



U.S. Department of Health and Human Services  
Assistant Secretary for Planning and Evaluation  
Office of Disability, Aging and Long-Term Care Policy

# **AN ANALYSIS OF THE IMPACT OF SPEND-DOWN ON MEDICAID EXPENDITURES**

January 1992

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This report was prepared under contract #HHS-100-88-0041 between HHS's Office of the Family, Community and Long-Term Care Policy (now DALTCP) and MEDSTAT Group. For additional information about this subject, you can visit the DALTCP home page at [http://aspe.hhs.gov/\\_/office\\_specific/daltcp.cfm](http://aspe.hhs.gov/_/office_specific/daltcp.cfm) or contact the office at HHS/ASPE/DALTCP, Room 424E, H.H. Humphrey Building, 200 Independence Avenue, S.W., Washington, D.C. 20201. The e-mail address is: [webmaster.DALTCP@hhs.gov](mailto:webmaster.DALTCP@hhs.gov). The Project Officer was John Drabek.

# **AN ANALYSIS OF THE IMPACT OF SPEND-DOWN ON MEDICAID EXPENDITURES**

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January 1992

Prepared for  
Office of the Assistant Secretary for Planning and Evaluation  
U.S. Department of Health and Human Services  
Contract #HHS-100-88-0041

The opinions and views expressed in this report are those of the authors. They do not necessarily reflect the views of the Department of Health and Human Services, the contractor or any other funding organization.

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# PREFACE

This paper addresses the impact of spend-down on Medicaid expenditures in the State of Connecticut. The study uses data that traces the payment sources used by individual nursing home residents back to the time of their first admission to a nursing home, and by so doing, provides a clear picture of the portion of the state's nursing home expenditures that are paid in behalf of persons that entered homes as private-paying patients.

The authors would like to thank Mary Kapp and Chris Pattee in the Connecticut Department of Health Services for providing the data, and for invaluable discussions regarding the use and limitations of the data. They also want to thank Kevin Mahoney for his keen insights regarding the analysis and interpretation of the results. The authors also would like to acknowledge and thank John Drabeck for his ongoing help at key stages of this project.

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This report was developed in conjunction with a study of long-term care financing reform conducted by the Office of the Assistant Secretary for Planning and Evaluation. Other reports also developed during the course of the study include:

- access to nursing home care
- consumer protection and regulation of long term care insurance
- the combined burden of acute and long term care expenses

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## EXECUTIVE SUMMARY

The study provides estimates of the impact of spend-down on Medicaid expenditures in Connecticut. It was found that nearly 40 percent of nursing home residents who receive Medicaid originally entered as private-paying patients and ended up on Medicaid after spending down their assets. Also, nearly 40 percent of residents who had entered as private-payers had spent-down by the day of the survey.

In addition to these asset spend-downers, 50 percent of individuals who were Medicaid upon entry to the nursing home became eligible for Medicaid either on the day of their admission to the nursing home, or within one year prior to that date. Many of these individuals were not categorically eligible for Medicaid, but became eligible either because of large medical expenses while in the community, or because their income wasn't enough to pay the nursing home per diem when they entered a nursing home. Taking these individuals into account increases the count of the number of persons who spend down considerably.

Contributions to the payment to nursing homes by Medicaid recipients averaged \$343 per month in 1985. These contributions varied and were lowest--\$293 per month--for individuals who had not spent down; they were highest--\$421 per month--for individuals who had spent down their assets after a period of private payment in the nursing home.

Among nursing home residents, the proportion of Medicaid recipients who had spent-down from private pay status at admission varied with the amount of time the individual had spent in facilities. Among individuals who had only spent 3-4 months in a facility, only 11 percent had spent down. For those who had spent seven or more years, 64 percent had spent down.

The spend-down rates observed in this analysis of a Connecticut resident cohort differed from what was found in analyses of the Connecticut admission cohort. Nursing home residents are two times more likely to have spent down from private pay status than are nursing home admissions. This results from the fact that nursing home residents have significantly longer lengths of stay than do nursing home admissions.



# 1. INTRODUCTION

## a. Background/Overview/Purpose of Paper

This paper addresses the impact of Spend-Down on Medicaid expenditures. It follows previous studies which we (Gruenberg, et.al., 1989; Farbstein et.al., 1990) and others (Bice and Pattee, 1990; Liu and Manton, 1991) have carried out using the State of Connecticut's Nursing Home Patient Registry.

Unlike these earlier studies and others carried out at the national level as well as the State level (Sekcenski, 1987; Liu, Doty and Manton, 1990; Spence and Weiner, 1990, Arling, et. al., 1991) which analyze spend-down from the perspective of an individual admitted to or discharged from nursing homes, we focus here on understanding the effect of spend-down on Medicaid expenditures.

We are interested in determining the portion of the Medicaid burden that results from paying nursing homes in behalf of people who were not poor (and on Medicaid) originally, but who became poor as a result of their health problems and resulting catastrophic health expenditures they had to make while in a nursing home. For this reason, the study focuses on the payment patterns of the persons that Medicaid must pay for, namely, the nursing home resident. Analyses from this perspective have been carried out at the national level using National Medical Expenditure Survey (NMES) data (Short, et. al., 1990), and for the State of Michigan using Tape-to-Tape data (Burwell, et. al., 1989) and for the State of Massachusetts using data from a one-day survey (Goss and Meiners, 1989; Farbstein and Gruenberg, 1989). The Connecticut data includes a complete recording of nursing home utilization from the time an individual is first admitted to a nursing home, and hence are more powerful than the data used in these other studies.

## b. Research Questions

Specific questions addressed in this report include:

- (1) How many residents of Connecticut nursing homes pay privately? How many are supported by Medicaid?
- (2) Among those supported by Medicaid, what proportion spent down?
- (3) How much do individuals on Medicaid contribute towards their nursing home per diem? How do these contributions differ for persons who spent down and for those who entered on Medicaid? How much of these contributions come from Social Security and private pensions and how much come from contributions from families and other sources?

