

Health care expenditures for major diseases in 1980

by Thomas A. Hodgson and Andrea N. Kopstein

Health care expenditures in the United States were 10.5 percent of the gross national product in 1982, and growing rapidly. The magnitude and continuing growth make health care costs an important issue in public policy. Knowledge of costs for specific diseases is necessary for ascertaining the effectiveness and

efficiency of various health programs. In this article, medical care expenditures for major diseases are estimated from readily available data and it is shown that expenditures for more specific disease categories can be derived.

Introduction

Personal health care expenditures have been rising rapidly since 1960. A total of \$255 billion was spent for personal health care in 1981, an increase of 16 percent from 1980. Total spending in 1981 represented \$1,090 per capita, a 15 percent increase over the \$947 spent per person in 1980 (Waldo and Gibson, 1982).

Expenditures for personal health care measure the value of medical care services delivered to individuals for the prevention, diagnosis, and treatment of illness and disease. Expenditures may be incurred for hospitalization; outpatient clinical care; nursing home care; home health care; services of primary physicians, specialists, dentists, and other health professionals; drugs and drug sundries; and rehabilitation counseling and other rehabilitation costs, such as those for prostheses, appliances, eyeglasses, hearing aids, speech devices, etc., to prevent or overcome illness-related impairments. These expenditures are included in the United States National Health Accounts, now published by the Health Care Financing Administration (Cooper, Gibson, and Rice, 1980).

The Health Care Financing Administration (HCFA) annually estimates national health expenditures according to type of service and source of funds. In this article, personal health care expenditures in 1980 are further disaggregated into expenditures by age, sex and medical condition. The year 1980 was chosen to facilitate comparison with estimates of health care expenditures that will be forthcoming from the National Medical Care Utilization and Expenditure Survey (NMCUES). NMCUES was designed to collect data on the U.S. civilian noninstitutionalized population during 1980 and help analyze expenditures and health services provided under the Medicaid and Medicare programs. In the next section, the methodology for disaggregating HCFA's estimates of personal health care spending is described. The third section presents estimated expenditures by type of care and medical condition for males and females, persons under 65 years of age, and persons 65 years of age or over.

Reprint requests: Thomas A. Hodgson, Office of Analysis and Epidemiology, National Center for Health Statistics, 3700 East West Highway, Hyattsville, MD 20782.

Methodology

The definitions, concepts, and sources of data employed by HCFA to estimate personal health care expenditures are discussed by Waldo and Gibson (1982). To estimate expenditures by age, sex, and medical condition in this article, HCFA's estimates of personal health care expenditures in 1980 for each type of service were first separated into expenditures for persons under 65 years of age and persons 65 years of age or over according to HCFA's distributions for 1978 (Fisher, 1980). These totals were distributed by sex and diagnosis according to utilization and costs, using a variety of other data sources. For example, expenditures in community hospitals were allocated to a disease category in proportion to the number of days of care attributable to the diagnosis, weighted by the cost per patient day for that diagnosis. Similar procedures were applied where possible to expenditures for other types of medical care to distribute the total by sex and diagnosis. This methodology follows closely that originally devised by Cooper and Rice (1976) to allocate expenditures among diagnoses, amended to include several additional sources of data.

Of the \$219 billion spent for personal health care in 1980, \$211 billion could be distributed by age and sex and \$207 billion by age, sex, and diagnosis; \$12 billion (6 percent) could not be allocated by age, sex and diagnosis because data were not available.

Expenditures in 1980

Personal health care expenditures in 1980 totaled \$219 billion (Table 1). Hospital care accounted for the largest share of expenditures, \$100 billion (46 percent), followed by physicians' services valued at \$47 billion (21 percent). Other professional services (such as those of dentists, chiropractors, optometrists, and private duty nurses), nursing home care, and drugs, each accounted for about \$20 billion, or 10 percent of spending for personal health care. All other personal health care, which included miscellaneous items such as eyeglasses and appliances, ambulance services, industrial on-site health services, and care provided in Federal facilities other than hospitals, represented 5 percent of the total expenditures.

Table 1

Personal health care expenditures, according to medical condition and type of care: United States, 1980

Medical condition	Type of care					
	All personal health care	Hospital care	Physicians' services	Nursing home care	Drugs	Other professional services
	Amount in millions					
All conditions	\$219,400	\$100,461	\$46,790	\$20,593	\$19,300	\$21,000
Infectious and parasitic diseases	4,498	2,138	1,531	—	805	24
Neoplasms	13,623	9,130	3,163	469	677	184
Endocrine, nutritional, metabolic diseases, and immunity disorders	7,656	3,369	2,055	1,137	1,020	75
Diseases of blood and blood-forming organs	1,205	749	309	—	130	17
Mental disorders	20,301	12,836	2,027	4,363	1,001	74
Diseases of the nervous system and sense organs	1 17,499	4,409	4,557	387	2,175	870
Diseases of the circulatory system	33,184	16,682	5,813	7,983	2,272	434
Diseases of the respiratory system	17,305	8,438	5,313	435	2,978	141
Diseases of the digestive system	31,755	11,440	3,757	—	968	2 15,590
Diseases of the genitourinary system	13,162	7,471	4,198	—	1,391	102
Diseases of the skin and subcutaneous tissue	6,179	1,607	3,051	—	1,493	28
Diseases of the musculoskeletal system and connective tissue	13,645	6,220	3,879	833	1,529	1,184
Congenital anomalies	1,409	918	387	—	97	7
Symptoms, signs, and ill-defined conditions ³	3,968	1,695	1,470	—	789	14
Injury and poisoning	19,248	11,599	4,905	721	1,868	155
Other conditions	2,246	1,760	373	—	106	7
Unallocated expenditures	4 12,359	—	—	4,265	—	2,094

¹Includes all expenditures for eyeglasses and appliances.

²Includes all expenditures for dentists' services.

³Includes complications of pregnancy, childbirth, and the puerperium, and certain conditions originating in the perinatal period.

⁴Includes expenditures for other health services, other professional services, and nursing home care that could not be allocated to conditions.

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

SOURCE: National Center for Health Statistics: Computed by the Division of Analysis from data compiled by the Health Care Financing Administration, the National Center for Health Statistics, and other organizations.

Expenditures by age and sex

In each age group, females used more medical services and incurred disproportionately higher expenditures relative to their numbers than did males. Females represented 52 percent of the population but accounted for 58 percent of expenditures (Figure 1). The distribution of expenditures among the various health services was the same for males and females under 65 years of age: about half of the total was for hospital care, slightly more than one-third for professional services, 10 percent for drugs, and 3 percent for nursing home care. The elderly (persons 65 years of age or over), on the other hand, spent much more of their health dollar for nursing home care (18 percent for men and 30 percent for women), less on professional services, and less on hospital care for females age 65 or over. Elderly males and females used more health services than did persons under 65 years of age. Although persons 65 years of age or over represented only 12 percent of the population, they experienced higher use of health care services and accounted for 31 percent of expenditures for personal health care.

