Discharges by Death from Hospitals and Skilled Nursing Facilities Under Medicare

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SINCE MEDICARE began in July 1966, the effect of the hospital insurance benefits of this program on the use of hospitals and skilled nursing facilities has been of concern. One possibility is the inflation of health care costs through increased hospitalization of persons aged 65 and over with terminal illnesses. Because the Medicare patient's out-of-pocket expenses for the first 60 days of hospitalization are relatively low (initially $40, now $124), terminally ill patients who otherwise would die at home might be hospitalized. Scarce or costly medical resources might then be used to extend briefly the lifetime of these patients.

Experience thus far, however, does not indicate any significant increase under Medicare in the proportion of deaths among persons aged 65 and over occurring in short-stay hospitals or skilled nursing facilities. This conclusion is based on an analysis of two sets of data on discharges from these institutions. One set of data is from the Medicare program. Except for the 1967 data on hospital discharges (*1*), these data were obtained from the Office of Research and Statistics, Social Security Administration. The other set came from the Hospital Discharge Survey conducted by the National Center for Health Statistics (NCHS). Data from this survey are published by NCHS in series 13 of its Vital and Statistics reports, but some of the data in this paper are unpublished. Data on total deaths in the United States, provided by the Division of Vital Statistics, NCHS, are used as a base for determining proportions.

Description of Data

The Medicare data on discharges are currently available by sex and quinquennial age groups (up to age 85) for the years 1967–69 and 1971 for short-stay hospitals and for 1969 for skilled nursing facilities. Aggregate data are available for all years from 1967 through 1974. The hospital data for age and sex groups are derived from a 20 percent random sample (by claim number), whereas all data for patients of skilled nursing facilities are a total count. The data include discharges after Medicare benefits have been exhausted.

The Medicare data are for the entire hospital insurance program and thus include not only the 50 States and the District of Columbia, but also Puerto Rico and other outlying areas. Initially, all persons aged 65 and over were covered except those covered by the Federal Employees Health Benefits Act and a few short-term resident aliens. Currently, a small number of other persons, primarily State and local employees without social security coverage and their dependents, also do not have Medicare hospital insurance coverage. The proportion of the population aged 65 and over with hospital insurance under Medicare was 99.2 percent in 1967 and 98.7 percent in 1975.

The NCHS data on discharges are shown only by sex and all ages combined for persons aged 65 and over because of the small size of the sample on which they are based. The data are obtained from a stratified sample that in the aggregate includes somewhat less than 1 percent of all short-stay hospital discharges in the 50 States and the District of Columbia. Thus, these data contain a sampling error,

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whereas the Medicare data on total discharges are, in essence, from a complete count (although sampling errors enter in for the age and sex breakdowns).

The NCHS data on total deaths relate only to deaths in the 50 States and the District of Columbia. These data represent a complete count for the various age-sex groups.

Although the Medicare data are derived from a broader geographic area than the NCHS data, the difference is not significant. The hospital discharges for areas outside the 50 States and the District of Columbia represent only about 0.5 percent of the total. This is slightly more than offset by the approximately 1 percent of the population aged 65 and over without Medicare coverage.

Analysis of NCHS Data

The NCHS data on discharges from short-stay hospitals and deaths for the population aged 65 and over are presented in table 1. The total deaths in this age group increased slowly during the decade 1965–74, rising from 1.11 million to 1.24 million. This upward trend is the result of the increasing number of persons aged 65 and over and the shift in

Table 1. Data from the National Center for Health Statistics on short-stay hospital discharges and deaths at ages 65 and over, United States, 1965–74 (numbers in thousands)