- (4) What part of total Medicaid expenditures are for persons who spend down.
- (5) For residents who have spent down, what portion of their days are paid for by private funds, and what proportion are paid for by Medicaid funds? How much do individuals spend for nursing homes prior to the time they become eligible for Medicaid
- (6) What client characteristics influence spend-down rates? How is the proportion of persons who spent down related to length of stay?
- (7) For persons who are eligible for Medicaid upon entry into nursing homes, when did they become eligible? How many first became eligible on the day of their first admission? How many became eligible recently before their admission? How many had been eligible for Medicaid for a long time?

### **c. Methodology**

To examine the impact of spend-down on Medicaid expenditures, we study individuals who were found to reside in Connecticut nursing homes on September 30, 1985. We analyze their sources of payment and amounts they payed. This provides a point-in-time picture of Medicaid expenditures in relation to spend-down.<sup>1</sup> Since the number of persons living in nursing homes on that day is large (over 25,000) and our estimates are proportions of the total, this cross-sectional perspective should be a reasonably good estimate of the experience in Connecticut during the period 1985-86.

Most of these analyses are descriptive. In addition, in order to examine the effects of various client characteristics, we have attempted to control for length of stay, using a multivariate analysis of the proportion of persons spending down by their features and by this factor.

### **d. Data Sources and File Construction**

Our data were obtained from the State of Connecticut. Two research files were used. One, referred to as, "ALLREC", contains all patient records from the Connecticut Nursing Home Patient Registry. These data were collected by the State of Connecticut Department of Health Services (DOHS) as a part of their annual surveys of nursing home admissions, discharges and residents (Pattee, 1988). There is a record for each admission and discharge to Connecticut nursing homes during the period September 30, 1977-September 30, 1987 as well as a record for each person who was found to be residing in a nursing home at the time of an annual survey which was conducted on

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<sup>1</sup> A more rigorous approach would be to follow the methods used by Burwell (Burwell, et.al., 1989) and examine all users of a nursing home over a year period. This would have required complex file construction which was outside of the scope of this project.

September 30 of each year. From this file, we selected a subset of records (which we will call index records) which consisted of the complete set of ALLREC records for all persons who were nursing home residents on September 30, 1985. We found 25,857 cases. These records were then used to: construct a summary file in the manner discussed below, based on all admissions and discharges of each patient that occurred prior to 9/30/85; and, to select records containing relevant information from the second research file, "APPINC".

The APPINC file was created from Connecticut Department of Income Maintenance (DIM) administrative records, and it contains the date that an individual first became eligible for Medicaid coverage in a nursing home. In addition, it contains a unique patient identifier which allows for linkage of these data with data from the Connecticut Nursing Home Patient Registry (Pattee, 1989; Judge, 1990). The DIM data contain information about all DIM clients for whom Medicaid made some payment to nursing homes during the period 1964-1989. These data provide detailed historical information regarding the amounts that individuals on Medicaid contributed towards their nursing home expenses (i.e., their applied income) and the sources of their income. The changes of income over time, are thus recorded. A single record containing this payment information at the latest date which preceeded September 30, 1985 and the date upon which the person first became eligible for Medicaid was then selected to correspond to each index record for every person who has received Medicaid support. There were 15,674 of these records.

It should be noted that the DIM data were not constructed for research purposes -- i.e., they were collected as a part of the administrative activities of DIM -- and there have not been any systematic attempts to validate these data. In the next section, we report on a comparison of some of these data with those collected by DOHS; we found some important errors, but believe that the DIM data are accurate enough to provide reasonable estimates of the quantities examined in this study. There is clearly a need for more work in validating these data.

A summary file of each resident's nursing home history was constructed. It included: total number of days resided; number of days as a private payer; number of admissions; recent admission date; diagnosis at the time of first admission; ADL and mental status on September 30, 1985; age; gender; race; referral source at the time of first admission; and an identifying code for the facility in which the patient resided that date.

The summary file and applied income information were merged based upon the identifying field which is unique to each resident. These, in turn, were combined with facility Medicaid per-diem rates, obtained from Department of Health Services (DOHS) which correspond with each nursing home's identifier noted in the ALLREC file.

**e. Reliability of the linkage of the Connecticut nursing home patient registry data to create the longitudinal file and of the match with DIM data**

In the course of building the summary file some inconsistencies between records were identified. In 291 cases, admission and discharge dates in an individuals' set of records were chronologically incompatible. For instance, the admission date in one reporting year preceeded the discharge date found in a previous reporting year in 260 cases. Another twelve records selected from the DIM files had blank fields for their first eligibility date. For 477 patients for whom applied income data were available, the rates of their respective facilities were listed as 0. In a small number of cases, more than one error type was found, and so a total of 770 individual observations were excluded from the analysis, leaving a study cohort of 25,087 persons.

We also conducted a preliminary analysis regarding the agreement between DIM data (which were used in this study) and Connecticut longitudinal nursing home patient registry data collected by DOHS regarding whether or not a person was eligible for Medicaid on September 30, 1985. These data were based upon reports on each patient to DOHS as a part of the one day patient survey. We found that out of the 25,087 persons included in the study, there was agreement in 92.1% (23,096) of the cases. The errors were as follows: Of the 15,021 persons found in the registry to be paid for by Medicaid on the date of the survey, 761 were not identified in the DIM data as being eligible by DIM. In contrast, of the 10,066 persons found to be paid for by a source other than Medicaid by DOHS, 1,230 were found to be eligible for Medicaid according to the DIM data. There thus appears to be at least a fair degree of agreement between data from the two sources.

For the analyses of applied income (i.e., the individual contribution made towards the nursing home per diem by those receiving Medicaid) and the level Medicaid expenditures, some cases had to be excluded in addition to those with errors previously documented because they were missing either or both facility rate information (missing for 1702 persons on Medicaid, or 10.9% of the all such persons) or applied income information (missing for 502 persons or 3.2% of persons on Medicaid). The Medicaid payment analysis used data for individuals having both of these data items available, and was restricted to 13,333 persons, which represents 85% of all persons on Medicaid.

## 2. THE IMPACT OF SPEND-DOWN ON MEDICAID EXPENDITURES

### a. Overview

In this section, we directly address the major subject of this study. We first determine, for persons found to be eligible for Medicaid on 9/30/85, the proportion who were private-payers when they first entered a nursing home. We then determine the payments made to nursing homes in behalf of these individuals as well as for individuals who were already eligible for Medicaid when they first entered facilities. The impact of spend-down on Medicaid expenditures is determined simply by the ratio of the Medicaid payments made in behalf of spend-down persons and the total Medicaid expenditures for the entire population.

