

University of Maryland Center on Aging

*Medicare/Medicaid
Integration Project*

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**Partial Support for Elderly
in the Community
At Risk of Spending Down**

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I. Introduction

A. Overview

In addressing the increasing burden on State governments associated with the accelerating growth of Medicaid expenditures, it is important to consider the role that Medicaid plays in providing support for large numbers of mostly elderly persons who become impoverished because of high medical expenses. The problems associated with this spend-down population have been addressed in some States through their insurance partnership programs, but these programs, while benefiting some individuals by enabling them to protect their assets, are likely to provide limited (if any) savings to State governments.

As States begin to examine the role that managed care can play in controlling long-term care costs for dually eligible persons, it is natural to ask whether it may be cost effective for States to assist some low-income non-Medicaid persons to enroll in those programs by partially subsidizing their premiums, with the expectation of averting higher expenses at a later stage. In recognition of this issue, the Health Care Financing Administration (HCFA), in a recent Request for Proposals (1997) directed towards States that seek to develop such programs, the spend-down population identified as a key target population to be considered, and already one state (Massachusetts) has submitted a waiver application to HCFA that includes a request to allow Medicaid funds to be used in just such a manner.

Although there is some information about the types of persons who are likely to spend-down, and about the circumstances that lead to spend down, there is little information that portrays spend-down patterns on a population basis. For example, it is not known how likely it is for persons with varying health conditions and incomes to spend-down. Moreover, it is not known whether there would be any real benefits to the State resulting from premium subsidies, and, if so, the types of persons for whom the benefits would be greatest in relation to the up-front outlays by the States.

In light of the recent emphasis on developing programs for the dually eligibles, we endeavored to summarize empirical information and suggest models that can assist planners to think rationally about how to identify specific groups of persons for a subsidy, implications of providing a subsidy to such groups, the size of the subsidy, and ways to optimize the effect of the subsidy. This paper outlines a conceptual model that would aid planners to more effectively plan managed care programs for elderly in the community who are at risk of spending-down.

B. Objectives of the paper

The overall goal of this paper is to explore the cost-effectiveness of premium subsidies for near poor persons who would join a senior care organization capitated under Medicare and Medicaid, and to identify appropriate target groups for this type of subsidy.

Specific objectives are:

- (1) To summarize earlier research that provides data that can inform policy development.
- (2) To present some new data from the Medicare Current Beneficiary Survey (MCBS) that can be useful in this regard.
- (3) To provide a conceptual model for examining the cost-effectiveness of this type of approach, and to discuss data that are needed to implement the model.

II. Review of literature

A. Overview

Much of the previous work on spend-down has focused on examination of spend down of persons entering nursing homes. Lately, more attention has been given to the problem of spend-down in the community and two recent studies provide valuable information that may be useful to State planners: the study by Korbin Liu et al which we will call the National Long-Term Care Survey study (Liu and Manton, 1989 [identified as NLTCs 1], and Liu, Doty, and Manton, 1990 [identified as NLTCs 2]), and the study by Tempkin-Greener et al. which we will call the Monroe County study.

These studies examine the pathways to spend down for two populations: those that enter a nursing home and then spend down and those that spend down while residing in the community. It is the latter type of spend down that is of interest to State programs for the dually eligible, because it is these individuals who may be able to remain as private payers for a longer period of time if they received some subsidization of their health insurance premiums. For this reason, we will focus on the data about community spend-down persons in this report.

In the NLTCs study, the 1982-84 NLTCs was used to follow a representative national sample of frail elderly who resided in the community in 1982 at the time of the survey and were not eligible for Medicaid at that time. The study then looked at the rate at which individuals spent down in relation to their income level, health status, and functional level. It also separately examined individuals who spent down and ended up spending time in nursing homes as well as those who remained in the community.¹

In the Monroe County study, the entire elderly population in Monroe County, New York, were studied during the period 1984-1989. In addition to examining several of the issues

¹ The study also looked at persons who spent down after entering nursing homes, but these data are not discussed here.

analyzed in the NLTCs study, the Monroe County study provides some additional details about the services used and spending for each of these services before and after spend down. The major findings of these studies that are of use in examining the issue of subsidizing premiums for the near poor are discussed below.

B. The NLTCs Study

The NLTCs followed a representative sample of elderly first identified in 1982 through a second survey point in 1984. Although some information is available for the full sample of elderly, a much more detailed set of information is available only for approximately 18% of persons who were found to be functionally impaired in 1982, where functional impairment was defined as the need for help in one or more instrumental activities of daily living (IADL) or activities of daily living (ADL).

In examining spend-down patterns, NLTCs 1 and 2 looked carefully at how the probability of spending down in the interval 1982 to 1984 was related to whether or not individuals were in a nursing home in 1984, or at least had some nursing home use in the interval. As may have been expected, they found (NLTCs 2) that individuals who spent some time in a nursing home had a much higher probability of spending down to Medicaid during the time interval in question (31%) than did the persons who remained in the community (6%). A more detailed analysis (NLTCs 1) showed that the observed higher rate was entirely found among the persons who were residents in nursing homes in 1984; those persons who had only short-term nursing home use in the interval did not have a higher rate of spend down than did individuals who remained in the community with no nursing home use.