The influence of age and sex on expenditures is evident from per capita personal health care expenditures. On the average, per capita spending was three and one-half times greater for persons age 65 or over

than for those under 65 years of age, and higher for females than males (Figure 2). Amounts spent varied greatly depending on age, sex, and type of health care. Expenditures ranged from a low of \$19 per person for nursing home care among males under 65 years of age to \$1,111 per individual for hospital care of males 65 years of age or over (Figure 3). For hospital care, professional services, and drugs, the ratio of per capita spending for the elderly to that for the non-elderly ranged from twice as high among females for drugs and professional services to three and one-half times as high for hospital care among males. Nursing home care is an important health service for the elderly and was the second most expensive health service for women 65 years of age or older. Except for hospital care and professional services for elderly males, females required greater health dollar expenditures per person. The difference in expenditures between males and females was usually larger for persons under 65 years of age, but was greatest for nursing home care among persons 65 years of age or over (\$403 for males versus \$801 for females).

Figure 1
Population and personal health care expenditures,
by age and sex: 1980

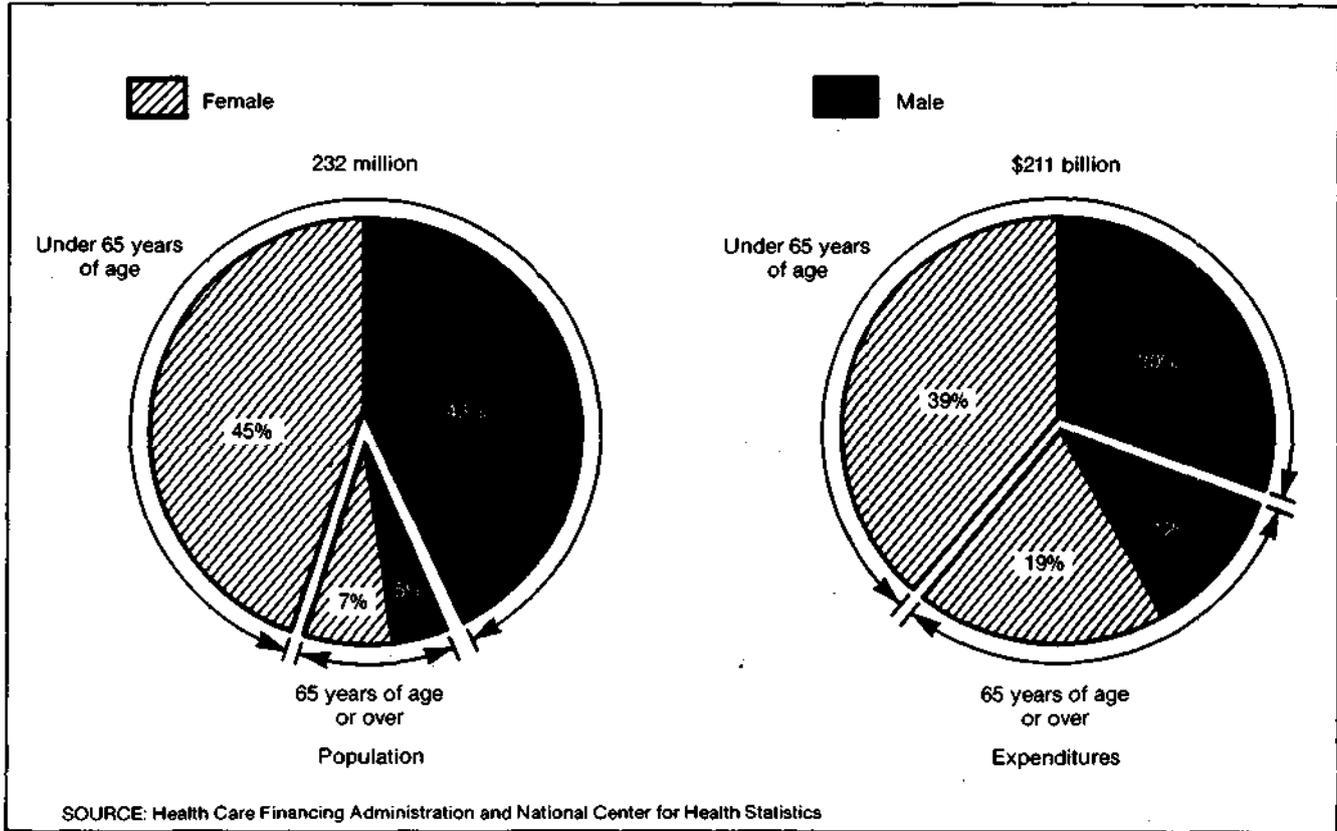


Figure 2
Per capita personal health care expenditures,
by age and sex: 1980

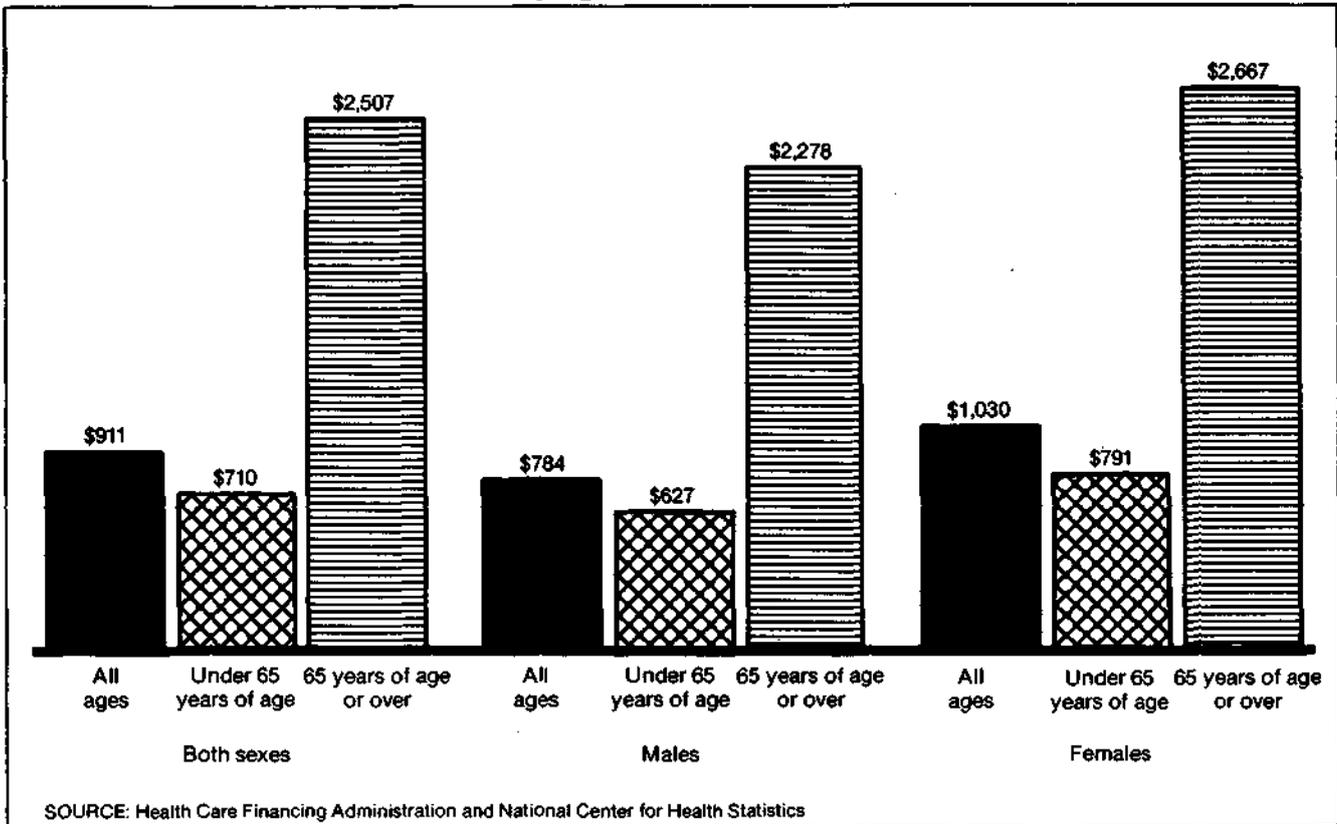
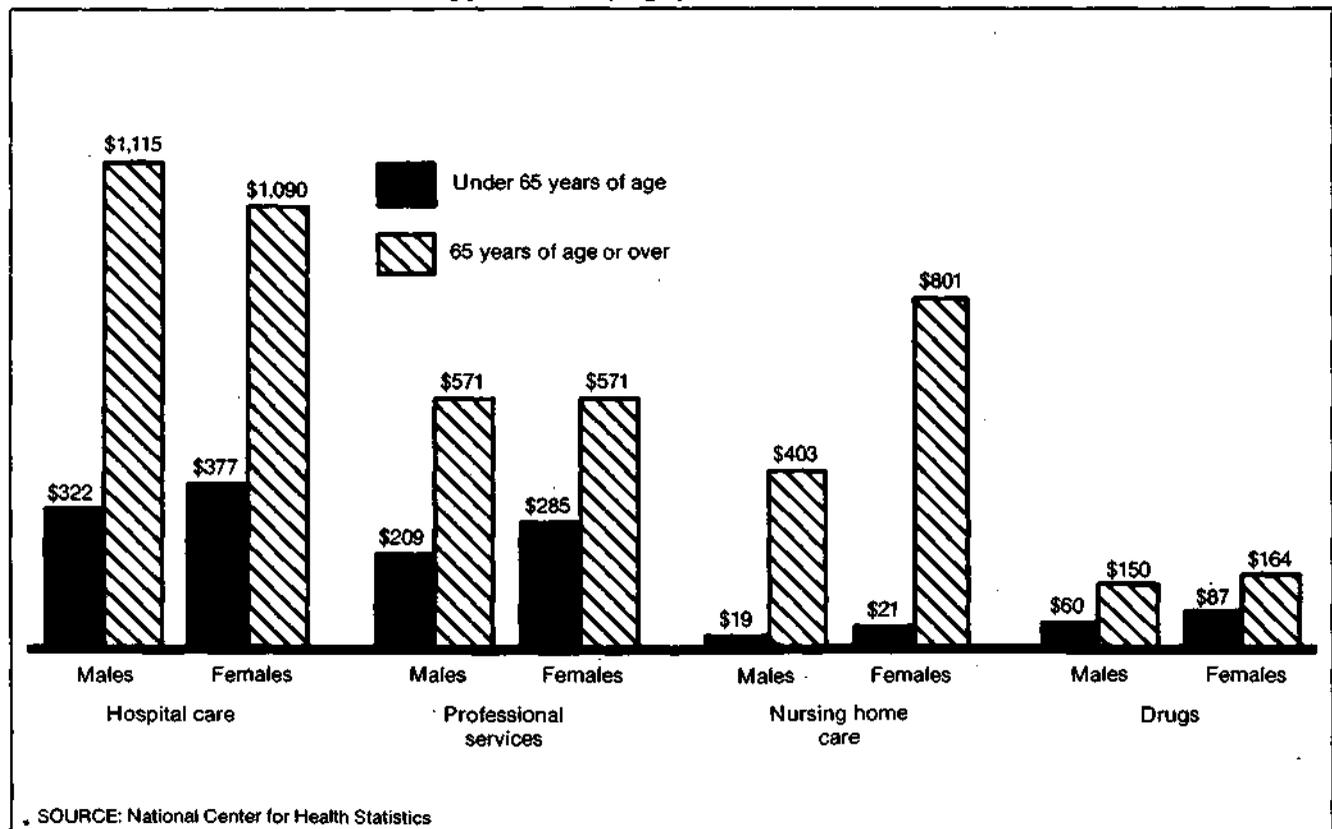


Figure 3
Per capita personal health care expenditures, by
type of care, age, and sex: 1980



Expenditures by medical conditions