The payments made by Medicaid are determined indirectly, using data available in the DIM file. We subtract an individual's applied income (that is, the individual's own contribution to the nursing home per diem) from the nursing home per diem rate to determine Medicaid's contribution.

### b. Defining the Payment Groups

We begin by describing the patterns of Medicaid eligibility found for the 1985 resident cohort, that is, persons residing in nursing homes in Connecticut on September 30, 1985. First, individuals were identified as "Private Pay", "Medicaid at Entry" or "Asset Spend-Down" using data from the DIM file in conjunction with data from the DOHS nursing home patient registry. This was done as follows: using the DIM data, we determined the first date that the person was found to be eligible for Medicaid. If there was no DIM record, or if the first date occurred after 9/30/85, the person was classified as "Private Pay." If there was a record and the person's first Medicaid eligibility date was found to occur before or exactly on the date of their first nursing home admission, then the person was classified as "Medicaid at Entry". If there was a record and the the first eligibility date occurred in the interval between the individuals first nursing home admission and 9/30/85, then the individual was classified as "Asset Spend-Down."

It should be noted that individuals may have become eligible for Medicaid at a time after their admission to the nursing home as a result of one of the following two scenarios:

- Their income was not sufficient to pay the full nursing home per diem, and they needed to rely upon their assets as well. When these assets were used up, they became eligible for Medicaid.

- Their income was sufficient to pay the full nursing home per diem, but at some point in time, their income dropped. They then became eligible for Medicaid.

Of these two possibilities, the first one seems more likely. For this reason, we refer to such individuals as "Asset Spend-Down."

In comparing these data with similar data from other studies, it should be noted that our method uses eligibility for Medicaid rather than whether Medicaid actually pays for nursing home care. Some individuals may be eligible for Medicaid, but may have their nursing home stay reimbursed by some other source (i.e., Medicare). For this reason, care must be taken in comparing these results with other studies.

### c. Basic Spend-Down Statistics

Table I shows the distribution of persons among the payment groups defined above.

<b>TABLE I: Nursing Home Resident Payment Based Upon Payment Status at First Admission and on Date of the Survey</b>		
<b>Payment Group</b>	<b>Number</b>	<b>Percentage</b>
Medicaid At Entry	9400	37.47
Asset Spend-Down	6090	24.28
Private Pay	9597	38.25
Total	25087	100.00

These data indicate that more than 3/5 of those in nursing homes were being paid for by Medicaid on the day of the survey. The percentage of persons who were Medicaid at Entry (37.5%) was nearly equal to that of those who were Private Pay (38.3%). Nearly 1/4 of persons in the resident cohort were Asset Spend-Down.

Two indices are useful in interpreting spend-down patterns (Spence and Weiner, 1990; Gruenberg et.al., 1990). The first, Spend-Down Index 1, is defined as the percentage of individuals who enter the nursing home as private pay and were found to be receiving Medicaid on the survey date. This reflects the probability that a person will spend-down. The second, Spend-Down Index 2, is the percentage of persons receiving Medicaid on the survey date who were Private Pay at the time of their first admission. This second index does not reflect a probability of spending down; rather it represents the portion of the Medicaid burden that is due to persons who spend down. These indices are easily derived from Table I.

Table II and Table III show the Spend-Down Indices for the 1985 Connecticut Resident Cohort.

<b>TABLE II: Payment Status of Nursing Home Residents Who Were Private Payers on the Date of Their First Admission (Spend-Down Index 1)</b>		
<b>Payment Status on Survey Date</b>	<b>Number</b>	<b>Percentage</b>
Private Pay	9597	61.18
Asset Spend-Down	6090	38.82
Total	15687	100.00

<b>TABLE III: Payment Status of Nursing Home Residents Receiving Medicaid on the Date of Survey (Spend-Down Index 2)</b>		
<b>Payment Group</b>	<b>Number</b>	<b>Percentage</b>
Medicaid At Entry	9400	37.47
Asset Spend-Down	6090	24.28
Private Pay	9597	38.25
Total	25087	100.00

These data show that Spend-Down Indices 1 and 2 are both close to 40%. Index 1 is greater than what we estimated for the admission cohort (Gruenberg, et.al., 1989; Index 1 = 21%). The reason for this difference is the considerably longer lengths of stay among the resident cohort than among the admission cohort. Index 2 is quite similar to what we found for the admission cohort (Index 2 = 41%).

#### **d. Determining the Contribution from Medicaid**

##### **(1) Description of Method**

Medicaid pays only a portion of an individual's payment to a nursing home. We used the data obtained from DIM to determine the monthly contributions to the nursing home bill which were made by individuals (denoted by "applied income"), and we also incorporated the 1985 Medicaid per diem rates. Medicaid's payment to nursing homes for each resident was determined using the following formula:

$$\text{MEDICAID PAYMENT} = 30 \times \text{PER DIEM RATE} - \text{APPLIED INCOME}$$

The average Per Diem Rate and Applied Income were determined for Medicaid at Entry and Asset Spend-Down Groups, and the mean Medicaid Payment for each subgroup was determined by the above formula. (Note: In determining these averages, we separately used all persons for whom nursing home rate information was available to determine the average per diem rate and all persons for whom applied income information was available to determine the average of applied income.)

## (2) *The Applied Income*

Table V shows the average Applied Income in relationship to the payment groups defined in the previous section.

Individuals who spend-down their assets contributed 44% more (\$421 compared to \$293) than those who were True Medicaid. As we might have anticipated, the spend-down group have higher incomes than those who entered nursing homes already on Medicaid, and this is reflected in their applied income.

Payment Group	Summary of Applied Income		Freq.
	Mean	Std. Dev.	
Medicaid At Entry	\$292.73	210.44	9168
Asset Spend-Down	\$420.96	217.28	5820
Total	\$342.52	\$222.09	14988

## (3) *Nursing Home Per Diem Rates*

The average per diem rate paid by Medicaid in 1985 (Table V) was \$56.05. It is interesting to note that there is a small but significant difference (.01 level) between the average Medicaid per diem in homes where Asset Spend-Down persons and where Medicaid-at-entry persons reside. These latter homes have slightly lower-than-average per diem costs.