Year	Total deaths	Hospital discharges [1]		Hospital deaths as percent of—	
		Total	Deaths	Hospital discharges [2]	Total deaths
		Both sexes			
1965	1,111	4,600	477	10.4	42.9
1966	1,140	4,911	514	10.5	45.1
1967	1,136	5,215	538	10.4	47.4
1968	1,190	5,520	550	10.0	46.2
1969	1,185	5,694	552	9.8	46.6
1970	1,182	5,883	558	9.5	47.2
1971	1,200	5,986	528	8.9	44.0
1972	1,237	6,634	566	8.6	45.8
1973	1,253	6,937	586	8.5	46.8
1974	1,239	7,185	564	7.9	45.5
		Men			
1965	580	2,114	245	11.6	42.2
1966	591	2,240	266	11.9	45.0
1967	589	2,352	279	11.9	47.4
1968	614	2,486	287	11.6	46.7
1969	608	2,594	295	11.4	48.5
1970	605	2,651	287	10.9	47.4
1971	612	2,696	284	10.6	46.4
1972	628	2,995	296	9.9	47.1
1973	634	3,094	298	9.7	47.0
1974	624	3,190	287	9.0	46.0
		Women			
1965	531	2,473	231	9.4	43.5
1966	549	2,658	247	9.3	45.0
1967	547	2,846	257	9.1	47.0
1968	576	3,015	262	8.7	45.5
1969	577	3,088	257	8.4	44.5
1970	577	3,220	271	8.4	47.0
1971	588	3,280	243	7.4	41.3
1972	609	3,631	269	7.4	44.2
1973	619	3,837	287	7.5	46.4
1974	615	3,990	277	6.9	45.0

[1] Sex or discharge cause was not reported for a small number of discharges. [2] Based on number of discharges for which the cause was reported.

the age distribution of this group toward the older ages. The increase in numbers is partially offset by somewhat lower age-specific mortality rates.

The number of deaths among the men was about 9 percent larger than the number among the women in 1965. The differential decreased over the years until it was only 1.5 percent in 1974. This relationship and its trend are the result of two opposing factors. Although there were many more women than men (about 30 percent more in 1965 and 43 percent more in 1974), the age-specific death rates for women were substantially lower (*2*).

The number of hospital discharges of persons aged 65 and over increased steadily during the decade 1965–74, rising from 4.6 million to 7.2 million, or by 56 percent. In contrast, hospital discharges for persons under age 65 decreased from 24.1 million in 1965 to 22.5 million in 1968, but then rose steadily to 25.8 million in 1974, an increase of 7 percent over the decade. The much greater rate of increase for the aged population than for the younger group may be attributed primarily to the availability of Medicare benefits. However, a small part of the difference resulted from the greater increase in size of the aged population and from the decrease in the number of maternity patients. Whether the increase in hospital use due to the availability of Medicare benefits resulted from necessary additional use or from overuse, or from both causes, cannot be answered from the present analysis.

The increase in the number of discharges from 1965 to 1974 among persons aged 65 and over was substantially larger for women than for men—61 percent compared with 51 percent. This difference reflected the fact that the female population in this age group increased more rapidly over the decade than did the male population—23 percent versus 12 percent (*3*, *4*). On the other hand, discharges among the population under age 65 increased less for women (5 percent) than for men (10 percent), largely because of a decrease in maternity cases. Both the male and female populations under age 65 increased by 8 percent during the decade.

The discharges due to death among persons aged 65 and over showed trends similar to those of the total discharges, both over the years and by sex. The increases over the years, however, were not as large, as is clearly shown by the steady decline in the proportion of discharges due to death. The percentages fell from about 10.4 in 1965–67 to 7.9 percent in 1974, a relative decrease of 24 percent.

The proportion of discharges due to death was always much lower for women than for men, and the difference increased slightly over the decade. In 1965–67, about 9.3 percent of the discharges among women were due to death as against 11.8 percent among men, and in 1974, the figures were 6.9 percent and 9.0 percent, respectively.