As may have been anticipated, the rate of spend down decreases rapidly with increasing income. First, as could be expected, spend-down rates fell sharply with increasing income from nearly a quarter (23.1%) among those with family incomes less than \$4,000 per year² to 3.7% among persons with annual family incomes greater than \$5,000. Among persons with the lowest family income (< \$4,000), the spend-down rate was 61% for persons with some nursing home use, while it was only 11% for nursing home users whose annual family income exceeded \$10,000.³

It is important to note that although the rate of spend down is higher for persons who had entered nursing homes than for those persons who remained in the community, the absolute number of persons who spend down was greater among those persons remaining in the community than among those persons who entered nursing homes. This result supports the idea that it is useful to consider subsidizing premiums of high-risk and low-income elderly who reside in the community.

² It is possible that some of these persons would have been eligible for Medicaid at the outset, if they had applied.

³ These data were derived by combining the data for nursing home users and non-users shown in Table 5 of NLTCs 2.

The NLTCS analysis also provides us with a first look at how spend down rates vary with various characteristics. This is particularly useful information that can help identify appropriate target groups for premium subsidies. Further information provided in the NLTCS study showed the spend-down rate in relation to disability level, and the amount the persons spent out-of-pocket for home care and for drugs. The data presented also provided a further breakdown of spend-down probabilities in relation to these variables for persons who used nursing homes and for those who remained in the community over the entire interval of time.

It is quite striking to note that the rate of spend down increased only a small amount in relation to disability level, as measured by the number of ADL limitations. The overall rate was 8.9% for those with no limitations and 12.6% for those with 5-6 limitations. Moreover, a large part of this difference can be accounted for by the fact that larger numbers of severely disabled persons entered nursing homes, and for nursing home users, spend-down rates were much higher. In fact, among those who remained in the community for the entire period, there was no consistent pattern in the relationship between spend-down rates and ADL limitations, although those in the most severely limited group (5 to 6 ADL limitations) had somewhat higher rates (8.3%) than did the less limited groups, whose rates were between 5.6% and 6.4%. These data suggest that an individual's functional level as measured by the number of ADL limitations is not a particularly strong predictor of who will spend down.

The variations in spend-down rates in relation to out-of-pocket spending patterns for home care and for prescription medications are also discussed in the NLTCS study. First, regarding spending on home care, it is quite striking to note that individuals who reported no spending on home care had more than three times the spend-down rate (18%) compared to those with some spending. Although these results reflect the experience of the entire population, these comparisons show similar results for persons without any nursing home use during the interval. This supports the earlier finding that the community spend-down phenomenon is not primarily connected with long-term care costs.

In contrast, spend-down patterns in relation to spending on prescription drugs were found to be more complex. Individuals who reported no spending on prescription drugs had quite a high rate of spend down (13.5%), while for those who reported spending money on prescription drugs, the rate of spend down increased sharply with the amount of spending, varying from a low of 7% among those that spent less than 5% of their family income on drugs to 14.7% for those reporting spending more than 5% of their family income on drugs. This suggests that drug spending is an important component of the spend-down problem, at least for a portion of the population.

It would be interesting to examine these data in more detail. We do not know, for example, why the spend-down rates are so high for persons with no home care spending and no drug spending. Perhaps the individuals represented have very low incomes and cannot afford to pay for either needed drugs or home care. However, the data strongly

suggests that the spend-down population is complex, and spend-down patterns vary by individual. Some persons have very high drug costs, and, most probably, high out-of-pocket costs for Medicare co-payments and deductibles⁴, while, for other individuals, spending on home care services and, ultimately on nursing homes is the cause of spend down.

C. The Monroe County Study

The Monroe County study was based upon a complete set of information for all Medicare recipients ages 65 years and older in Monroe County, New York (Temkin-Greener et al., 1993). As such, the study provided data for a much larger population than did NLTCs. Moreover, these data were linked with Medicaid claims data, so that a complete picture of Medicaid spending is available as well, both for persons who were eligible for Medicaid and for those that spent down. Also available from the Medicare records is information about each person's out-of-pocket spending on Medicare-related services. Unlike the NLTCs study, however, no functional status information is available from the Monroe County study.

In the Monroe County study, it was found that the overall rate of spend down during the one-year study period was 1.5%. Approximately 2 out of every 5 persons (42.9%) who spent down were found to be in a nursing home at the end of the study year. The rate of spend-down increased with increasing age and so did the proportion of spend-down persons ending up in a nursing home.

These data indicate, as in the NLTCs study, that a majority of persons who start out in the community and spend down remain in the community after spend down, at least for some time. Moreover, the Monroe County data showed that persons who spend-down in the community represent a large proportion of the entire community Medicaid population. In 1989, this proportion was 40%. Overall, these persons accounted for nearly half of all Medicaid costs for the community Medicaid population in that year.

The significant proportion of people who spend down in the community and the significant level of expenditures for these persons as a proportion of total Medicaid community expenditures supports the notion that a policy aimed at subsidizing non-Medicare health costs for these persons while in the community can have an important impact.

The study looked in detail at the spending and utilization patterns of persons before and after spend down and contrasted those patterns with similar patterns of persons who did not spend down. As in the NLTCs study, individuals who spent down and ended up in nursing homes were contrasted with those who remained in the community.

⁴ The authors of this study did not report on Medicare out-of-pocket costs, but it is likely that persons with high drug expenses would also have high out-of-pocket medical costs, especially if they were lacking in Medigap insurance.