Payment Group	Mean	Std. Dev.	Freq.
Medicaid At Entry	\$55.50	16.29	8198
Asset Spend-Down	\$56.87	14.66	5590
Total	\$56.05	\$15.57	13788

## (4) *Medicaid Expenditures*

Table VI shows how Medicaid expenditures vary by payment group. These data are, in fact, the major finding of this study. They were computed using the formula in (1) above and the data for applied income and per diem rates as shown in (2) and (3) above. Included in this table are both the per capita expenditures and the proportion of total expenditures.

The data show that nursing home Medicaid expenditures made in behalf of the asset spend-down population account for 37.8% of the total amount of nursing home Medicaid expenditures. The percentage is only slightly smaller than the percentage of the total Medicaid population that are asset spend-downers (39.3%). The difference comes primarily from the fact that persons who spend down have higher applied incomes than do individuals who are Medicaid at entry (see Table VI). Although the differences in applied income between the two groups were found to be substantial,



they only result in a small difference in Medicaid's expenditures for the two groups, because applied income only accounts for a small proportion (about 1/4) of the total nursing home per diem payment.

<b>TABLE VI: Per-Capita Medicaid Expenditures During Month of Survey Made in Behalf of Nursing Home Residents Receiving Medicaid</b>			
<b>Payment Group</b>	<b>Per Capita Expenditures</b>	<b>Percentage of Medicaid Expenditures</b>	<b>Percent of Total Persons</b>
True Medicaid	\$1372.27	62.2%	60.7%
Asset Spend-Down	\$1285.14	37.8%	39.3%
Total	\$1338.62	1.0	1.0

These data show that the overall impact of Spend-Down on Medicaid expenditures is quite dramatic. Nearly 38% of Medicaid's expenditures are made in behalf of persons identified as Asset Spend-Down.

### 3. SPEND-DOWN DYNAMICS

In examining the phenomenon of asset spend-down, it would be interesting to examine whether persons with differing characteristics spend down at different rates. This would be an indication of differing levels of wealth of various subpopulation groups. Before addressing this question, however, it is important to examine the dynamics of spend-down in more depth. A key parameter is the amount of time individuals spend in a facility and the proportion of time that individuals paid privately for their care.

To begin this discussion, we examine lengths of stay of the 1985 Resident cohort, and show how these are related to spend-down probabilities. The Connecticut Nursing Home Patient Registry allows one to examine the length of stay accumulated over all episodes in nursing homes in addition to the length of stay in a particular episode.

In determining the total length of stay over all episodes, only actual times of residency in the nursing home were included. Similarly, in computing the amount of time an individual remained on a private-pay basis, we included only times actually spent in a facility. This could differ significantly from the calendar time, as measured from the first date of admission, because many persons had multiple admissions and spent considerable time outside of nursing homes.

Table VII and Table VIII show the mean length of stay by payment group for the entire nursing home experience and for the most recent admission. It should be noted that the length of stay is for incomplete episodes; it represents the days in a facility up to the date of the resident survey.

<b>Payment Group</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Freq.</b>
Medicaid At Entry	1823	1487	9400
Spend-Down	1699	1269	6090
Private Pay	889	969	9597
Total	1436	1329	25087

<b>Payment Group</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Freq.</b>
Medicaid At Entry	1039	1189	9400
Spend-Down	1029	1051	6090
Private Pay	597	751	9597
Total	868	1029	25087

These data show that the average length of stay of nursing home residents is extraordinarily long. The average total length of stay is 3.9 years, while the average

recent length of stay is 2.4 years. The distribution of lengths of stay is fairly broad, with the standard deviation roughly equal to the mean.<sup>2</sup>

There is a clear distinction between Private Pay and Medicaid at Entry lengths of stay. For both recent and total stays, Medicaid patients experience nearly twice the duration in nursing homes of private pay patients. Also, the private pay distribution has a larger standard deviation relative to the mean than do the spend-down or Medicaid groups. We conjecture that this is in part due to the inclusion of larger numbers of short-stayers among the private-pay group and in part to the greater likelihood of the longer-staying private pay patients to spend down.

The lengths of stay of Medicaid at Entry and Spend-Down groups are quite similar. The total length of stay of the Medicaid at Entry group is slightly longer (7% longer) than that of the Spend-Down group. These results are different than those observed for the admission cohort (Gruenberg, et. al., 1989; Bice, 1989), where it was found that persons who spend-down have substantially longer lengths of stay than individuals who were Medicaid at entry.

The patterns observed in the resident cohort result from complex interactions between the dynamics of spend down and the historical patterns in rate of admission and rate of spend-down. An understanding of the differences observed between the patterns in the admission and resident cohort must await an in-depth analysis of these historical patterns, as well as a comprehensive theoretical approach for interpreting these data.

Table IX shows the total length of stay distribution by payment groups. For the entire cohort, only 7% have stays less than 90 days. 20% have stays of 2521 days or greater.

The distribution for Medicaid at entry residents is particularly striking. Nearly 1/3 of them had stays of 2521 days or longer. The Private Pay group exhibits quite long lengths of stay, but its durations are considerably shorter than either those of the True Medicaid or Spend-Down groups. Only 8% of this group had stays longer than 2521 days.

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<sup>2</sup> These data probably understate the actual length of stay of the 1985 resident cohort. The Connecticut nursing home reporting system began on September 30, 1977, and data about the first date of admission for persons admitted before that date reflect only the admission to the nursing home where the person resided on that date. Earlier admissions to other nursing homes were not recorded. Thus the data presented here represent a lower bound to the length of stay.

