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A Comparison of Nursing Home Residents and Discharges from the 1977 National Nursing Home Survey: United States¹

This report, comparing nursing home residents and discharges, presents provisional estimates from the 1977 National Nursing Home Survey (NNHS) conducted by the National Center for the Health Statistics. It is a nationwide sample survey of nursing homes describing the facilities and their costs and the characteristics of the residents, the discharges, and the staff.

The survey is the second in an ongoing NNHS system. The first survey was conducted between August 1973 and April 1974. The data for the 1977 NNHS were collected from May through December 1977 with a midpoint of August 1977. The estimates are provisional, since they are based on a subsample of about 340 of the 1,700 facilities in the national survey. Nursing homes included in the survey were nursing care homes, personal care homes (with and without nursing), and domiciliary care homes as classified by the 1973 Master Facility Inventory.² In addition, all nursing homes that opened for business between 1973 and December 1976 were included. Another *Advance Data* presenting provisional estimates of facility and staff characteristics will be published shortly.

Data presented in this report include a demographic description of the resident and discharged populations and a discussion of selected

health status measures. The data also include a discussion of selected measures related to the utilization of nursing homes such as prior living arrangements, length of stay, living arrangements after discharge, source of payment, and charges for care. The resident data are based on a sample of all residents on the nursing home's roster the night before the data collection began. Consequently, they may be considered a "snapshot" of nursing home residents on any given day between May and December 1977. Similar data were collected in the 1973-74 NNHS.

The discharge data, in contrast, are based on a sample of all discharges from the facility during the calendar year 1976. Discharge data not collected in the earlier survey were added to the NNHS design to provide information on duration of stay in nursing homes and on the characteristics of persons who spend a relatively short time in the facility.

The discharge data therefore differ from the resident data in several major areas. First, the universe is all discharges from the facility during the entire year 1976, while the universe for the residents is all persons on the roster for a single night during the data collection period (May through December 1977). Second, the discharge data represent 1976 characteristics, in contrast to the resident data which represent 1977 characteristics. Moreover, the discharge data were, of necessity, limited to information recorded in the medical record, whereas the resident data include personal knowledge of a caregiver when the information was not available in the record. Finally, there is a theoretical difference in the universe, since the discharge sample could have included the same person more than once if he or she was discharged more than once from a

¹This report was prepared by Esther Hing and Aurora Zappolo, Division of Health Resources Utilization Statistics.

²National Center for Health Statistics: Inpatient health facilities as reported from the 1973 MFI Survey, by A. Sirrocco. *Vital and Health Statistics*. Series 14-No. 16. DHEW Pub. No. (HRA) 76-1811. Health Resources Administration. Washington. U.S. Government Printing Office, May 1976.

nursing home during 1976, while the resident sample precludes any chance of persons falling into the sample more than once.

For this report's purposes, *residents* refers to persons residing in the nursing home at the time of the survey (May to December 1977), and *discharges* refers to persons formally discharged from the nursing home during 1976. Both terms characterize the same pool of *patients* receiving care in nursing homes measured at different points in time.

Information on sampling variability is presented in the Technical Notes.

DEMOGRAPHIC CHARACTERISTICS

On any given day during the period May through December 1977, there were about 1,287,400 nursing home residents in 18,300 nursing homes. This provisional estimate is a 20-percent increase over the 1,075,800 residents estimated by the 1973-74 NNHS. This increase is slightly exaggerated, since the 1977 NNHS included nursing and personal care facilities, whereas the 1973-74 NNHS included only facilities providing some level of nursing care. The number of residents in facilities that provide no nursing care, however, is small. According to the 1973 Master Facility Inventory, about 1 percent of all nursing home residents were in such facilities.³ An increase in the *number* of persons in nursing homes is expected, since the elderly population in the United States is increasing. For example, between 1970 and 1980 the number of persons 65 years and over in the population is projected to increase by 22 percent.⁴ Nevertheless, the 1,097,900 residents 65 years of age and over represent the same *proportion* of the United States population aged 65 and over as was found in the 1973-74 NNHS—about 5 percent.

³National Center for Health Statistics: *The Nation's Use of Health Resources*, 1976 Edition. DHEW Pub. No. (HRA) 77-1240. Health Resources Administration. Washington. U.S. Government Printing Office, 1977. p. 73.

