is named in the listing of hospitals maintained by the American Hospital Association as a general hospital; maternity hospital; eye, ear, nose, and throat hospital; children’s hospital; or osteopathic specialty hospital. Hospital departments of an institution may be included.

Patient/inpatient

NHDS—A person who is formally admitted to the inpatient service of a short-stay hospital for observation, care, diagnosis, or treatment. Infants admitted on the day of birth, directly or by transfer from another medical facility, with or without mention of disease, disorder, or immaturity, are included.

Hospital discharge

NHDS—The formal release of a patient by a hospital; that is, the termination of a period of hospitalization by death or by disposition to place of residence, nursing home, or another hospital.

NHIS—The completion of any continuous period of stay of 1 night or more in a hospital as an inpatient.

In this report, all newborn infants, defined as those admitted by birth to the hospital, are excluded from the NHDS estimates whereas all *well* newborn infants admitted by birth to the hospital are excluded from the NHIS estimates.

Hospital discharge rate

NHDS—The ratio of the number of hospital discharges during a year to the number of persons in the civilian population on July 1 of that year.

NHIS—The ratio of the number of hospital discharges during a year to the average number of persons in the civilian noninstitutionalized population of the United States for that year.

Length of hospital stay

NHDS—The total number of days accumulated by a patient at time of discharge. For patients admitted and discharged

Table III. Number of discharges from short-stay hospitals by sex and age based on data from the National Health Interview Survey and the National Hospital Discharge Survey: United States, 1982-86

Sex and age	National Health Interview Survey					National Hospital Discharge Survey				
	1982	1983	1984	1985	1986	1982	1983	1984	1985	1986
Both sexes										
Number in thousands										
All ages	31 746	32,176	30,931	28,917	27,895	38,593	38,783	37,162	35,056	---
Under 15 years	3,040	3,000	3,146	2,657	2,499	3,654	3,654	3,208	2,972	---
Under 5 years	1,583	1,609	1,747	1,465	1,341	2,014	2,082	1,809	1,708	---
5-14 years	1,458	1,391	1,399	1,192	1,158	1,640	1,572	1,399	1,264	---
15-44 years	13,297	13,212	12,267	11,430	11,469	15,554	15,269	14,533	13,966	---
15-24 years	4,548	4,566	4 181	3,561	3,580	5,439	5,167	4,762	4,521	---
25-44 years	8 749	8,646	8,086	7,869	7,888	10,115	10,102	9,771	9,445	---
45-64 years	7,801	7,634	7,113	7,219	6,345	8,688	8,558	8,195	7,610	---
45-54 years	3,401	3,089	3,146	3,168	2,507	3,893	3,725	3,545	3,298	---
55-64 years	4,400	4,545	3,966	4,051	3,838	4,795	4,833	4,650	4,312	---
65 years and over	7,607	8,330	8,405	7,612	7,582	10,697	11,302	11,226	10,508	---
65-74 years	4,197	4,504	4,523	4,129	4,023	5,231	5,468	5,353	5,011	---
75 years and over	3,410	3,826	3,881	3,483	3,559	5,466	5,834	5,874	5,497	---
Male										
All ages	13,125	13,051	12,542	11,903	11,589	15,470	15,573	14,899	14,160	---
Under 15 years	1,703	1,762	1,746	1,604	1,350	2,098	2,084	1,831	1,698	---
Under 5 years	945	981	991	913	798	1,181	1,206	1,046	990	---
5-14 years	757	781	755	691	551	917	878	785	708	---
15-44 years	4,310	3,902	3,494	3,114	3,423	4,615	4,524	4,305	4,153	---
15-24 years	1,388	1,346	1,126	787	906	1,441	1,356	1,241	1,153	---
25-44 years	2,922	2,556	2,367	2,326	2,517	3,173	3,167	3,064	3,000	---
45-64 years	3,690	3,742	3,692	3,747	3,432	4,143	4,159	3,964	3,776	---
45-54 years	1,494	1,426	1,632	1,624	1,301	1,768	1,728	1,666	1,596	---
55-64 years	2,196	2,316	2,060	2,123	2,132	2,375	2,431	2,298	2,179	---
65 years and over	3,422	3,644	3,610	3,439	3,384	4,614	4,806	4,799	4,533	---
65-74 years	2,074	2,176	2,120	1,999	1,982	2,475	2,568	2,526	2,389	---
75 years and over	1,348	1,468	1,490	1,440	1,402	2,139	2,238	2,274	2,145	---
Female										
All ages	18,621	19,125	18,389	17,014	16,306	23,123	23,210	22,263	20,896	---
Under 15 years	1,338	1,238	1,401	1,053	1,150	1,556	1,570	1,377	1,274	---
Under 5 years	637	628	756	552	543	834	876	764	718	---
5-14 years	701	610	645	501	607	723	694	614	556	---
15-44 years	8,987	9,310	8,774	8,316	8,046	10,939	10,745	10,228	9,813	---
15-24 years	3,160	3,220	3,055	2,773	2,674	3,997	3,810	3,521	3,368	---
25-44 years	5,827	6,090	5,719	5,543	5,371	6,942	6,934	6,707	6,445	---
45-64 years	4,111	3,891	3,420	3,473	2,913	4,545	4,400	4,231	3,834	---
45-54 years	1,907	1,663	1,514	1,545	1,206	2,125	1,997	1,879	1,701	---
55-64 years	2,204	2,229	1,907	1,928	1,707	2,420	2,402	2,352	2,132	---
65 years and over	4,184	4,686	4,795	4,173	4,198	6,083	6,496	6,427	5,975	---
65-74 years	2,123	2,328	2,403	2,130	2,041	2,757	2,901	2,826	2,623	---
75 years and over	2,062	2,358	2,391	2,043	2,157	3,327	3,595	3,600	3,352	---