Expenditures by condition and type of care for the leading disease classes are shown in Table 1 (National Center for Health Statistics, 1980). Diseases of the circulatory system were responsible for the highest amount (\$33 billion spent for care), followed closely by diseases of the digestive system (\$32 billion including \$15 billion spent for dental care). The remaining conditions can be divided into two groups, each one containing several conditions with about the same expenditures. The first group includes mental disorders (\$20 billion), injury and poisoning (\$19 billion), and diseases of the respiratory system (\$17 billion). The other group includes neoplasms (\$14 billion), diseases of the musculoskeletal system and connective tissue (\$14 billion), diseases of the genitourinary system (\$13 billion), and diseases of the nervous system and sense organs (\$12 billion).

The relative amounts spent for each type of health care varied among the disease categories. This reflects the differences in pathology and consequent needs for each type of service among diseases. Hospital care usually accounted for the largest share of expenditures for a disease class, ranging from 35 percent of expenditures for diseases of the nervous system and sense organs to 67 percent for neoplasms. Professional services were usually the second leading cause

of expenditures in a disease category, but ranged from 10 percent of spending for mental disorders to 61 percent for digestive system diseases. However, out of \$19 billion for professional services for diseases of the digestive system, \$15 billion were spent for dental services. Nursing home expenditures were high for circulatory diseases (24 percent); mental disorders (22 percent); and endocrine, nutritional and metabolic diseases (15 percent), but contributed small amounts to other diseases. Drugs were most important in terms of expenditures for diseases of the nervous system (18 percent); respiratory system (17 percent); and endocrine, nutritional, and metabolic diseases (13 percent).