⁴U.S. Bureau of the Census: *Demographic Aspects of Aging and the Older Population in the United States. Current Population Reports. Special Studies. Series P-23*, No. 59. Washington. U.S. Government Printing Office, May 1976.

The survey found that the estimated number of persons discharged from nursing homes during 1976 was about 973,100. Because the methodology to count discharges differed from that used in earlier surveys, comparisons of figures are not valid, and therefore trend statements are not presented.

Table 1 shows that in 1977 nursing home residents were elderly (median age 80), primarily female (71 percent), widowed (58 percent), and white (92 percent). Table 2 shows that discharges in 1976 were also elderly (median age 80) and primarily female (64 percent). The distribution on the basis of marital status, on the other hand, shows a greater proportion of discharges who were married (20 percent compared to 13 percent of the residents) and fewer who

Table 1. Provisional number and percent distribution of nursing home residents by age, sex, race, marital status, and median length of stay: United States, 1977

Selected resident characteristics	Nursing home residents	
	Number	Percent distribution
All residents.....	1,287,400	100.0
<u>Age</u>		
Under 65 years.....	189,500	14.7
65-74 years.....	202,000	15.7
75-84 years.....	470,600	36.6
85 years and over.....	425,300	33.0
<u>Sex</u>		
Male.....	369,400	28.7
Female.....	918,000	71.3
<u>Race</u>		
White ¹	1,180,300	91.7
All other races or ethnicities.....	107,100	8.3
<u>Current marital status</u>		
Married.....	160,800	12.5
Widowed.....	743,700	57.8
Divorced or separated.....	87,600	6.8
Never married.....	265,900	20.7
Unknown.....	*	*
<u>Median length of stay</u>		
Number of days.....	582	---

¹Excludes Spanish-American.

Table 2. Provisional number of discharges from nursing homes and percent discharged alive by age, sex, and marital status: United States, 1976

Selected characteristics of discharges	Discharges from nursing homes	
	Number	Percent discharged alive
All residents	973,100	74.2
<u>Age</u>		
Under 65 years.....	135,400	89.9
65-74 years	161,200	73.4
75-84 years	381,800	75.9
85 years and over	294,700	65.3
<u>Sex</u>		
Male.....	349,700	74.8
Female.....	623,400	73.9
<u>Marital status at discharge</u>		
Married	192,100	80.1
Widowed	552,300	71.8
Divorced or separated	84,700	86.2
Never married.....	106,300	69.4
Unknown.....	37,700	*

were never married (11 percent compared to 21 percent of the residents). However, the proportions of discharges who had other marital statuses were not statistically different from those for residents.

Ultimately, the outcome of nursing home care may be characterized by whether the discharge is alive or dead. Overall, about 3 out of 4 (74 percent) of the discharges were alive (table 2). Age was related to whether a discharge was alive or dead. Younger discharges were more likely to be discharged alive; 90 percent of those under 65 years of age were discharged alive compared to 75 percent of those 65-84 years of age and 65 percent of those 85 years and older. Sex, on the other hand, had no bearing on outcome. The proportion of females discharged alive (74 percent) was similar to that of males (75 percent).

HEALTH STATUS

For this report, the health status measures selected were primary diagnosis and the ability

to perform activities for daily living. The resident's primary diagnosis was that provided by the physician at the time of the last, i.e., most recent, examination. In order to examine the relationship between eventual outcome and health status at admission the primary diagnosis for discharged persons was the diagnosis made at the time of admission. Any comparisons between the diagnoses of residents and of discharges should take into account the difference in the time of measurement (most recent examination versus admission) as well as the potential differences in the quality of the diagnoses at each of these points.