Several important observations from these data are critical to an understanding of the community spend-down problem and need to be considered when designing a subsidy program. It is useful to examine the patterns of spending of persons in the calendar year prior to the year they spent down, and then to compare these patterns to those experienced by persons who did not spend down.⁵

First, it was found that persons who spent down had considerably more health problems in the year prior to the event than other persons who did not spend down, as indicated by their utilization patterns. For example, the spend-down group who remained in the community averaged 5.26 hospital days per person in the year prior to spend down as compared with 1.93 days for persons who did not spend down. Persons who spent down and ended up in nursing homes had even more hospital use in the year prior, i.e. 9.06 days per person.

Second, it was found that the key elements of out-of-pocket spending prior to spend down were first, for co-payments and deductibles for inpatient care and, second, for Part B services. These averaged \$64/month in total in the year prior to spend down and \$313/month in the year of spend down for persons who remained in the community and was somewhat higher for persons who ended up in nursing homes. This was considerably more than the out-of-pocket costs for these services of persons who did not spend down, i.e., their monthly spending was \$35 and \$59 during the two years in question.

Some further insights can be gained by examining the Medicare and Medicaid spending patterns after spend down. These are especially interesting because Medicaid pays for a broad range of services, and unlike the year prior to spend-down where the only data available are in connection with Medicare-provided services, we can, during the post-spend-down period, get a complete picture of the health spending patterns.

It is important to note that among the different types of services paid for by Medicaid, payments for acute care (presumably the co-payments and deductibles under Medicare) dramatically dominated. In fact, they appeared very high (\$592/month for persons remaining in the community). These persons averaged .666 hospital admissions per year and nearly 20 hospital days per year per person. The home care costs paid for by Medicaid were the second largest Medicaid cost, but only averaged \$127/month, indicating most probably that many of these individuals did not receive Medicaid-paid home care. Rather strikingly, their Medicare-paid home care was also quite low, averaging only \$17/person per month.

These persons also had very high Medicare costs in the year when they spent down, averaging \$504/month. This figure was nearly 5 times higher than the average of all

⁵ It should be noted that the source of this information is Medicare and Medicaid claims data. Prior to spend down, the only information about medical spending, –either by Medicare or by individuals themselves - is in relation to Medicare-provided services.

persons who did not spend down.

Our conclusion from these data is that the community spend-down population and, in particular, those who remain in the community in general have serious acute health problems, and do not seem to generally have significant home care needs (at least, as far as can be inferred from the actual spend patterns under both Medicare and Medicaid.⁶

This interpretation of the data is also supported by the earlier discussion of the NLTCS study, where it was shown that the highest rate of spend down was found among persons who reported no out-of-pocket spending on home care.

These data suggest that States should consider subsidizing persons with serious medical conditions, and not focus a premium subsidy program solely on persons who are nursing home certifiable.

The Monroe County study also followed up the spend-down population through the period 1986-89, and the results are also very informative (Tempkin et al.). The data shows that this population is of very high risk, not only from the perspective of their very high medical costs but from two additional perspectives: the risk of mortality, and the risk of later nursing home placement. In fact, each of these risks is substantially higher than what is observed, not only for the average elderly person, but also for the nursing home certifiable (NHC) population:

- a. Their annual death rate after spending down was 18%. This is about as high as the death rate in nursing homes (18%) and is considerably higher than the death rate for the NHC population (12-13%).
- b. Their annual rate of entry into nursing homes averaged more than 20%. (This is considerably higher than the rate of entry into nursing homes of the NHC population, which is only 8-10% based upon data from Massachusetts and Monroe county, NY (Silva & Gruenberg, 1998).

These longitudinal data provide a more direct and in-depth description of the spend-down population than was possible when looking only at the data from 1984-85. What emerges is a picture of a group of people who are experiencing a rapid decline in health status leading to increasing disability and, ultimately, to death. What is not known from these data is whether these unfavorable outcomes are in part resulting from inadequate care due to lack of adequate health insurance coverage and, in part, from poor medical management, or whether they are due to biological processes for which little can be done to either change or at least delay the unfavorable outcomes.

⁶ Of course, one possibility is that many of these individuals need long-term care services but are not getting it. This seems unlikely to us, because New York State has a highly developed long-term care program under Medicaid. Thus, we tentatively conclude that this population does not have significant home care needs.

III. Medicare Current Beneficiary Survey Analysis

A. Overview

The Medicare Current Beneficiary Survey (MCBS) provides an ideal opportunity for examining spend-down issues, because a large national sample of elderly are followed over an extended period of time. The population was surveyed and detailed health and functional status information was obtained, and moreover, these data were linked with Medicare claims and Medicaid eligibility information. The data set allows for a detailed multivariate examination of the factors that lead to spend down.

Our aim is two-fold: (1) to gain a further insight into the profiles of persons who are likely to spend down, and (2), to develop a detailed model that can be used to identify high-risk persons that may be used in a practical sense to target premiums subsidies.

In the analysis described below, we used the initial MCBS sample of 7,934 persons who in 1991 were found to reside in the community and were not eligible for Medicaid at the time of the survey which took place in the last quarter of 1991. We examined the experience of these persons for a period of three years, that is, until the survey date in 1994. We included in the study all persons who did not drop out of the study, i.e., they continued to be surveyed through 1994. We also included persons who dropped out at any time due to death. In other words, we excluded all attrition's other than those due to death. The total number of persons we were able to follow was 6,005.