Variations by age and sex

The economic burden imposed by a disease category varies with the age and sex of the population. For the elderly, persons 65 years of age or over, circulatory diseases were far and away the leading cause of health care expenditures, accounting for about 30 percent of the total for elderly males and females (Table 2) and requiring \$674 and \$848 per capita, respectively (Table 3). Also among the five most expensive conditions for both groups of elderly were digestive system diseases and mental disorders. Injury and poisoning, and problems of the musculoskeletal system completed the

Table 2

Personal health care expenditures, according to medical condition, sex, and age: United States, 1980

Medical condition	Both sexes			Males			Females		
	All ages	Under 65 years	65 years or over	All ages	Under 65 years	65 years or over	All ages	Under 65 years	65 years or over
	Amount in millions								
All conditions	\$219,400	\$146,191	\$64,950	\$87,618	\$63,300	\$24,318	\$123,525	\$82,891	\$40,634
Infectious and parasitic diseases	4,498	3,928	569	1,820	1,622	198	2,677	2,306	371
Neoplasms	13,623	8,302	5,322	5,647	3,043	2,603	7,977	5,259	2,718
Endocrine, nutritional, metabolic diseases, and immunity disorders	7,656	4,689	2,968	2,354	1,483	872	5,302	3,206	2,096
Diseases of blood and blood-forming organs	1,205	753	449	427	280	147	775	473	302
Mental disorders	20,301	14,612	5,689	9,330	7,935	1,935	10,971	7,217	3,753
Diseases of the nervous system and sense organs	17,499	13,028	4,471	7,558	5,762	1,796	9,941	7,266	2,675
Diseases of the circulatory system	33,184	13,078	20,105	13,932	6,739	7,194	19,251	6,340	12,911
Diseases of the respiratory system	17,305	13,164	4,141	8,096	6,048	2,048	9,209	7,117	2,093
Diseases of the digestive system	31,755	26,084	5,671	13,428	11,159	2,269	18,327	14,925	3,402
Diseases of the genitourinary system	13,162	10,721	2,441	3,509	2,138	1,372	9,652	8,583	1,069
Diseases of the skin and subcutaneous tissue	6,179	5,036	1,144	2,573	2,147	425	3,607	2,888	718
Diseases of the musculoskeletal system and connective tissue	13,645	9,821	3,824	5,053	4,078	975	8,592	5,744	2,849
Congenital anomalies	1,409	1,321	88	626	590	36	783	731	52
Symptoms, signs, and ill-defined conditions	3,968	3,197	771	1,654	1,310	344	2,314	1,887	427
Injury and poisoning	19,248	15,042	4,206	9,783	8,662	1,121	9,465	6,380	3,085
Other conditions	2,246	2,187	59	331	297	34	1,915	1,890	25
Unallocated expenditures	12,359	1,229	3,036	1,496	548	948	2,769	681	2,088

¹Includes expenditures that could not be distributed by age and sex.

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

SOURCE: National Center for Health Statistics: Computed by the Division of Analysis from data compiled by the Health Care Financing Administration, the National Center for Health Statistics and other organizations.

Table 3

Per capita personal health care expenditures and rank for leading medical conditions, according to age and sex: United States, 1980

Medical condition	Persons under 65 years of age		Persons 65 years of age or over	
	Male	Female	Male	Female
	Per capita amount			
Circulatory diseases	\$ 67	\$ 61	\$674	\$848
Digestive diseases	110	143	213	223
Mental disorders	73	69	181	246
Injury and poisoning	86	61	105	203
Respiratory diseases	60	68	192	137
Neoplasms	30	50	244	178
Musculoskeletal system and connective tissue diseases	40	55	91	187
Genitourinary system diseases	21	82	128	70
Nervous system and sense organ diseases	57	69	168	176
Endocrine, nutritional, metabolic diseases	15	31	82	138
	Rank			
Circulatory diseases	4	7	1	1
Digestive diseases	1	1	3	3
Mental disorders	3	4	5	2
Injury and poisoning	2	6	8	4
Respiratory diseases	5	5	4	9
Neoplasms	8	9	2	6
Musculoskeletal system and connective tissue diseases	7	8	9	5
Genitourinary system diseases	9	2	7	10
Nervous system and sense organ diseases	6	3	6	7
Endocrine, nutritional, metabolic diseases	10	10	10	8

NOTE: Conditions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*.

SOURCE: National Center for Health Statistics: Computed by the Division of Analysis from data compiled by the Health Care Financing Administration, the National Center for Health Statistics, and other organizations.

top five most expensive conditions for elderly females, but ranked eighth and ninth for elderly males. Neoplasms were the second most expensive category among elderly males, but ranked sixth for women 65 years of age or over. Similarly, respiratory diseases were relatively important for elderly males (ranking fourth), but ranked ninth among elderly females.

Among persons under 65 years of age, expenditures related to the digestive system were the highest and accounted for 18 percent of the total for males and females. Mental disorders and respiratory diseases were also important causes of expenditures for males and females under 65 years of age. Completing the five most expensive conditions for males under 65 years of age were injury and poisoning and circulatory

diseases (ranking second and fourth, respectively), while diseases of the genitourinary and nervous systems were important for females under 65 years of age (ranking second and third, respectively).

For each age group and each sex, diseases of the digestive system and mental disorders were important causes of expenditures. Circulatory diseases ranked high for all but females under 65 years of age, and respiratory diseases were relatively important for all but elderly women. Together, these four categories accounted for almost 50 percent of all expenditures for personal health care. The relative importance of different types of medical care to health care expenditures varies by sex, age, and medical condition (Tables 4 and 5).

Table 4
Personal health care expenditures, according to medical condition
and type of care: Males, United States, 1980

Medical condition	Type of care					
	All personal health care	Hospital care	Physicians' services	Nursing home	Drugs	Other professional services
Amount in millions						
Total males						
All conditions	\$87,618	\$44,388	\$19,225	\$6,168	\$7,699	\$7,944
Infectious and parasitic disease	1,820	911	604	—	296	8
Neoplasms	5,647	3,944	1,178	186	261	78
Endocrine, nutritional, metabolic diseases, and immunity disorders	2,354	1,143	615	300	277	20
Diseases of blood and blood-forming organs	427	273	105	—	44	5
Mental disorders	9,330	6,681	797	1,457	365	30
Diseases of the nervous system and sense organs	17,558	2,017	2,039	110	941	258
Diseases of the circulatory system	13,932	7,936	2,696	2,160	973	167
Diseases of the respiratory system	8,096	3,981	2,504	221	1,325	65
Diseases of the digestive system	13,428	4,681	1,581	—	432	6,735
Diseases of the genitourinary system	3,509	2,144	1,015	—	306	44
Diseases of the skin and subcutaneous tissue	2,573	742	1,241	—	581	9
Diseases of the musculoskeletal system and connective tissue	5,053	2,394	1,498	113	581	467
Congenital anomalies	626	418	164	—	41	3
Symptoms, signs, and ill-defined conditions	1,654	777	579	—	293	5
Injury and poisoning	9,783	6,037	2,597	126	975	49
Other conditions	331	309	13	—	8	1
Unallocated expenditures	1,496	—	—	1,496	—	—

See footnotes at end of table.