Table 3 shows the most recent primary diagnosis for residents, with about 37 percent having diseases of the circulatory system, 22 per-

Table 3. Provisional number of nursing home residents and rate per 1,000 residents by primary diagnoses at last examination: United States, 1977

Primary diagnosis at last examination	Nursing home residents	
	Number	Rate per 1,000 residents
All residents	1,287,400	1,000.0
<u>Diseases of the circulatory system.....</u>		
Congestive heart failure.....	57,100	44.4
Arteriosclerosis	235,600	183.0
Hypertension	45,300	35.2
Stroke	102,300	79.5
Other diseases of the circulatory system.....	37,000	28.8
<u>Mental disorders and senility without psychosis</u>		
Psychosis, including senile.....	85,000	66.1
Chronic brain syndrome.....	91,600	71.2
Senility without psychosis	*	*
Mental retardation	59,500	46.2
Neurosis, alcoholism, drug addiction, and other mental disorders.....	*	*
Other diagnoses.....	486,200	377.7
Diabetes	77,200	60.0
Fractures.....	40,900	31.8
Diseases of the nervous system.....	60,700	47.1
Arthritis or rheumatism	57,100	44.3
Cancer.....	*	*
Other or unknown	226,100	175.6

Table 4. Provisional number of discharges from nursing homes and percent discharged alive by selected primary diagnoses at admission: United States, 1976

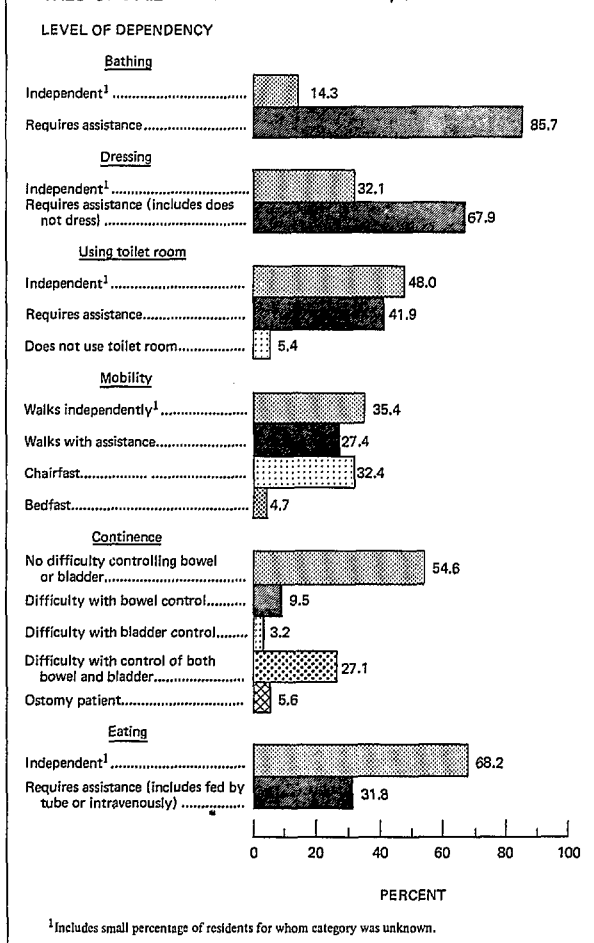
Selected primary diagnosis at admission	Discharges from nursing homes	
	Number	Percent discharged alive
All discharges	973,100	74.2
Diseases of the circulatory system.....	428,300	72.4
Congestive heart failure.....	53,500	*
Arteriosclerosis	191,400	73.0
Stroke	115,600	71.1
Mental disorders and senility without psychosis	118,300	73.5
Chronic brain syndrome.....	51,600	56.9
Other diagnoses.....	426,500	76.3
Diabetes	49,800	80.5
Fractures.....	71,500	84.6
Cancer.....	75,800	60.7

cent having a mental disorder or senility without psychosis, and 38 percent having some other problem. Within each of these groups, only the larger categories of diagnoses are shown. For example, the most frequent (18 percent of the residents) primary diagnosis was arteriosclerosis, which is the "Diseases of the circulatory system" group.

Table 4 shows the primary admitting diagnosis by outcome for the sample of discharges. Preliminary analysis suggests that discharges admitted with diagnoses requiring short-term or recuperative care were more likely to be discharged alive than those admitted with diagnoses which can usually only be controlled or monitored. For example, discharges admitted with fractures were more likely to be discharged alive (85 percent) than those admitted for chronic brain syndrome (57 percent) or cancer (61 percent).

Figure 1 shows the ability of residents to perform selected activities for daily living. A large majority (86 percent) required assistance in bathing, usually on the part of another person rather than by the use of special equipment.