The analysis reports on the spend-down experience of these individuals.⁷ In developing a program of supplementing premiums for persons at risk, it is important to look both at the near- and long- term rates of spend down. For this reason, we examine persons who spend down in the 3-year period after the survey as well as at persons who spend down in the first year.

B. Basic spend-down statistics

Table 1 summarizes the spend-down experience of this cohort, including their use of nursing homes and their mortality rates. The first two columns display the characteristics of persons who were found to have spent down in 1- and 3-year time frames while the third and fourth columns display those characteristics for persons who were found not to have spent down in these time frames.

From the sample of 6,005 persons, a total of only 86 persons (or 1.4%) spent down during

⁷ We did not attempt to reweight the analysis, using sample weights, so that it would represent the full U.S. population. The sample drawn tended to overweight the old-old, but our primary interest is in the relative risk of spend down of various subgroups, which is less effected by this reweighting than are other quantities not studied here. Data includes only those who were alive at the time of the '92 survey, because we only had information about their nursing home residence and Medicaid eligibility.

the first year, and 222 (or 3.7%) spent down over the full three years. Among those that spent down during the first year, more than a quarter (22 out of 86) were found to be in a nursing home at the time of the 1992 survey. An additional 12 persons who had spent down in the first year used a nursing home some time prior to 1994.⁸

Table 1: Summary of Spend-Down Statistics for 1991 MCBS Sample				
	Persons spending down		Persons not spending down	
	One Year	Three Year	One Year	Three Year
Total number of persons in study	6005	6005	6005	6005
# of persons spending down	86	222	0	0
# of persons not spending down	0	0	5919	5783
Spend-down rate	1.4%	3.7%	0	0
# of persons in nursing home in 1992	22	34	85	77
% of persons entering NH in 1992	25.58%	15.32%	1.44%	1.33%
# of persons with time in a NH	34	88	275	221
% of persons with time in a NH	39.5%	39.6%	4.6%	3.8%
# of persons who died before 1994 survey	22	33	801	791
% of persons who died before 1994 survey	25.6%	14.9%	14.6%	14.8%
# of persons alive and in NH at 1994	20	69	208	159
% of persons living in NH at 94 survey	31.3%	36.5%	4.1%	3.2%

Fifteen percent of those who spent down in the 3-year period were in a nursing home in 1992 (somewhat less than among the 1-year spend-down group) but a similar proportion (40%) had some had some nursing home use in the 3-year period. In contrast, a much smaller proportion of persons who did not spend down were found residing in nursing homes at the time of the 1994 survey.

The 3-year mortality rates of persons spending down in the first year was found to be 26%. These data suggest that the average person who spends down will live for quite a long time (the estimated life expectancy of the overall group is estimated to be 12 years from the time of the survey). Thus, if spend down can be avoided for some of these individuals, the payoff to medicaid could be substantial.

⁸ Nursing home use is only recorded on the date of each annual survey, and so the rates reported do not include short-term nursing home use during the intervals between the survey

C. Factors influencing the risk of spending down

1. The effect of family income⁹

Table 2 shows the effects of family income (defined to be the income of the individual and their spouse) on the occurrence of spend down. It is not surprising that the rate of spend down is highest (7% in one year and 16% in three years) for the lowest income group (those reporting annual incomes of less than \$5,000.) In the absence of asset information, we may surmise that some of these individuals would have qualified for Medicaid at the time of the survey had they applied. The spend down rate can be seen to decrease with increasing income. It is interesting to note that the 1- and 3- year rates are somewhat higher than average for persons who refused to give any more details about their income except that they were less than \$25,000 per year as well as for those who did not want to specify their incomes.

Income Level	Total # of Persons	Percent of Population	# Who Spend Down		Spend-down Rate	
			1 yr.	3yr	1 yr.	3 yr.
<\$5,000	356	5.9%	25	57	7.0%	16.0%
\$5,000-10,000	1,295	21.6%	36	94	2.8%	7.3%
\$10,000-15,000	1,164	19.4%	13	26	1.1%	2.2%
\$15,000+	2,695	44.9%	0	16	0.0%	0.6%
<\$25,000	246	4.1%	5	13	2.0%	5.3%
Unspecified	249	4.1%	7	16	2.8%	6.5%
TOTAL	6,005	100.0%	86	222	1.4%	3.7%

In examining the risk factors for spend down, it is useful to look at two additional measures: the risk ratio and the spend-down distribution. These are shown in Tables 3 and 4. The risk ratio, or relative risk, is simply the ratio between the probability of spend down for a particular group and the average probability for all persons. As can be seen in Table 3, persons in the <\$5,000 income group have a risk ratio of 4.9, indicating that they are nearly five times more likely to spend down than the average person. In identifying a target population for supplementing premiums, it will be important to look for persons with high-risk ratios.

⁹ It should be noted that the data in this table reflects incomes as of 1991. Also, the survey sample was not reweighted and this the data do not represent the actual distribution of incomes in the overall elderly population.