<b>TABLE IX: Length of Stay Distribution by Payment Group</b>				
<b>Length of Stay (Days)</b>	<b>Medicaid At Entry</b>	<b>Spend-Down</b>	<b>Private Pay</b>	<b>Total</b>
0-30	182 1.94	4 0.07	488 5.08	674 2.69
31-60	154 1.64	14 0.23	417 4.35	585 2.33
61-90	153 1.63	19 0.31	377 3.93	549 2.19
91-120	150 1.60	41 0.67	329 43.43	520 2.07
121-150	134 1.43	53 0.87	303 3.16	490 1.95
151-180	163 1.73	33 0.54	338 3.52	534 2.13
181-360	780 8.30	378 6.21	1402 14.61	2560 10.20
361-720	1251 13.31	856 14.06	1967 20.50	4074 16.24
721-1080	942 10.02	913 14.99	1177 12.26	3032 12.09
1081-1440	718 7.64	741 12.17	797 8.30	2256 8.99
1441-1800	686 7.30	706 11.59	579 6.03	1971 7.86
1801-2160	575 6.12	562 9.23	396 4.13	1533 6.11
2161-2520	465 4.95	465 7.64	279 2.91	1209 4.82
2521 & over	3047 32.41	1305 21.43	748 7.79	5100 20.33
Total	9400 100.00	6090 100.00	9597 100.00	25087 100.00

In Table X, Spend-Down Indices 1 and 2 are shown in relation to total length of stay. As could be expected, Index 1 (which indicates the proportion of persons who enter as private paying patients, and who later, spend down) increases steadily with length of stay. The rate at which this occurs is quite low. For example, from the period 361-720 days until 1801-2160 days, an interval of four years, the index increases by nearly a factor of 2, from .30 to .59.

<b>TABLE X: Spend-Down Indexes by Length of Stay</b>		
<b>Length of Stay</b>	<b>Spend-Down Index 1</b>	<b>Spend-Down Index 2</b>
0-30	0.008	0.022
31-60	0.032	0.083
61-90	0.048	0.110
91-120	0.111	0.215
121-150	0.149	0.283
151-180	0.089	0.168
181-360	0.212	0.326
361-720	0.303	0.406
721-1080	0.437	0.492
1081-1440	0.482	0.508
1441-1800	0.549	0.508
1801-2160	0.587	0.494
2161-2520	0.625	0.500
2521+	0.636	0.300

These data are at least qualitatively consistent with our earlier analysis of the spend-down rate of admission cohort, in which we also found very low rates of spend-down. A quantitative comparison is not possible here because of the complex behavior of the spend-down probability distribution in a resident cohort.

Viewing the relationship between length of stay and Spend-down Index 2 (the proportions of persons who were Spend-Down among the population which includes themselves and those who were Medicaid at Entry) it is interesting to note that the Index reaches a plateau of .5 in the 721-1080 day interval and remains at close to .5 through 2520 days. The longest stay group (2521 days or longer) has a much smaller Medicaid Index 2 (.30). This may be due to the relatively large proportion of mental hospital patients admitted to nursing homes with Medicaid coverage who have very long lengths of stay.

In addition to examining the Spend-Down Indices 1 and 2, a more complete understanding of the effects of spend-down can be attained by studying the number and proportion of days that are covered by private payments and by Medicaid for persons who spend down. In Table XI, a breakdown by length of stay of private payment days, Medicaid days, and the proportion of total days paid for by Medicaid is shown.

The proportion of private days decreases as length of stay increases and then it appears to plateau around 1440 days and remain near .30 for greater lengths of stay. In contrast, it can be seen that the number of private pay days increases with length of stay. These data suggest that the rate of spend-down, which is quite low, is, in fact, lower than the rate of discharge. Thus, the number of days individuals pay privately for long-term care is effected more strongly by their length of stay than by their rate of spend down.

<b>TABLE XI: Distribution of Length of Stay as Private Payers and on Medicaid and Proportion of Private Pay Days by Total Length of Stay</b>			
<b>Length of Stay (Days)</b>	<b>Private-Pay Days</b>	<b>Medicaid Days</b>	<b>Proportion of Days Private Pay</b>
0-30	8.8	3.5	0.704
31-60	19.1	22.9	0.438
61-90	32.2	39.0	0.456
91-120	44.1	62.5	0.414
121-150	55.0	80.8	0.404
151-180	59.2	106.4	0.355
181-360	106.5	168.0	0.389
361-720	209.4	334.8	0.385
721-1080	333.9	563.3	0.372
1081-1440	418.5	841.6	0.332
1441-1800	501.5	1114.4	0.312
1801-2160	646.7	1325.6	0.328
2161-2520	761.7	1573.2	0.326
2521-2880	1109.4	2471.4	0.319

The data on the amount of time spent as private-payers can also be used to get a picture of how much persons who spend down pay, in total, out of pocket, prior to their becoming eligible for Medicaid. Of course, we can only estimate this amount, since we don't have data indicating the actual amount persons paid privately prior to their Medicaid eligibility date.

<b>TABLE XII: Distribution of Private Pay Days for Persons Who Spent Down</b>				
<b>Number of Days</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>	<b>Dollars Spent*</b>
0-30	629	10.33	10.33	\$1,080
31-60	468	7.68	18.01	3,240
61-90	364	5.98	23.99	5,400
91-120	299	4.91	28.90	7,560
121-180	512	8.41	37.31	10,800
181-360	1043	17.13	54.43	19,440
361-720	1151	18.90	73.33	38,880
721-1080	671	11.02	84.35	64,800
1081-1440	356	5.85	90.20	90,720
1441-1800	242	3.97	94.17	116,640
1801-2160	142	2.33	96.50	142,560
2161-2520	88	1.44	97.95	168,480
2521-2880	50	0.82	98.77	194,400
2880+	75	1.23	100.00	261,360
Total	6090	100.00	100.00	\$39,744
			<b>Days</b>	<b>Dollars</b>
Mean number of days & dollars spent			552.0	\$39,744
Median number of days & dollars spent			306.0	\$22,032
Standard Deviation			672.4	\$48,413
* Assumes private pay rates of \$72				

In Table XII, we show the distribution of private pay days for persons who spent down. We also estimate their total private payments, in constant 1985 dollars,

assuming that their average per diem private pay rate was \$72 per day -- 30% greater than the average \$55 per day Medicaid rate found during that year.

The average person who spent down remained more than 1 1/2 years (552 days) as a private payer, at an estimated out-of-pocket cost of nearly \$40,000. The median person spent more than 10 months as a private payer. The distribution of private pay days is quite broad; nearly 1/4 of persons who spent down did so within 90 days, while more than 1/4 spent down after at least two years of paying privately.

## 4. PATIENT CHARACTERISTICS IN RELATION TO SPEND-DOWN

### a. Overview

In order to explore the possibility that the spend-down phenomenon is related to particular patient characteristics, we examine the relationships between the two spend-down indices and these descriptors. These are depicted in Table XIII. Data regarding demographic characteristics, diagnosis at time of first admission, history of psychiatric illness, and mental and physical functioning at the time of the resident survey are included. Relationships between spend-down indices and patient characteristics were all found to be statistically significant at the .05 level or less.