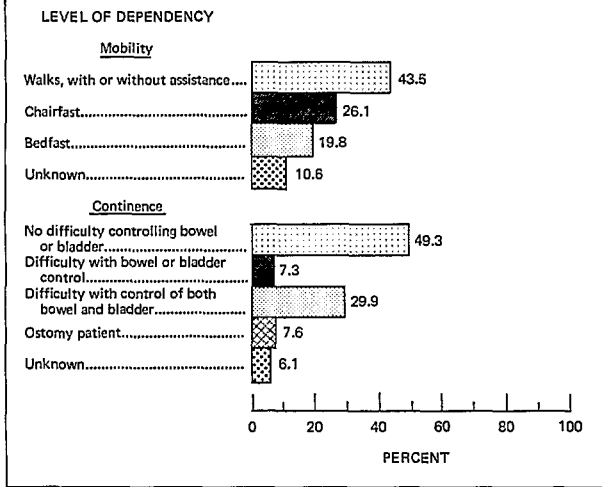
Figure 1. PERCENT DISTRIBUTION OF NURSING HOME RESIDENTS BY LEVEL OF DEPENDENCY IN PERFORMING SELECTED ACTIVITIES OF DAILY LIVING: UNITED STATES, 1977



Fewer, but still a majority (68 percent), required some assistance in dressing or did not dress. Less than half, on the other hand, required assistance with either using the toilet (42 percent) or eating (32 percent).

Information on activities for daily living for discharges is limited to those activities, mobility and continence, which are described in the medical record. Figure 2 shows the proportion of discharges who had problems with mobility or continence. A far greater proportion of discharges than residents (figure 1) were bedfast: Twenty percent of the discharges were bedfast, compared to only 5 percent of the residents. The proportions of residents and discharges having any difficulty with continence, however, were the same (45 percent). These and other

Figure 2. PERCENT DISTRIBUTION OF DISCHARGES FROM NURSING HOMES BY LEVEL OF DEPENDENCY IN PERFORMING SELECTED ACTIVITIES OF DAILY LIVING: UNITED STATES, 1976



comparisons in health status from the full national sample will be explored in future reports in Series 13 of *Vital and Health Statistics*.

UTILIZATION OF NURSING HOMES

This section presents a brief profile of the process of nursing home utilization in terms of the primary reason for admission and living arrangements prior to admission; length of stay and charges for care; and the place to which a live discharge was transferred.

Poor physical health was cited for 76 percent of nursing home residents as the primary reason for being in the facility. In contrast, lack of social or economic resources, disruptive behavior, or other reasons were cited as reasons for 12 percent of the residents, mental illness was cited for 7 percent, and mental retardation for only 5 percent of the residents.

The poor physical health of the majority of residents was reflected in their living arrangements prior to admission. About half (54 percent) of the residents were admitted from a health facility. This group was composed mainly of those admitted from a general or short-stay hospital (32 percent) and those transferred from another nursing home (13 percent). Forty-one percent, however, had moved from a private or

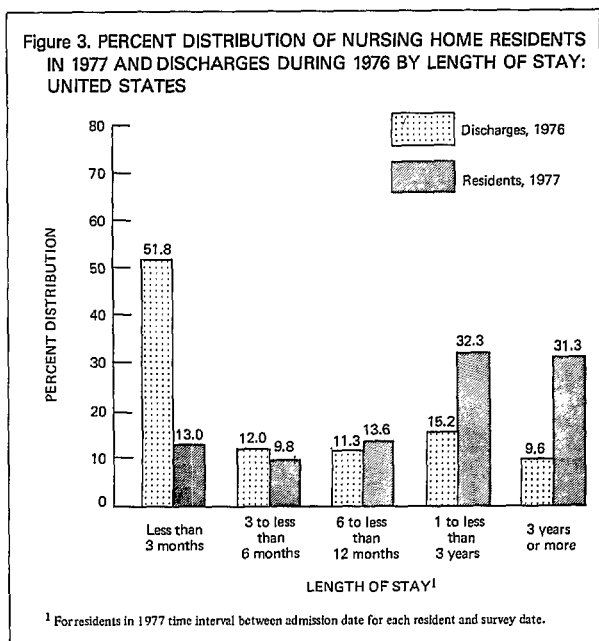
Table 5. Provisional number and percent distribution of nursing home residents by living arrangements prior to admission and primary reason for care: United States, 1977