Table 4—Continued
Personal health care expenditures, according to medical condition
and type of care: Males, United States, 1980

Medical condition	Type of care					
	All personal health care	Hospital care	Physicians' services	Nursing home	Drugs	Other professional services
Amount in millions						
Males under 65 years of age						
All conditions	\$63,300	\$32,532	\$14,226	\$1,874	\$6,068	\$6,830
Infectious and parasitic disease	1,622	773	563	—	284	3
Neoplasms	3,043	2,283	577	(2)	138	9
Endocrine, nutritional, metabolic diseases, and immunity disorders	1,483	804	394	94	187	4
Diseases of blood and blood-forming organs	280	189	64	—	27	1
Mental disorders	7,395	5,527	724	788	340	16
Diseases of the nervous system and sense organs	15,762	1,537	1,492	(2)	731	221
Diseases of the circulatory system	6,739	4,474	1,391	328	524	21
Diseases of the respiratory system	6,048	2,717	2,120	(2)	1,168	11
Diseases of the digestive system	11,159	3,558	1,142	—	328	6,132
Diseases of the genitourinary system	2,138	1,314	608	—	210	6
Diseases of the skin and subcutaneous tissue	2,147	607	1,042	—	495	3
Diseases of the musculoskeletal system and connective tissue	4,078	2,010	1,201	(2)	471	377
Congenital anomalies	590	394	156	—	38	2
Symptoms, signs, and ill-defined conditions	1,310	623	452	—	233	2
Injury and poisoning	8,662	5,447	2,288	(2)	888	21
Other conditions	297	275	(2)	—	(2)	1
Unallocated expenditures	548	—	—	548	—	—
Males 65 years of age or over						
All conditions	\$24,318	\$11,856	\$4,999	\$4,294	\$1,631	\$1,114
Infectious and parasitic disease	198	138	(2)	—	(2)	6
Neoplasms	2,603	1,661	600	150	123	68
Endocrine, nutritional, metabolic diseases, and immunity disorders	872	339	221	206	90	16
Diseases of blood and blood-forming organs	147	84	(2)	—	(2)	4
Mental disorders	1,935	1,154	73	669	25	14
Diseases of the nervous system and sense organs	11,796	480	547	99	211	37
Diseases of the circulatory system	7,194	3,462	1,305	1,832	449	146
Diseases of the respiratory system	2,048	1,264	384	189	157	53
Diseases of the digestive system	2,269	1,123	439	—	104	603
Diseases of the genitourinary system	1,372	830	408	—	96	38
Diseases of the skin and subcutaneous tissue	425	135	199	—	86	6
Diseases of the musculoskeletal system and connective tissue	975	384	296	94	110	90
Congenital anomalies	36	24	(2)	—	(2)	1
Symptoms, signs, and ill-defined conditions	344	154	127	—	60	3
Injury and poisoning	1,121	590	309	107	88	28
Other conditions	34	34	—	—	—	—
Unallocated expenditures	948	—	—	948	—	—

¹Includes expenditures for eyeglasses and appliances

²Figure does not meet standards of reliability or precision.

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

SOURCE: National Center for Health Statistics: Computed by the Division of Analysis from data compiled by the Health Care Financing Administration, the National Center for Health Statistics, and other organizations.

Table 5
Personal health care expenditures, according to medical condition
and type of care: Females, United States, 1980

Medical condition	Type of care					
	All personal health care	Hospital care	Physicians' services	Nursing home	Drugs	Other professional services
Amount in millions						
Total females						
All conditions	1 \$123,525	\$56,073	\$27,562	\$14,423	\$11,601	\$10,959
Infectious and parasitic disease	2,677	1,227	926	—	509	15
Neoplasms	7,977	5,186	1,986	283	416	107
Endocrine, nutritional, metabolic diseases, and immunity disorders	5,302	2,226	1,441	837	743	55
Diseases of blood and blood-forming organs	775	476	204	—	86	12
Mental disorders	10,971	6,155	1,230	2,905	636	44
Diseases of the nervous system and sense organs	19,941	2,392	2,519	277	1,234	612
Diseases of the circulatory system	19,251	8,746	3,117	5,823	1,299	267
Diseases of the respiratory system	9,209	4,457	2,809	214	1,653	76
Diseases of the digestive system	18,327	6,759	2,177	—	536	8,855
Diseases of the genitourinary system	9,652	5,327	3,183	—	1,085	57
Diseases of the skin and subcutaneous tissue	3,607	865	1,811	—	912	19
Diseases of the musculoskeletal system and connective tissue	8,592	3,826	2,362	720	948	717
Congenital anomalies	783	500	223	—	56	4
Symptoms, signs, and ill-defined conditions	2,314	918	891	—	496	8
Injury and poisoning	9,465	5,562	2,309	595	893	106
Other conditions	1,915	1,451	359	—	98	6
Unallocated expenditures	2,769	—	—	2,769	—	—
Females under 65 years of age						
All conditions	1 \$82,891	\$39,487	\$20,717	\$2,201	\$9,102	\$9,100
Infectious and parasitic disease	2,306	1,014	821	—	468	3
Neoplasms	5,259	3,533	1,393	(2)	289	17
Endocrine, nutritional, metabolic diseases, and immunity disorders	3,206	1,449	1,054	117	578	8
Diseases of blood and blood-forming organs	473	297	122	—	52	2
Mental disorders	7,217	4,664	1,051	927	558	16
Diseases of the nervous system and sense organs	17,266	1,777	1,714	(2)	900	557
Diseases of the circulatory system	6,340	3,972	1,454	280	616	18
Diseases of the respiratory system	7,117	3,216	2,392	(2)	1,465	12
Diseases of the digestive system	14,925	4,918	1,651	—	417	7,939
Diseases of the genitourinary system	8,583	4,690	2,883	—	988	22
Diseases of the skin and subcutaneous tissue	2,888	612	1,486	—	788	3
Diseases of the musculoskeletal system and connective tissue	5,744	2,816	1,701	(2)	677	478
Congenital anomalies	731	471	206	—	52	2
Symptoms, signs, and ill-defined conditions	1,887	768	708	—	409	3
Injury and poisoning	6,380	3,864	1,721	(2)	747	15
Other conditions	1,890	1,426	359	—	98	6
Unallocated expenditures	681	—	—	681	—	—

See footnotes at end of table.