Table 3: Relative Risk of Spend Down by Level of Income for the One- and Three Year Spend Down Population		
	Risk Ratio¹⁰	
Income Level	1 yr.	3 yr.
<\$5,000	4.90	4.33
\$5,000-10,000	1.94	1.96
\$10,000-15,000	0.78	0.60
\$15,000+	0.00	0.16
<\$25,000	1.42	1.43
Unspecified	1.96	1.74
Total Population	1.00	1.00

Table 4: Income Distribution of Persons Who Spend Down in One and Three Years		
	Spend-down Distribution	
Income Level	1 year	3 year
<\$5,000	29.1%	25.7%
\$5,000-10,000	41.9%	42.3%
\$10,000-15,000	15.1%	11.7%
\$15,000+	0.0%	7.2%
<\$25,000	5.8%	5.9%
Unspecified	8.1%	7.2%
Total	100.0%	100.0%

The spend-down distribution describes the relative contribution of different subgroups to the overall spend-down population. This is an important quantity to consider when examining possible types of individuals for whom a premium subsidy would be appropriate. It is also important to consider whether there are a sufficient number of these persons that they make a meaningful contribution to the overall spend-down problem. Hence, in selecting a group for subsidization, it is important to take into account both the risk ration and the spend-down distribution.

It can be seen from the data in Table 4 that the \$5,000 - \$10,000 income group accounts for more than 40% of persons who spend down, in both the 1- and 3- year groups. This is

¹⁰ Defined as the likelihood of spending down for the group in question and the likelihood of spending down for the entire survey population

the largest percent of persons in any income group. These persons have a spend-down risk (as measured by the risk ratio) that is less than half of the risk of the <\$5,000 group, but they are larger in number, and hence should be considered for inclusion in a premium subsidy program.

2. Review of the concept of medical vulnerability

To provide a background to what follows, we briefly review our earlier report on medically vulnerable persons who have high expected Medicare costs. In this report we provided some information on attributes of groups of persons that are likely to incur high medical costs in the community (Gruenberg & Silva, 1998). Using the 1993 and 1994 Medicare Current Beneficiary Survey, we showed it possible to identify and describe a subgroup of persons in the community whose expected Medicare costs (in the next year) are predictable, and can be quantified. We looked especially at individuals in the upper 5 percentiles of Medicare costs. Although many of the individuals have some level of impairments in functioning, the majority are not NHC. This result suggests a rethinking about how services are targeted and is somewhat counter to the thinking of most Medicaid programs that target long-term care services to the most frail.

Although high medical costs are an important dimension of risk of spending down in the community, they are not the only contributor. Frailty is an important contributor as well. These two dimensions are not the same but are interconnected to a certain extent. The analysis presented below shows the interrelationship between these two dimensions, and how they relate to the probability of spending down.

3. The effect of medical vulnerability and functional level

We begin our analysis by examining the extent to which it is possible to identify persons who are likely to spend down by examining their health status and functional level. As a first step, we look at spend-down rates in relation to:

- (1) the severity of impairment as measured by whether a person is NHC, and if not, by the extent of ADL and IADL limitations, and
- (2) the expected level of (future) health expenditures, as measured by a “medical vulnerability” index that measures the magnitude of a person’s predicted Medicare costs.

Regarding functional impairments, we identify the following 3 groups:

- Severly impaired: persons who are NHC¹¹.
- Moderately impaired: persons who need human assistance in either one or more ADL or in three or more IADL's¹²
- All other persons.

The index of predicted Medicare costs was introduced by the authors in earlier paper on medical vulnerability (Gruenberg and Silva, 1998). We identified persons, based upon their health conditions, who were predicted to be in the upper quartile of next year's health expenditures. Within this group, we also identified the upper 5% of persons with the highest predicted health expenditures. All other persons were grouped together.

Table 5 shows the population distribution according to the level of functional impairment and medical vulnerability score. It can be seen that there is a relationship between medical vulnerability and functional status; for example, most of the persons who are severely impaired (i.e., NHC) are in the upper 25% of persons with regard to their medical vulnerability score. However, many persons who are not severely impaired are found to be in the uppermost groups with respect to their medical vulnerability scores. For example, nearly two-thirds of the persons in the highest medical vulnerability group are only moderately impaired.¹³

¹¹ NHC status was through the use of a probability model based on pooled data from 4 S/HMO sites. These data were collected using health survey and linked with clinical decisions regarding NHC. The primary concern in developing the model was the comparability of variables between the HSF and the MCBS. The model included the following variables: age, ADL score, help with meals, money management, use of phone, mobility, and hospitalizations in the past year. (Gruenberg, Silva & Leutz, 1993).

¹² ADL items include bathing, dressing, transferring, toileting and feeding. IADL items include grocery shopping, meal preparation, money management, using the telephone, and light housework.

¹³ It will be noted that the upper 25% of persons do not add up to a total of 25%. This is because the quartiles were defined using the entire elderly population, whereas the individuals in the analysis only include persons who were not eligible for Medicaid at the time of the survey in 1991.

Table 5: Distribution of Population by Degree of Medical Vulnerability and Level of Disability	
Population Group	Population distribution
Expected costs – upper 5%	
Severely impaired – NHC	1.7%
Moderately impaired	3.0%
Expected costs – upper 25%	
Severely impaired – NHC	1.5%
Moderately impaired	5.8%
Well or mildly impaired	13.0%
Expected costs – lower 75%	
Severely impaired – NHC	0.6%
Moderately/mildly impaired or well	74.3%
Total Population	100.0%

Table 6 shows how various combinations of medical vulnerability score and disability level affect the probability of spending down. This is expressed in terms of the relative risk ratio for spending down which is defined as the probability that a person of a particular type will spend down divided by the average probability that a person in the sample will spend down. These risk ratios are shown for two groups of persons: those that spend down in one year and those that spend down in three years.