Living arrangement prior to admission and primary reason for care	Nursing home residents	
	Number	Percent distribution
Living arrangement prior to admission		
All residents	1,287,400	100.0
Private or semiprivate residence	529,100	41.1
With others.....	325,000	25.2
Alone	154,100	12.0
Unknown if with others	49,900	3.9
Another health facility ¹	694,800	54.0
Another nursing home	164,600	12.8
General or short-stay hospital	405,700	31.5
Mental hospital	80,000	6.2
Other health facility or unknown type.....	44,500	3.5
Unknown or other arrangement.....	63,500	4.9
Primary reason for care		
All residents	1,287,400	100.0
Poor physical health.....	983,100	76.4
Mental illness	91,000	7.1
Mental retardation	64,400	5.0
Social, economic, behavioral, or other reason.....	148,800	11.6

¹347,300 of these residents, admitted from another health facility, had gone to that facility from a private or semiprivate residence.

semiprivate residence, where they had usually lived with others. (table 5).

Table 1 shows that the median length of stay for residents—the time interval between the last admission date and the survey date—was 582 days, or 1.6 years. Figure 3 shows that nearly a third of the residents (32 percent) had been in the facility for 1 to 3 years with another third (31 percent) being in the facility for 3 years or more. The survey methodology for residents has the capacity only to measure the time the resident has been in the facility, not the length of time that would ultimately be spent in the facility. Such information on the entire *duration of stay* in the facility is one of the unique features of the discharge data. Since the median length of stay for residents was 1.6 years, the entire dura-



tion of stay for discharges might be expected to be considerably longer. However, this was not the case. Rather than a longer stay, the discharge sample had significantly shorter median duration—84 days or 12 weeks. Fifty-two percent of the discharges had been in the facility for less than 3 months in contrast to only 13 percent of the residents (figure 3).

The disparity between the residents' and the discharges' length of time in the facility suggests that there are two separate groups of persons who use nursing homes: those admitted for relatively long periods of time because there is little chance of their chronic problems improv-

ing, and those admitted for relatively short periods of time because recuperative care is needed. The resident and discharge samples included both types of users. The resident sample, however, was more likely to include the long-term users, since the resident sample included only residents in the nursing home *on the night before the survey*. The discharge sample, in contrast, included a larger proportion of the short-term users, since it included all discharges *during calendar year 1976*.

An important example of the short-term user of nursing home care is the Medicare recipient. Medicare provides skilled nursing care for a maximum of 100 days following hospitalization, but the length of stay for recipients was far under the limit. In 1976, the median time spent in the facility by discharges using Medicare for their primary payment source was 24 days (table 6); 12 percent of the discharges relied primarily on Medicare for payment of care.

Discharges receiving skilled nursing care under Medicaid (17 percent) and those receiving intermediate care under Medicaid (19 percent) tended to have longer stays than those using other sources of payment. The median stays for discharges who had received skilled or intermediate care paid for by Medicaid were 176 and 220 days, respectively, compared to median stays of 24-85 days for the remaining payment sources (table 6). Nevertheless, the median stay for both Medicaid discharge groups for 1976 were still significantly shorter than the median stay for residents in 1977 (582 days).

The effect of the difference in the health status between the discharged and the resident

Table 6. Provisional number and percent distribution of discharges from nursing homes, median duration of stay, and average total monthly charge by primary source of payment: United States, 1976

Primary source of payment	Number of discharges from nursing homes	Percent distribution of discharges	Median duration of stay in days	Average total monthly charge
All primary sources of payment	973,100	100.0	84	\$316
Own income or family support.....	402,100	41.3	59	848
Medicare.....	119,800	12.3	24	1,292
Medicaid:				
Skilled care	166,000	17.1	176	845
Intermediate care.....	185,700	19.1	220	598
All other sources.....	99,500	10.2	85	461

populations can also be seen in the comparison of the average monthly charge. Overall, the average charge for residents in 1977 (\$669) and for discharges in 1976 (\$816) were each significantly higher than monthly charges for residents reported in previous surveys of nursing homes; the average charge for residents was \$186 in 1964, \$328 in 1969, and \$479 in 1973-74. The average charge for discharges in 1976 (\$816), however, was significantly higher than the average charge for residents in 1977 (\$669). This difference in charges is related to the differences in care received by the resident and discharge populations. The poor health of many in the discharged population is reflected in the findings that 25 percent of *all* discharges died in the nursing home and 45 percent of all *live* discharges were transferred to a general or short-stay hospital, presumably to receive more intensive care (table 7). Residents, in contrast, tended to require less intensive care. For example, only 5 percent of the residents were bed-fast compared to 20 percent of the discharged population.