<b>TABLE XIII: Spend-Down Indices According to Patient Characteristics</b>		
	<b>Spend-Down Index 1 Spend-Downers/Private- Pay Admissions</b>	<b>Spend-Down Index 2 Spend-Downers/ Medicaid Recipients</b>
TOTAL POPULATION	38.3%	39.3%
<b>GENDER</b>		
Male	32.6%	31.6%
Female	39.5%	42.1%
<b>AGE GROUP</b>		
Less than 65 years	29.5%	15.8%
65 to 74 years	36.7%	24.3%
75 to 84 years	35.1%	40.8%
Over 84 years	41.1%	51.1%
<b>RACE</b>		
White	38.0%	41.2%
Non-White	30.3%	9.4%
<b>DIAGNOSIS</b>		
Neoplasms	32.3%	36.8%
Diabetes	44.4%	36.1%
Mental (Non-Psych.)	40.8%	41.3%
Mental (Psych.)	34.0%	16.2%
Mental Retardation	35.5%	41.7%
Nervous System	41.3%	43.5%
Circulatory	38.4%	43.2%
Stroke	38.5%	36.8%
Respiratory	40.0%	51.5%
Connective Tissue	37.3%	47.4%
Injury	37.6%	39.8%
Other	39.8%	38.1%
<b>PSYCHIATRIC HIST.</b>		
Present	35.2%	23.3%
Absent	38.3%	43.0%



TABLE XIII (continued)		
	Spend-Down Index 1 Spend-Downers/Private- Pay Admissions	Spend-Down Index 2 Spend-Downers/ Medicaid Recipients
# ADL LIMITATIONS		
0	33.9%	27.9%
1	35.1%	34.6%
2	38.6%	36.2%
3	34.5%	41.6%
4	40.0%	43.9%
5	40.7%	46.0%
CONFUSION		
Present	40.8%	42.9%
Absent	38.6%	34.3%

## b. Spend-Down Indices and Demographics

Table XIII shows that Spend-Down Index 1 and 2 are both greater for women than for men and that they both increase with age (which is shown as the patient's age at the time of first admission to a nursing home). The most significant increase is observed for Spend-Down Index 2 by age. For ages less than 65 years old, this index is 15%, indicating that 85% of these individuals who received Medicaid on September 30, 1985 had always received Medicaid since the time of their first entry into a nursing home. In contrast, for individuals 85 years of age and older, half (51%) of the Medicaid recipients had spent down after their admission to a nursing home.

Although only a small percentage of the cohort is non-white, there is a sharp contrast seen in the spend-down rates by race. Whites demonstrate a moderately larger rate (25% higher) of spending down from private pay, as reflected by Spend-Down Index 1 than do non-Whites. Non-White persons who spend down represent a strikingly smaller proportion of the non-White Medicaid population than do White spend-downers among White Medicaid recipients. This is clear from the value of Spend-Down Index 2 which, in non-Whites, is less than 1/4 of that of Whites (9% as compared with 41%).

## c. Spend-Down Indices and Diagnoses at Admission

In categorizing individuals according to their medical diagnoses, we followed the classification scheme introduced by the Connecticut DOHS (Pattee, 1988). Mental disorders were identified in two subgroups: the first included non-psychotic conditions such as senile dementia and chronic brain syndrome. The second included psychotic conditions, such as schizophrenic or manic-depressive psychoses. Individuals were recorded as having a psychiatric history if they had a psychotic diagnoses on one or more of their admissions, or if they were either admitted from, or discharged to, a mental hospital.

The differences among diagnostic categories in Spend-Down Indices are small but statistically significant at the .05 level or less. Conditions showing low rates for Index 1 included neoplasms, psychotic conditions, and mental retardation. Psychotic conditions also displayed very low rates of Index 2 (less than 1/2 of the average). Respiratory diseases and diseases of connective tissue (i.e., arthritis) showed high rates of Index 2.

There appeared to be a strong positive correlation between Spend-Down Index 2 and psychiatric history. Nearly 4/5 of Medicaid patients with a psychiatric history had entered a nursing home already on Medicaid, as compared with less than 3/5 of persons who had no psychiatric history.

#### **d. Spend-down indices and functional level on September 30, 1985**

Unlike the medical diagnoses, information is available about the patients functional status at the time of the one-day survey rather than at time of admission. ADL limitations included in the survey were transferring, dressing, feeding, ambulation, and bowel and bladder continence.

There appeared to be a direct but weak relationship between disability level as measured by the number of ADL limitations and Spend-Down Indices 1 and 2. Individuals who had more limitations had higher spend-down rates than those with fewer limitations. The relationship was much stronger between ADL limitations and Spend-Down Index 2.

An individual's mental functioning was measured with a single dummy variable indicating the presence of confusion. Individuals classified as "confused" were found to have a higher Spend-Down Index 2 than those not so classified.

#### **e. Effect of Controlling for length of stay**

We further examine the above variations in spend-down proportions, focusing on Spend-Down Index 1. Recall that this index is a measure of the propensity of private pay persons to spend down, and it therefore could be used as a surrogate for the extent of wealth of persons with certain characteristics. However, we have shown (Table XII) that length of stay affects Spend-Down Index 1 quite strongly. Individuals who have long lengths of stay have a much larger Index 1, because they have more time in which to spend down their assets.

In order to understand whether the differences in Spend-Down Index 1 that are observed between persons with varying characteristics imply different levels of wealth, it is necessary to control for length of stay. To examine this issue, we carried out a logit analysis to predict the probability that an individual in the resident cohort who entered as Private Pay will spend down some time prior to September 30, 1985. Index 1 is the

dependent variable and we include the following variables as independent variables: los (length of stay), age as measured from 65 years (age-65), sex (male = 1, female=2), race (white=1, non-white=2), adl (the number of ADL limitations), and psychpt (psychiatric history=1, no such history=2).

If particular characteristics are found in the logit analysis to be significantly associated with the probability of spending down, even with length of stay included as an independent variable, this would indicate that these characteristics are independently related to the probability of spend-down, and thus, to the amount of private payments made by individuals having these characteristics, prior to the time they spend down.