Table 6: Relative Spend-down Risk Ratio by Degree of Medical Vulnerability and Level of Disability		
Population Group	Risk Ratio	
	1-year	3-year
Expected costs – upper 5%		
Severely impaired – NHC	6.02	3.14
Moderately impaired	3.87	2.57
Expected costs – upper 25%		
Severely impaired – NHC	2.63	2.38
Moderately impaired	1.90	2.67
Well or mildly impaired	1.67	1.34
Expected costs – lower 75%		
Severely impaired – NHC	1.50	1.83
Moderately/mildly impaired or well	0.56	0.69
Total Population	1.00	1.00

Table 7 shows the distribution of persons who spend down and, in particular, the proportion of persons who spend down who have various combinations of high, medium, and low medical vulnerability and severe, moderate, or low levels of disability.

Table 7: Distribution of Persons Who Spend Down in One and Three Years By Degree of Medical Vulnerability and Level of Disability		
Population Group	Distribution of Persons Who Spend Down	
	in 1 Year	in 3 Years
Expected costs – upper 5%		
Severely impaired – NHC	10.5%	5.5%
Moderately impaired	11.8%	7.8%
Expected costs – upper 25%		
Severely impaired – NHC	4.0%	3.6%
Moderately impaired	11.1%	15.6%
Well or mildly impaired	21.8%	17.5%
Expected costs – lower 75%		
Severely impaired – NHC	0.8%	1.0%
Moderately/mildly impaired or well	40.1%	49.0%
Total	100.0%	100.0%

It Table 6, it can be seen that the risk of spending down, as measured by the risk ratio is strongly influenced by both the degree of medical vulnerability and level of functional impairment, with the former (the degree of medical vulnerability) having a greater influence than the latter (the level of disability). For Example, the 1-year risk ratio is highest for persons in the upper 5% of health care costs, and those persons among them who are moderately impaired have a higher risk of spending down (risk ratio = 3.87) than do persons who are NHC but who are in the next rung of medical vulnerability (in the upper 25% but not in the upper 5%) whose 1-year risk ratio is 2.63.

It is also interesting to note that the 1-year risk ratios are much more strongly related to medical vulnerability and functional status than are the 3-year risk ratios. For example, the 1-year risk ratio for severely impaired persons in the upper 5% medical vulnerability group is 6.02, indicating that they are six times more likely than average to spend down. The 3-year risk ratio for the same group is only 3.14. This points to the difficulty of predicting in advance which persons will spend down. The problem is two-fold: first, some of the sicker persons will die before the end of the 3-year period, while others among them will recover; and second, some of the persons who look well at the beginning of the three years become impaired and/or medically vulnerable in the interim.

Altogether, persons identified in the above table as “high-expected costs” (i.e., those in the upper 25% of expected Medicare costs, or who are in the low expected cost group but

who are NHC) comprise a little more than a quarter of the population (25.7%) and they account for 60% of persons who spend-down in one year and 50% of persons who spend down in three-years. This shows, not surprisingly, that the risk of spending down is strongly related to a person's health and functional status. But, looking at it from the other side of the coin, a substantial proportion of persons who spend down (40%) are found among the 75% of the population who are classified as "low risk" according to this description.

The difficulty in predicting persons who would spend down on the basis of their health status is largely due to the random nature of health events. This randomness is more pervasive with respect to health events related to Medicare than those related to Medicaid. Partly because of this randomness, Medicare costs are not clustered in any appreciable way. Medicaid costs, on the other hand, are more predictable in the sense that the likelihood of a disabled Medicaid beneficiary incurring a given cost over and over again in a given period of time is more consistent. In contrast, a Medicare beneficiary who may cost Medicare a large amount of money in a given year (due to a short-term acute care incident) may not cost Medicare any money in the subsequent years. The variables included in the regression models, and the quality of the data also affect predictability.

4. Conclusions from the analysis of the effects of income, medical vulnerability, and functional level on spend-down

The above analyses shows, first, that a person's income is strongly related to the likelihood that they will spend down. In fact, more than 7 out of 10 persons who spend down over a 12-month period had family incomes (in 1991 dollars) that were less than \$10,000. This supports the notion of targeting a subsidy program towards low-income persons.

Second, the data indicate that spend down is highest among persons with significant health risks, and only secondarily influenced by the (fairly gross) measures of functional impairment that were used in the analysis. This suggests that one consider including some index of medical vulnerability (or predicted costs) as a part of the criterion used to target premium subsidies. This supports the findings of the NLTCs and Monroe County studies, both of which point to high medical costs as the primary correlate of spend-down.

At the same time, the above analysis is incomplete because at least 50% of persons (60% in the 3-year analysis) who spend down are not identified as high risk at all. To address this, we undertook a more detailed analysis to identify the specific risk factors for spend down. The resulting model, described below, is more successful in singling out specific indicators that are predictive of spend down.

5. More detailed analysis of risk factors

Using a longitudinal file created from the 1991-1994 MCBS, we carried out a logit analysis to examine the variables that predict spend down in a 1-year and 3-year time frame. In this report, we will discuss the 1-year analysis. The details of the logit analysis are presented in the Appendix.