In passing, we may note that the proportion of discharges due to death for persons under age 65 had a somewhat different trend during the 1965–74 decade. The proportion for the younger group was of course much lower than that for the older group—about 1.3 percent compared with about 8 to 10 percent. The proportion for persons under age 65 rose from 1.2 percent in 1965 to a peak of 1.4 percent in 1968–69 and then slowly decreased to 1.1 percent in 1974, although these variations are not statistically significant because of the small sample size. The same trend prevailed for each sex for those under 65. The proportion for men, however, was about twice as large as the proportion for women in the younger age group, whereas the proportion for men was only about 28 percent larger for persons aged 65 and over.

The decrease over the years in the proportion of discharges due to death among persons aged 65 and over is not necessarily an indication of a real decline in mortality among hospitalized patients. More likely it arises from an increase in hospital admissions for less serious causes.

The analysis of the proportion of deaths in the population 65 and over that occurred in short-stay hospitals revealed almost no change over the decade. The figure was close to 45 percent in all years. The proportion for women was slightly lower than that for men, except in 1965 and 1966, with the largest difference being 5.1 percentage points, in 1971. It is likely that the fluctuations were due largely to sampling variations. We can therefore conclude from the NCHS data that the proportion of deaths among persons aged 65 and over that occurred in short-stay hospitals did not change significantly with the advent of the Medicare program.

Analysis of Medicare Data

Although the NCHS data shed considerable light on trends in hospitalization of terminally ill patients, they do not permit analysis by detailed age group and they do contain possible sampling fluctuations. The Medicare data are based on a sample of sufficient size so that analysis by age is feasible, and they provide an excellent control as to total deaths.

In table 2, the NCHS and Medicare data for both total discharges and discharges due to death are compared. Considering the sampling fluctuations possible and the small differences in coverage, as

Table 2. Comparison of data from National Center for Health Statistics (NCHS) and Medicare on short-stay hospital discharges at ages 65 and over, United States, 1957–74 (numbers in thousands)

Year	Total discharges			Discharges by death		
	NCHS [1]	Medicare	Ratio [2]	NCHS [1]	Medicare	Ratio [2]
			Both sexes			
1967	5,215	5,055	1.032	538	489	1.100
1968	5,520	5,619	.982	550	535	1.028
1969	5,694	5,702	.999	552	524	1.053
1970	5,883	5,972	.985	558	536	1.041
1971	5,986	6,148	.974	528	534	.989
1972	6,634	6,500	1.021	566	546	1.037
1973 [3]	6,937	6,518	1.064	586	514	1.140
1974 [3]	7,185	5,551	1.294	564	403	1.400
			Men			
1967	2,352	2,310	1.018	279	257	1.086
1968	2,486	2,556	.973	287	282	1.018
1969	2,594	2,588	1.002	295	276	1.069
1970	2,651	2,705	.980	287	[4]	....
1971	2,696	2,781	.969	284	281	1.011
1972	2,995	2,940	1.019	296	[4]	....
1973 [3]	3,094	2,936	1.054	298	[4]	....
1974 [3]	3,190	2,469	1.292	287	[4]	....
			Women			
1967	2,846	2,745	1.037	257	232	1.108
1968	3,015	3,063	.984	262	253	1.036
1969	3,088	3,114	.992	257	248	1.036
1970	3,220	3,267	.986	271	[4]	....
1971	3,280	3,367	.974	243	253	.960
1972	3,631	3,560	1.020	269	[4]	....
1973 [3]	3,837	3,582	1.071	287	[4]	....
1974 [3]	3,990	3,082	1.295	277	[4]	....

[1] Sex or discharge cause was not reported for a small number of discharges.
[2] Ratio of NCHS to Medicare.
[3] Medicare data are not complete because of lag in reporting.
[4] Data were not available.

mentioned previously, the two sets of data are reasonably close. The NCHS data tend to show slightly fewer discharges (0.2 percent fewer) and more deaths (4.0 percent more) for the period 1967–72 than the Medicare data; no ready explanation for those differences is apparent. As the combined result of these two tendencies, the proportion of discharges by death is higher for the NCHS data. For all persons for the period 1967–72, the proportion was 9.4 percent for the NCHS data versus 9.0 percent for the Medicare data.