The results of the logit analysis are shown in Table XIV.

<b>TABLE XIV: Logit Analysis of the Probability of Spend-Down</b>					
Logit Estimates			Number of obs = 9262		
Log Likelihood = -5466.417			chi2(6) = 1097.55		
			Prob > chi2 = 0.0000		
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t</b>	<b>Prob &gt;  t </b>	<b>Mean</b>
privduml					.3532714
los	.0006971	.000024	29.054	0.000	1095.163
age	.0076989	.0023135	3.328	0.001	81.97474
sex	.0971541	.0558644	1.739	0.082	1.757288
race	-.2456267	.2087763	-1.177	0.239	1.014792
adl	.0214722	.0126758	1.694	0.090	2.161736
psychpt	.4000606	.0782291	5.114	0.000	1.868711
_cons	-2.75204	.3267625	-8.422	0.000	1

The analysis shows that length of stay is the strongest predictor of the probability of spending down. Race is found not to be a significant variable. All other dependent variables are significant at the .1 level or higher.

The single most significant patient characteristic is psychiatric history. The analysis shows that individuals with a psychiatric history who enter as private pay are more likely to spend down than others when length of stay is controlled. This means that these individuals, as a group, spent more prior to the time they spent down than did the average resident. In contrast, older age, being female, and having a severe disability (as measured by the adl score) are all associated with higher rates of spend-down, and hence, lower amounts of out-of-pocket spending for nursing home care prior to spend-down.

## 5. SOURCES OF APPLIED INCOME

The amount and proportion of total income that are derived from Social Security payments, pensions, family members, and all other sources in relation to payment group are contained in the data obtained from the Connecticut Department of Income Maintenance. Although these data are peripheral to the major questions addressed in this report, they are of some interest and so we present some basic information obtained from these data files. The breakdown of applied income by source of income are shown in Table XV.

It should be noted that the total income of individuals is greater than the amount contributed by these individuals to their nursing home care (see Table 5), because nursing home residents keep a portion of their income as a personal needs allowance, and to pay for health insurance.

<b>TABLE XV: Sources of Contributed Payments: Per-Capita Amounts and Proportion of Contributions by Source of Income and Payment Group</b>					
<b>Payment Group</b>	<b>Sources</b>				<b>Total Income</b>
	<b>Social Security</b>	<b>Pensions</b>	<b>Relatives</b>	<b>Other</b>	
<b>MEDICAID AT ENTRY</b>					
Income Received	\$310.08	\$36.66	\$0.57	\$8.10	\$355.41
Income Portion	87.3%	10.3%	.2%	2.2%	100.0%
<b>ASSET SPEND-DOWN</b>					
Income Received	\$417.96	\$81.91	\$2.28	\$17.00	\$519.15
Income Portion	80.5%	15.8%	.4%	3.3%	100.0%
<b>TOTAL</b>					
Income Received	\$351.97	\$54.23	\$1.24	\$11.56	\$419.00
Income Portion	84.0%	12.9%	.3%	2.8%	100.0%

It is evident in Table XV that the preponderance of income of nursing home residents receiving Medicaid comes from Social Security payments to individuals. 84% of their total income is attributed to this source. The remainder comes from pensions, which provides 13%, and relatives and other sources, which together, account for only 3%.

It can also be seen that asset spend-down residents (whose applied income was shown earlier to be more than that of those who were Medicaid at entry) had greater income from all four sources than had those who were Medicaid at entry, as may have been anticipated.

## 6. WHEN DO PERSONS BECOME ELIGIBLE FOR MEDICAID?

It is interesting to examine the time of Medicaid eligibility of persons who are Medicaid at entry. These data are shown in Table XVI below.

<b>TABLE XVI: Distribution of Days of Medicaid Eligibility Prior to First Nursing Home Admission</b>		
<b>Days Eligible Before Admission</b>	<b>Number</b>	<b>Percentage</b>
0	925	9.84
1-30	716	7.62
31-365	3109	33.07
Over 365	4650	49.47
Total	9400	100.00

These data indicate that the Medicaid at entry population is quite diverse. About half of these individuals were eligible for Medicaid for at least one year prior to their first admission. The others became eligible within the last year. Among them, about 10% first became eligible on the date of their first admission to a nursing home.

Although we cannot know for certain what these data represent, it is plausible to associate the long-time Medicaid recipients (those who were eligible for 1 year or more) as, primarily, the categorically eligible population; individuals who became eligible more recently may represent persons who had high medical expenses including expenses for community long-term care services; those who became eligible on the day of their nursing home entry are likely to represent the near-poor population who are eligible for Medicaid on the basis of their assets, but whose income prevents them from becoming eligible for Medicaid until they enter the nursing home.

If these conjectures are correct, and the year cutoff was accurate for distinguishing community spend-downers from categorically eligible individuals, then as many as 50% of the Medicaid at entry population would not be categorically-eligible Medicaid recipients. If we add these persons to the nearly 40% of the total Medicaid resident population we found to be asset spend-downers, we would find that the great majority (70%, in fact) of all Medicaid recipients of nursing homes were not categorically-eligible Medicaid recipients before they became ill. Thus, the impact of spend-down on Medicaid may be considerably greater than what can be attributed to asset spend-down alone.

It should be pointed out, however, that these latter data only provide an upper bound for the number of persons who qualify for Medicaid because of spend-down. Individuals who become eligible for Medicaid at a time approaching their nursing home entry may, in fact, be categorically eligible for Medicaid; it is known that many individuals who are eligible do not apply because they feel they don't need the

additional coverage (Coe, 1985). Also, some of these individuals may have been able to figure out how to transfer their assets in order to become Medicaid eligible, knowing that they were going to enter a nursing home soon.

## 7. COMPARISON OF RESULTS WITH OTHER STUDIES

Table XVII shows a comparison of our findings with those of other studies. We included only two studies that examine resident cohort data and a third one -- the Michigan study -- that examined an all-user cohort because the statistics that are shown are shown in our comparison are comparable for an all-user and a resident cohort.