Table 5—Continued
Personal health care expenditures, according to medical condition
and type of care: Females, United States, 1980

Medical condition	Type of care					
	All personal health care	Hospital care	Physicians' services	Nursing home	Drugs	Other professional services
Amount in millions						
Females 65 years of age or over						
All conditions	\$40,634	\$16,586	\$6,846	\$12,222	\$2,499	\$1,859
Infectious and parasitic diseases	371	213	105	—	41	12
Neoplasms	2,718	1,653	592	256	127	90
Endocrine, nutritional, metabolic diseases, and immunity disorders	2,096	777	387	720	165	47
Diseases of blood and blood-forming organs	302	179	81	—	34	10
Mental disorders	3,753	1,491	178	1,978	79	28
Diseases of the nervous system and sense organs	12,675	615	805	244	334	55
Diseases of the circulatory system	12,911	4,774	1,663	5,543	682	249
Diseases of the respiratory system	2,093	1,241	417	183	188	64
Diseases of the digestive system	3,402	1,841	526	—	119	916
Diseases of the genitourinary system	1,069	637	300	—	97	35
Diseases of the skin and subcutaneous tissue	718	253	325	—	124	16
Diseases of the musculoskeletal system and connective tissue	2,849	1,010	681	647	272	239
Congenital anomalies	52	29	(2)	—	(2)	2
Symptoms, signs, and ill-defined conditions	427	150	184	—	87	6
Injury and poisoning	3,085	1,698	588	562	146	91
Other conditions	25	25	—	—	—	—
Unallocated expenditures	2,088	—	—	2,088	—	—

¹Includes expenditures for eyeglasses and appliances

²Figure does not meet standards of reliability or precision.

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

SOURCE: National Center for Health Statistics: Computed by the Division of Analysis from data compiled by the Health Care Financing Administration, the National Center for Health Statistics, and other organizations.

Diseases of the circulatory system

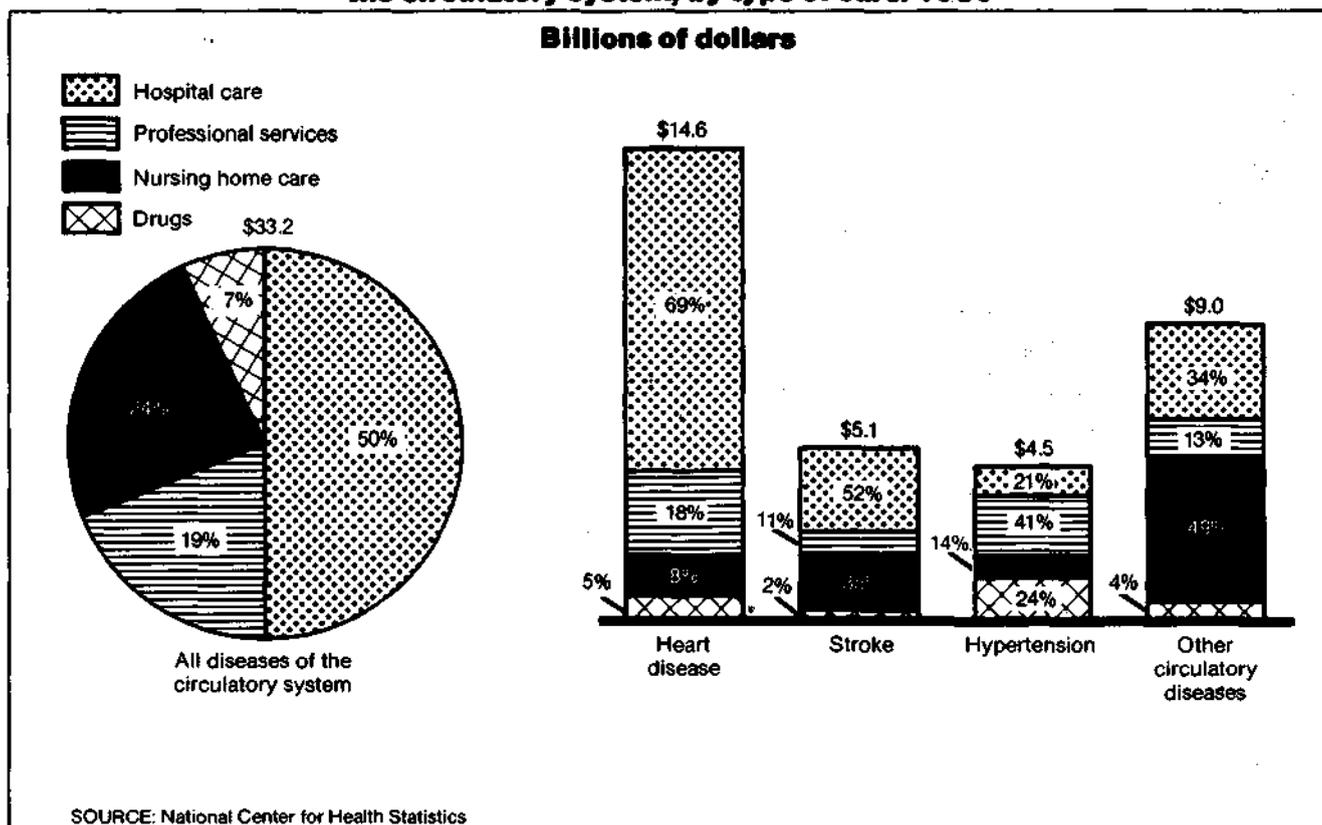
Although it is valuable to estimate expenditures for the international classification of diseases chapters, these provide only an overview. Expenditures for circulatory system diseases will be broken down as an example. Diseases of the circulatory system are a leading cause of expenditures for medical care and include three well known diseases that are serious health problems for millions of people in the United States: Heart disease, stroke, and hypertension. The discussion of circulatory disorders will show that each chapter is a composit of diseases and expenditures may vary markedly among the separate diseases according to type of health care, age, and sex. Expenditures are a reflection of underlying parameters such as the prevalence of disease, and health services utilization. These parameters vary among diseases, and by age and sex.

The \$33.2 billion spent for diseases of the circulatory system in 1980 is the sum of \$14.6 billion for heart disease, \$5.1 billion for stroke, \$4.5 billion for

hypertension, and \$9 billion for other circulatory diseases (Figure 4). The proportions spent for each type of health care differed among the circulatory diseases. Overall, 50 percent of expenditures were for hospital care; but the proportion for hospital services was as high as 69 percent for heart disease and as low as 21 percent for hypertension. Professional services accounted for 19 percent of the total cost of medical care for all circulatory diseases but represented 41 percent of expenditures for hypertension and 18 percent of money spent for care of heart disease.

Nursing home care was an important service for persons with diseases of the circulatory system, accounting for almost one-quarter of all expenditures and ranking second behind hospital care. The bulk of nursing home expenditures was for other circulatory diseases (mainly arteriosclerosis), accounting for almost half of all expenditures for that condition. Nursing home care was also an important component of care for victims of stroke, requiring 35 percent of the total spent for stroke. Relatively smaller but significant amounts were spent for nursing home care of

Figure 4
Personal health care expenditures for diseases of
the circulatory system, by type of care: 1980



persons with hypertension (\$649 million or 14 percent) and heart disease (\$1.1 billion or 8 percent).