The following variables, collected in 1991 as part of the survey, were included as possible risk factors that could influence the probability of spending down in 1992 prior to the next year's survey:

- Demographic variables: age, gender, lives alone, unmarried
- Supplementary health insurance: indicator of whether the person has such insurance
- Health variables: self-reported health status (excellent, very good, good, fair, poor), self-reported diagnoses (heart disease, cancer, skin cancer, stroke, emphysema, amputations, Parkinson's disease, hip fracture, high blood pressure, mental retardation, psychiatric problems, osteoporosis, arthritis)
- Functional status: need for assistance in bathing, dressing, toileting, transferring, feeding, bladder incontinence; need for assistance in meal preparation, shopping, heavy and light housework, money management, using the telephone, difficulty lifting, walking, reaching and bending.

Taking note of the high probability of spend down among persons who are hospitalized, we also included an indicator that the person was hospitalized in 1992 as a variable.

We found that the following variables were significantly related to the probability of spend down: being female, hospitalized in 1992, those reporting their health as being poor, those with bladder incontinence, those needing help in preparing meals, those with family incomes less than \$10,000 per year, and those with the following diagnoses: stroke, arthritis, and Alzheimer's disease. In addition, a report of skin cancer was found to be negatively correlated with the probability of spending down.

Table 8a shows the proportion of persons reporting each of these risk factors. Data are presented for the entire population, the low income population, and the low income population who spent down in the one-year time interval. Table 8b shows the risk ratios for low income persons for each of the risk factors.

First, regarding the characteristics of low income persons who spend down, we note that this is largely a female population (more than 4 out of 5 persons are women). This is not surprising, since the low income population largely consists of women. What is, perhaps, most interesting is that nearly half of all low income persons who spent down were hospitalized in 1992. This is consistent with the reports from the Monroe County study which also found a high proportion of those who spend-down being hospitalized in the year that they spent down.

What is even more interesting is that such a large proportion of the spend-down group (34.4%) did not have Medigap insurance. It may be surmised that, especially among those hospitalized, the absence of Medigap insurance may have had a lot to do with their spending down.

The fact that the majority of persons who had Medigap insurance also spent down indicates limitations of Medigap coverage. Medigap insurance has different levels of coverage. The type of help persons need to prevent spend down are not usually found with Medigap coverage since Medigap excludes long-term help (Leutz et al., 1992). Also, the premiums for coverage of drug benefits under Medigap are expensive. A clearer answer to the question why a majority of persons who have Medigap coverage spend down involves examining the spend-down experience of different subgroups of persons who have differing amounts of Medigap coverage such as persons who spend down in the community and go to nursing home, persons who spend down and remain in the community, and persons who have Medigap coverage and do not spend down. This is beyond the scope of this paper.

The fact that nearly a quarter of the low-income persons who spend-down had rated their health as poor in 1991 (this is more than 3 times the rate in the overall elderly population) is consistent with the notion that the spend-down population has a high degree of medical vulnerability. Also, the high proportion of stroke, arthritis, and Alzheimer's disease coupled with the large proportion of persons needing help with meals, together with the absence of any significant indication of ADL limitations as a risk factor points to a population with significant debilitating illnesses, both mental and physical, accompanied by moderate functional impairments.

Table 8a: Risk factor statistics for One-Year Spend-Down Experience of 1991 MCBS population			
Population Characteristics: all persons, all low-income persons, and low-income spend downers			
Risk factor	Proportion of Persons with Characteristic		
	All Persons	All Persons with Incomes <\$10,000	Spend Down persons with Incomes <\$10,000
Gender = female	58.1%	71.9%	82.0%
No Medigap insurance	13.4%	25.9%	34.4%
Income ≤\$5,000	5.9%	21.6%	41.0%
Income between \$5,000 - 10,000	21.6%	78.4%	59.0%
Hospitalized in 1992	21.8%	24.8%	45.9%
Health "poor"	7.9%	11.7%	24.6%
Bladder incontinent	21.7%	27.6%	44.3%
Help with meal preparation	10.0%	13.7%	31.1%
Stroke	9.5%	11.3%	16.4%
Arthritis	46.4%	49.4%	63.9%
Alzheimer's	1.6%	1.9%	9.8%
Skin cancer	15.5%	12.3%	4.9%

Table 8b: Risk Ratios of Low-Income Persons by Risk Factor

Risk factor	Risk ratio*
Gender = female	1.41
No Medigap insurance	2.58
Income ≤\$5,000	6.92
Income between \$5,000 - 10,000	2.74
Hospitalized in 1992	2.10
Health is "poor"	3.10
Bladder incontinent	2.04
Help with meal preparation	3.13
Stroke	1.72
Arthritis	1.38
Alzheimer's	6.34
Skin cancer	0.32

$$*Risk\ ratio = \frac{\text{Proportion of low-income persons with a particular risk factor who spent down}}{\text{Proportion of all persons with the given risk factor}}$$

It is also possible to use the analysis to quantify a person's risk and to identify a high-risk population with the use of an index or score, based upon the logit analysis. This index, defined for the populations with family incomes less than \$10,000 per year can be calculated as follows:

$$\begin{aligned} \text{Index} = & +2.02 \text{ (if income is } < \$5,000) \text{ or } + 1.23 \text{ (if income is between } \$5,000 \text{ \& } \$10,000) \\ & + .55 \text{ if female} \\ & + .78 \text{ if no Medigap insurance} \\ & +1.33 \text{ if person is hospitalized in 1992} \\ & + .81 \text{ if person reports that health is poor} \\ & + .47 \text{ if person is bladder incontinent} \\ & + .78 \text{ if person needs help in preparing meals} \\ & + .45 \text{ if person was ever told they had a stroke} \\ & + .65 \text{ if person was ever told they had arthritis} \\ & +1.60 \text{ if person was told they had Alzheimer's} \\ & -1.44 \text{ if person was ever told they had skin cancer} \end{aligned}$$

A score of 3.85 or higher places the person in the upper 10% of persons with regard to their probability of spending down. Overall, persons having this score or higher have an average spend-down rate of more than 18% in one year, or in other words, nearly 1 out of 5 of them will spend down in one year. This model provides a significant improvement over the specification made earlier in this section, based upon functional level and medical vulnerability level. In that case, the highest risk group (i.e., persons who are

NHC, low income, and in the upper 5% of expected health expenditures) only had an 8% probability of spending down in one year.