It should be emphasized that only in our Connecticut study are individuals traced back to the time of their first admission to a nursing home. The U.S. and Massachusetts study looked back to the time when an individual was first admitted to the nursing home that they were found as a resident. The Michigan study included earlier admissions, but only those that occurred within a time frame of no more than 5 years. Because of these differences, we expect that the other 3 studies underestimate the extent of spend-down, i.e., they include individuals as Medicaid at entry if they had spent down in other nursing homes, or, in the case of Michigan, prior to the time of the beginning of data collection.

<b>TABLE XVII: Comparison of Spend-Down Statistics, Connecticut, U.S. Massachusetts and Michigan</b>				
Variable	Location			
	Connecticut	US-NMES	Massachusetts	Michigan*
<b>A. % RECEIVING</b>				
Receiving	62%	62%	70%	n.a.
<b>B. SPENDDOWN STATISTICS</b>				
Spenddown Index I	39%	26%	47%	n.a.
Spenddown Index II	39%	18%	26%	25%
<b>C. TIME UNTIL SPENDDOWN</b>				
< 12 months	54%	62%	n.a.	73%
12-24 months	19%	15%	n.a.	15%
24-36 months	11%	6%	n.a.	5%
> 36 months	16%	17%	n.a.	6%
<b>D. MEAN APPLIED INCOME</b>				
Medicaid at entry	\$292			\$316**
Spend downers	\$421			\$425
* All-user cohort				
** Includes persons who became eligible for Medicaid within 30 days of their admission to the home.				

The NMES analysis found exactly the same proportion of persons enrolled in Medicaid (62%) as were found in Connecticut. From this perspective, Connecticut may look quite close to the nation as a whole. However, the percentage of private persons who spent down is only much smaller in the national sample (i.e., Spend-down index 1) than in Connecticut as is the percentage of the Medicaid population that had spent down (i.e., Spend-down index 2). It may be that all or part of these differences result from the use of only the most recent nursing home in the NMES study.

The frequency distribution of spend-down times appears quite similar in the Connecticut and NMES studies, although the rates are slightly higher for periods of 2 years or less in NMES as compared with Connecticut. In contrast, the rate at which residents had spent-down appears much faster in Michigan than in Connecticut.

Massachusetts and Michigan appear quite different from Connecticut. Massachusetts stands out by its very high (46%) value of Spend-down index I. It is likely that this index would be even higher if data were obtained at the point of first admission. Both Massachusetts and Michigan have much lower values of Spend-down Index II than in Connecticut, suggesting that Spend-down has less of an impact on Medicaid expenditures in these states. However, it isn't known whether this finding would stand up if individuals had been traced back to their first nursing home admission in these states.

The data on applied income -- i.e., the amount individuals receiving Medicaid contribute towards their nursing home per diem -- is remarkably similar in Connecticut and in Michigan. The difference in the amount contributed by Medicaid at entry and those who spent down is about 15% less in Michigan than in Connecticut, but this could result from the fact that in Michigan, the Medicaid at entry group included persons who spent down within 30 days after their entry into nursing homes, while in Connecticut, these individuals were classified as spend-downers.



## 8. IMPLICATIONS OF THE FINDINGS

The findings of this study have important implications which need to be considered when formulating new public policy options. First of all, there has been a great deal of concern recently about transfers of assets by nursing home patients to enable them to qualify for Medicaid. The data does not allow one to determine the extent of such transfers, but it does show that in 1985, there were substantial amounts of private payments to nursing homes. In addition to the payments made by the privately paying population, we find that the average person who spent down stayed 4.7 years in nursing homes, of which 1.5 years were spent paying privately at a total cost of \$40,000 (in 1985 dollars). Thus, if transfers of assets were taking place prior to 1985, they were not making a significant enough impact to prevent a considerable amount of personal savings being applied to nursing home care.

Spend-down affects Medicaid expenditures in a different way than it affects individuals admitted to nursing homes. A substantial effect on Medicaid arises from the relatively small number of admissions who stay in nursing homes for very long periods of time. In fact, we have seen (see Table X) that 3/4 of persons who spent down had lengths of stays that exceed two years. Thus, long stayers are dominant among nursing home residents who have spent down.

A close look at the data shows that the spend-down population is very diverse, including many individuals with considerable wealth -- and who spent more than the \$40,000 average nursing home cost experienced by this population -- and many individuals who had only small amounts of savings and who spent down very quickly. In designing new programs that involve public and/or private dollars, it is important to take into account the considerable amount of private payments made by persons who spend down as well as the diversity in the wealth among this population.

The least costly (in public dollars) program would encourage wealthier persons -- some of whom spend down after very long nursing home stays -- to pool their risks through insurance, thus enabling them to pay for their nursing home care without spending down; at the same time, a new program could provide public dollars to support individuals with only meager savings and low incomes who can ill afford private insurance and who are observed to spend-down after relatively short periods of time.

One part of the public debate has centered on whether there should be a "front-end benefit" covering the first few months of care or a "back-end benefit" covering nursing home stays after an extended waiting period. The broad distribution of spend-down times suggests that the least costly type of public benefit would be income-related. Persons who spend down after short times (i.e., those with low incomes) would be benefited most (as would the Medicaid program) if these persons could obtain a reasonably-priced (or publicly provided) front-end benefit, covering 3-6 months of nursing home and home care; this would enable them to preserve their meager savings if they returned in good health to the community. Also, it would prevent many of them --

the short-stayers -- from spending down at all. In contrast, wealthier individuals who are observed to spend-down only after long nursing home stays could be encouraged to pool their resources to purchase a reasonable amount (2-3 years) of private insurance; Federal dollars used to provide stop-loss protection beyond this period would provide individuals who can afford private insurance with an incentive to purchase that insurance. The amount of stop-loss protection offered by the Federal government could be related to individuals assets, as is done in the Connecticut Partnership program.

One initiative that should be considered that would include the desirable features mentioned above would be a combined Federal-private initiative incorporating publicly provided short-term coverage for the poor and near poor with the offer of stop-loss coverage for persons who can afford to buy private insurance; an initiative of this kind would make a big dent in State deficits caused by bloated Medicaid nursing home expenditures, while at the same time, protecting vulnerable lower income individuals, who could remain in the community, from spending their meager savings on short but expensive episodes of nursing home or home care.

This type of means-tested program would be less costly than most of the other proposals that are on the table, while at the same time incorporating the desirable features of front- and back-end proposals.

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