Drugs amounted to only 7 percent of total expenditures for all circulatory diseases but were responsible for almost one-quarter of the total spent for hypertension. However, drugs accounted for 5 percent or less of expenditures for heart disease, stroke, and other circulatory diseases.

The relative amount spent for each type of health care for a circulatory disorder varied with the age and sex of the population. In general, expenditures for hospital care were proportionately higher for persons under 65 years of age than for the elderly (persons 65 years of age or over), and expenditures for nursing home care were proportionately greater for the elderly than for the population under 65 years of age (Figure 5). Less than two thirds of expenditures for heart diseases for the elderly were for hospital care compared to more than three-fourths for persons under 65 years of age. On the other hand, 8 percent of expenditures for elderly males and 16 percent for elderly females were for nursing home care, compared with only 1 percent of expenditures among persons under 65 years of age. This pattern also occurs for other circulatory diseases such as stroke, hypertension, and the residual category "other circulatory diseases." No patterns of differential spending by age or sex are discernible for professional services or drugs.

Other things being equal, expenditures will be higher the larger the population in an age-sex group. Therefore, it is important to take into consideration the size of the population when comparing expenditures for different ages and between sexes. Although heart disease expenditures for elderly women greatly exceed the amount for elderly males, per capita expenditures were much closer (\$309 for men versus \$318 for women) (Figure 6). The relatively large total expenditures for heart disease among persons under 65 years of age were distributed among many more persons, and per capita spending was much lower, \$36 for males and \$26 for females.

Per capita expenditures adjust for the effect of population size. The level of per capita spending is directly related to the prevalence of disease, the number of services used by each patient, and the average cost of each service. The very large differences in per capita spending between the elderly and persons under 65 years of age were chiefly the result of the higher prevalence of heart disease among persons 65 years of age or over. In 1979, the prevalence of heart disease was 274 elderly persons per 1,000 population compared with 52 persons under 65 years of age per 1,000 population (Division of Health Interview Statistics, 1979). Nevertheless, elderly persons with heart disease used more health services, on the average, than the group under 65 years of age, which also contributed to higher per capita expenditures.

Figure 5
Personal health care expenditures for heart disease,
by type of care, age, and sex: 1980

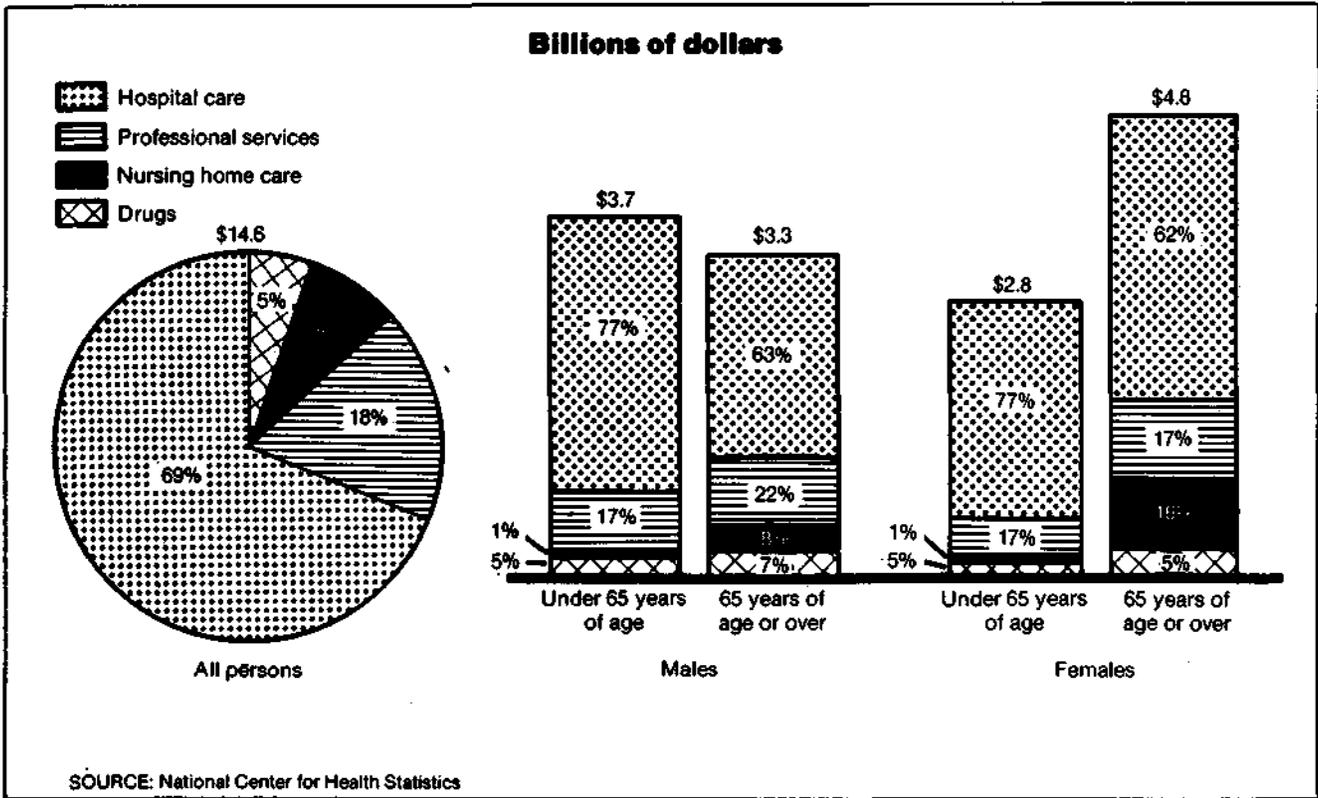
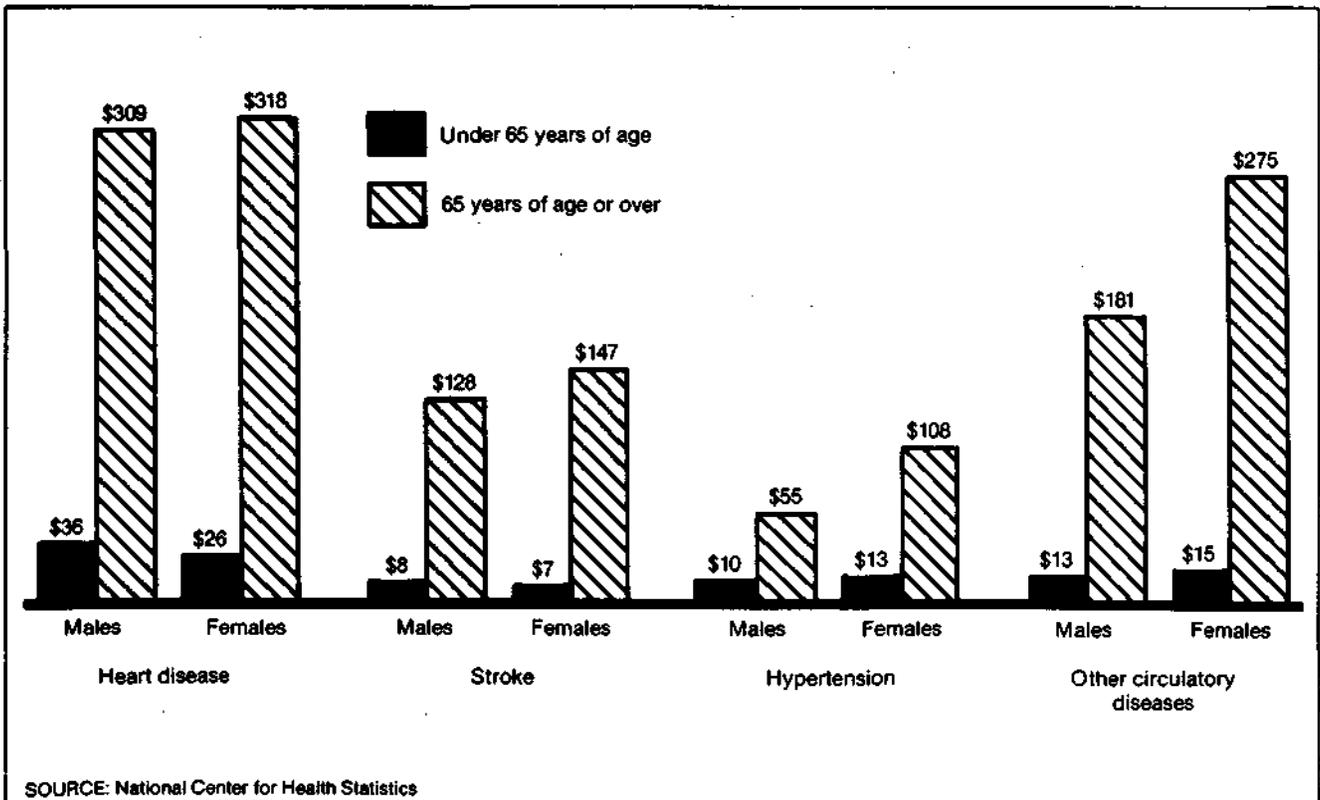