The following table shows a comparison of discharges due to death with total discharges from short-stay hospitals for Medicare patients and with total deaths in the States and the District of Columbia at ages 65 and over:

Year	Discharges by death (in thousands)	Death discharges as percent of—	
		Total discharges	Total deaths
1967	489	9.7	43.0
1968	535	9.5	45.0
1969	524	9.2	44.2
1970	536	9.0	45.3
1971	534	8.7	44.5
1972	546	8.4	44.1
1973[1]	514	7.9	41.0
1974[1]	403	7.3	32.5

[1] Data for 1973–74 are not complete because of lag in reporting.

The trend in the proportion of the discharges due to death shown by these data parallels that exhibited by the NCHS data, that is, a slow but steady decline. More meaningful, however, is the ratio of deaths in

short-stay hospitals to total deaths in the country among persons aged 65 and over. This proportion remained relatively constant throughout the 6-year period for which the Medicare data are complete.

Similar data on discharges due to death from skilled nursing facilities (originally termed "extended care facilities") for Medicare patients are as follows:

Year	Discharges by death (in thousands)	Death discharges as percent of—	
		Total discharges	Total deaths
1967	49	20.7	4.3
1968	68	18.6	5.8
1969	76	18.2	6.5
1970	73	19.7	6.2
1971	75	21.1	6.3
1972	78	22.1	6.3
1973	77	23.6	6.2
1974[1]	65	23.6	5.3

[1] Data for 1974 are not complete because of lag in reporting.

The number of discharges due to death have remained relatively constant over the years. They have represented an increasing proportion of the total discharges from these institutions but about the same proportion of total deaths.

Medicare benefits are also available to a limited extent for patients in long-stay hospitals. Annual discharges from psychiatric hospitals of persons who have received benefits while in these institutions number about 7,000, of which about 600 are deaths, and those from other long-stay hospitals number about 8,000, which include about 1,300 deaths. These 2,000 represent less than 0.25 percent of all deaths in the country among persons aged 65 and over.

Thus, all together the Medicare data show that approximately 50 percent of all deaths in the United States among persons 65 and over during the years 1967–74 occurred in hospitals or skilled nursing facilities.

The following tabulation shows the proportions of deaths that occurred in short-stay hospitals by sex and detailed age group. Data for 1967–69 and 1971 were combined because there was little variation between the years for any age-sex group:

Age group (years)	Percent of total deaths		
	Men	Women	Both sexes
65–69	45.0	47.0	45.8
70–74	45.4	49.0	46.9
75–79	46.8	47.9	47.3
80–84	46.9	43.1	44.9
85 and over	41.5	33.0	36.3
All ages 65 and over	45.3	43.1	44.2

The proportions of deaths in short-stay hospitals varied little by age and sex. The most significant difference was the somewhat lower figures for the oldest age group, 85 and over. Also, at ages 65–79, men had slightly lower proportions than women, whereas at ages 80 and over, the opposite was true.

The proportions of deaths in skilled nursing facilities by sex and detailed age group for Medicare patients in 1969 were as follows:

Age group (years)	Percent of total deaths		
	Men	Women	Both sexes
65–69	2.8	4.3	3.4
70–74	3.8	5.9	4.7
75–79	5.4	7.8	6.5
80–84	7.6	9.2	8.5
85 and over	8.6	8.9	8.8
All ages 65 and over	5.4	7.6	6.5

Here, the proportions rose steadily with increase in age. For each age group, the proportion for women was substantially higher than that for men.

Conclusion

Analysis of data on deaths in hospitals and skilled nursing facilities indicates that, at least through 1974, use of these institutions by Medicare patients with terminal illnesses has not increased. Continued study of this question is desirable because, if an increase does occur, it will affect the costs of the program, as well as the use of scarce medical resources.

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