Resident's average total monthly charge

1977	\$669
1973-74	\$479
1969	\$328
1964	\$186

Information on the places to which live discharges were transferred shows that they were more likely to receive continued care after discharge than to return to a private or semiprivate residence. The proportion of live discharges sent to another health facility (62 percent) was

Table 7. Provisional number and percent distribution of live discharges from nursing homes by living arrangements after discharge: United States, 1976

Living arrangement after discharge	Discharges from nursing homes	
	Number	Percent distribution
All arrangements for live discharges.....	722,400	100.0
Private or semiprivate residence	240,800	33.3
Another health facility	1448,100	62.0
Another nursing home	96,200	13.3
General or short-stay hospital.....	322,700	44.7
Mental hospital.....	*	*
Other health facility or unknown type.....	*	*
Unknown or other arrangement.....	*	*

¹19.0 percent were known to have died here.

higher than that sent to a private or semiprivate residence (33 percent). Thus the high proportion of live discharges was not necessarily due to improved health status; some persons were discharged to another facility because of deterioration of health and the need for more intensive care. This is further reflected in the proportion of discharges to another health facility who were known to have subsequently died in that facility. Of the 448,100 persons discharged to another health facility, 19 percent died there.

Further analysis of the nursing home utilization process, from the initial admission into the facility through eventual outcome, will be presented in subsequent reports.

TECHNICAL NOTES

Since 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. Provisional estimates of standard errors for percentages of residents and discharges are provided in table I; the provisional standard errors for average monthly charges are provided in table II.

The relative standard error of an estimate is the standard error of the estimate divided by the estimate itself and is expressed as a percentage of the estimate. In this report, an asterisk is shown for any estimate with more than a 25-percent relative standard error.

In this report, terms such as "similar" and "the same" mean that any observed difference between two estimates being compared is *not*

Table I. Provisional standard errors of percentages of residents and discharges

Number of residents, discharges (base of percent)	Estimated percent					
	1 or 99	5 or 95	10 or 90	20 or 80	40 or 60	50
	Standard error in percentage points					
50,000	2.03	4.44	6.12	8.16	9.99	10.19
100,000	1.43	3.14	4.33	5.77	7.06	7.21
200,000	1.01	2.22	3.06	4.08	4.99	5.10
400,000	0.72	1.57	2.16	2.88	3.53	3.60
800,000	0.51	1.11	1.53	2.04	2.50	2.55
1,000,000	0.45	0.99	1.37	1.82	2.23	2.28
1,200,000	0.41	0.91	1.25	1.66	2.04	2.08

statistically significant. Terms such as "greater," "less," "larger," and "smaller," indicate that any observed difference is statistically significant. The normal deviate test with a 0.5 level of significance was used to test all comparisons. Since all observed differences were not tested, lack of comment in the text does not mean that the difference was not statistically significant.

Table II. Provisional standard errors of average monthly charges

Number of residents, discharges (base of ratio)	Average monthly charge						
	\$400	\$500	\$600	\$700	\$800	\$900	\$1,000
	Standard error in dollars						
90,000	84	100	116	131	147	162	178
100,000	80	95	110	124	139	154	168
200,000	56	67	77	88	98	109	119
400,000	40	47	55	62	69	76	84
600,000	32	38	44	50	56	62	68
800,000	28	33	38	43	49	54	59
1,000,000	25	30	34	39	43	48	52
1,200,000	23	27	31	35	39	43	48

SYMBOLS	
Data not available.....	---
Category not applicable.....	...
Quantity zero.....	-
Quantity more than 0 but less than 0.05.....	0.0
Figure does not meet standards of reliability or precision.....	*

Recent Issues of Advance Data From Vital and Health Statistics

- No. 28. Office Visits for Hypertension: National Ambulatory Medical Care Survey, United States, January 1975-December 1976 (Issued: April 28, 1978)
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