Figure 6
Per capita personal health care expenditures,
by type of circulatory system disease, age,
and sex: 1980



Prevalence rates were about the same for males and females under 65 years of age, but higher use of health services by males resulted in higher per capita expenditures for them. The prevalence rate of heart disease among elderly females was slightly higher than for males. This and greater use of nursing home care resulted in higher per capita expenditures for heart disease among elderly females.

Some of these patterns also hold for hypertension and stroke. Prevalence rates are higher for the elderly and for females, and persons 65 years of age or over with these diseases used more services. As a result, per capita expenditures were higher for persons 65 years of age or over and usually higher for females than for males.

Conclusion

Health care expenditures have taken an increasing share of the gross national product (GNP) for more than two decades, rising from 5.3 percent of GNP in 1960 to 9.8 percent in 1981. If current trends continue, national health expenditures will consume 12 percent of GNP in 1990 (Freeland and Schendler, 1983). The prospect of continuing growth in health care spending that outpaces growth in the rest of the economy makes health care costs an important economic issue, affecting both the public and private sectors.

Potential strategies for reducing health care expenditures include the following: health promotion and disease prevention efforts to reduce prevalence; use of fewer health services per case or the substitution of less expensive for more expensive forms of care such as outpatient for inpatient surgery, and hospice and home care for hospital care; and lower costs per service through technological advances, competition, and other economic incentives that induce more efficient use of resources. In reality, expenditures are determined by a variety of complex and interrelated factors. For example, price per service may depend on the number of services used, and technological innovation that improves quality of care may raise rather than lower costs. Thus, the relative costs and benefits of different strategies are often unclear. For this discussion, however, it is assumed per capita expenditures are directly related to the prevalence rate, number of services per case, and the price per service.

Circulatory disorders are used as an illustration of reductions in expenditures that might be achieved through reduced prevalence, utilization, or costs. The potential savings from what appear to be relatively modest changes in the prevalence and resource requirements for heart disease, stroke, and hypertension are large. A 10 percent decrease in the prevalence of these three circulatory diseases means that four to five million fewer persons would have these conditions and

10 percent fewer dollars would be spent for personal health care. In 1980, almost \$2.5 billion would have been saved. Similarly, expenditures in 1980 could have been reduced \$2.5 billion by a 10 percent decrease in expenditures per case, through reductions in the number of services per case, price per service, or some combination of fewer services and lower prices. If the prevalence and resource requirements were simultaneously reduced by 10 percent each, the total savings would be almost \$5 billion in terms of 1980 expenditures.

This is not to say that these savings can be realized easily. For example, medical advances leading to a decline in the incidence of heart disease may also lengthen the period of survival for those who do develop heart disease. The net effect may be an increase in the prevalence and the amount of medical care to be provided for heart disease. Similarly, changes in treatment of heart disease may be beneficial to the patient but may also increase expenditures per case. The interrelationships among these and other factors make cost containment a difficult goal to reach.

References

- Cooper, B. S., and Rice, D. P.: The economic cost of illness revisited. *Social Security Bulletin*. DHEW Pub. No. (SSA) 76-11703. Office of Research and Statistics, Social Security Administration. Washington. U.S. Government Printing Office, Feb. 1976.
- Cooper, B. S., Gibson, R. M., and Rice, D. P.: United States National Health Accounts: Historical Perspective, Current Issues, and Future Projections. In Levy, E., ed. *Accounting for Health*. Paris, France. Economica, 1982.
- Division of Health Interview Statistics, National Center for Health Statistics: Data from the National Health Interview Survey, 1979.
- Fisher, C. R.: Differences by age groups in health care spending. *Health Care Financing Review*. HCFA Pub. No. 03045. Office of Research, Demonstrations, and Statistics, Health Care Financing Administration. Washington. U.S. Government Printing Office, Spring 1980.
- Freeland, M., and Schendler, C. E.: National health expenditure growth in the 1980's: An aging population, new technologies, and increasing competition. *Health Care Financing Review*. HCFA Pub. No. 03149. Office of Research and Demonstrations, Health Care Financing Administration. Washington. U.S. Government Printing Office, March 1983.
- National Center for Health Statistics: *International Classification of Diseases, 9th Revision, Clinical Modification*. DHHS Pub. No. (PHS) 80-1260. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1980.
- Waldo, D. R., and Gibson, R. M.: National health expenditures, 1981. *Health Care Financing Review*. HCFA Pub. No. 03146. Office of Research and Demonstrations, Health Care Financing Administration. Washington. U.S. Government Printing Office, Sept. 1982.