on different days, it includes all days from (and including) the date of admission to (but not including) the date of discharge. A stay of less than 1 day (patient admission and discharge on the same day) is counted as 1 day.

NHIS—The duration in days, exclusive of the day of discharge, of a hospital stay. Stays for patients admitted and discharged on the same day are not counted.

Average length of stay

NHDS and NHIS—The total number of hospital days accumulated at time of discharge by patients discharged, divided by the total number of hospital discharges.

Age

NHDS—The patient's age on the birthday prior to admission to the hospital inpatient service.

NHIS—The person's age on the birthday prior to the interview.

Race

NHIS—The population is divided into three racial groups; "white," "black," and "all other." "All other" includes Aleut, Eskimo, or American Indian; Asian or Pacific Islander; and any other races. Race characterization is based on the respondent's identification of his or her racial background.

Income of family or of unrelated individuals

NHIS—Each member of a family is classified according to the total income of the family of which he or she is a member. Within the household, all persons related to each other by blood, marriage, or adoption constitute a family. Unrelated individuals are classified according to their own incomes.

The income recorded is the total of all income received by members of the family (or by an unrelated individual) in the -month period preceding the week of interview. Income from sources—for example, wages, salaries, rents from property, pensions, and help from relatives—is included.

Respondent-assessed health status

NHIS—The categories related to this concept result from asking the respondent, “Would you say _ _ _ ’s health is excellent, very good, good, fair, or poor?” As such, it is based on a respondent’s opinion and not directly on any clinical evidence.

Poverty

NHIS—Families and unrelated individuals are classified as being above or below the poverty level using the poverty index originated at the Social Security Administration in 1964 and revised by Federal Interagency Committees in 1969 and 1980. The poverty index is based solely on money income and does not reflect the fact that many low-income persons receive noncash benefits such as food stamps, medicaid, and public housing. The index is based on the Department of Agriculture’s 1961 economy food plan and reflects the different consumption requirements of families based on their size and composition. The poverty thresholds are updated every year to reflect changes in the Consumer Price Index. Because *NHIS* data on

family income are collected by income categories rather than specific amounts of money, the *NHIS* estimates of persons living in poverty will vary slightly from the Current Population Survey estimates.

Geographic region

NHIS—The States are grouped into four regions that correspond to those used by the U.S. Bureau of the Census as follows:

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

Symbols

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

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

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