6. Conclusions from the MCBS analysis

The MCBS data can provide a close look at circumstances that lead to spend down. The above analysis dovetails with the NLTCs and Monroe County results, providing supporting evidence that community spend down is often a result of a combination of declining health, high acute medical costs, and lack of adequate financial support for services not covered, or not fully covered by Medicare. In addition, the MCBS analysis allowed for a more detailed profiling of the high-risk population. A significant component of this population suffers from some combination of moderate physical functioning impairments (e.g., needing help in IADLs such as meal preparation), cognitive impairments, and chronic illnesses, most especially stroke, arthritis, and Alzheimer's disease. Severe functional impairments such as those most usually associated with "nursing home certifiability," and hence, Medicaid eligibility for waived long-term care services do not appear to be a significant risk factor for spend down, or at least not in a large number of cases.

IV. A Conceptual model to Aid in Identifying Appropriate Populations for a Premium Subsidy

Until now, the discussion has focused on identifying a high-risk population that is likely to spend down. However, the issue of how to target a premium subsidy program is more complex, because it involves the issue of whether such a subsidy would be cost-effective, i.e., whether the costs of the subsidy would result in sufficient savings to the Medicaid program later on.

There are five basic issues that need to be considered in order to identify a target group for whom it will be cost-effective for Medicaid to provide a subsidy. It is useful to think about these issues in relation to each person (or type of person) considered for a subsidy:

1. The probability that the person being considered for a subsidy would spend down in the absence of that subsidy.
2. The size of the subsidy that would be necessary for that person to make it sufficiently attractive for them to participate in the program and to assure that they are able to maintain themselves in the community without requiring the full Medicaid benefit.
3. The amount of time that the subsidy would need to remain in effect.
4. The impact that the subsidy would have in preventing the person from spending down.

5. The amount of savings to the Medicaid program that would result from preventing or delaying the person from spending down.

The following paragraphs examine these five issues in some detail.

A. Identifying persons who have a high probability of spending-down.

The success of the subsidy program will depend in part on the inclusion of persons who have a high probability of spending down. Undoubtedly, the subsidy would be made to some persons who would not have spent down without the subsidy. The savings to Medicaid from preventing spend down must offset the total spent on everyone subsidized, not only the ones who were truly prevented from spending down. For this reason, it is important to identify an appropriate target group that has a high probability of spending down.

The data from the two studies cited above and from our MCBS analysis are enlightening, for they provide at least some preliminary information about individuals who are likely to have a high probability of spending down. Shown in the Monroe County study, the spend-down population was found to experience very high medical costs associated with co-payments and deductibles under Medicare. For this reason, it may be worthwhile looking at persons who have a high probability of being hospitalized and who are lacking in Medigap insurance. The NLTCS study showed that expenditures on pharmacy were an important component of the expenditures made by individuals prior to spending down. This too suggests including persons who have significant chronic health problems. The MCBS analysis enables us to pinpoint a significant high-risk population among whom approximately one out of six are likely to spend down in one year. In our earlier discussion, we provided an index that could measure the likelihood of spend down and an index of this kind could be used as a targeting method.

B. The size of the subsidy

The size of the subsidy needed will in part be influenced by individual incomes and in part by the costs of services that these individuals require. In examining the service requirements, the important issue is the services that are not covered by Medicare. These include ancillary medical services (pharmacy, acute and primary care co-payments, and deductibles, etc.) and long-term care services.

It is worthwhile to consider two alternatives: (1) include in the subsidy only persons who already have very high medical costs and/or long-term care costs, or (2) include persons who currently have low costs but are at-considerable-risk of having high costs.

The first group of persons would include individuals who are medically vulnerable and who may be experiencing multiple hospital episodes, frequent physician visits, and high

drug costs; it also would include persons who are severely functionally impaired and who need a lot of help in the home in order to remain in the community. We may call these persons ‘the high cost group’. For persons having very low incomes (and it is likely that these would be the persons to whom the subsidy is directed), it would require a large subsidy to enable these individuals to remain in the community. The advantages of including these persons is (1) by including them in a good managed care program, their total medical care costs could be reduced, and (2) these individuals are likely to have a high probability of spending down.

The second group of persons includes individuals who may have one or more of the following problems: incipient medical problems, cognitive impairments, moderate functional limitations, and inadequate informal support. These individuals would be less expensive to subsidize, since their current medical and long-term care expenses are likely to be low. We will call these persons ‘the early intervention group’. A strategy to include these persons should be based upon a programmatic model aimed at preventing or delaying the onset of serious illness, or at least slowing the advance of existing chronic conditions. In addition, supportive social services may be useful in helping the family to cope with the individual’s illness in order to increase the likelihood that the person can be maintained in the community.

C. The amount of time the subsidy would be in effect

The costs of the subsidy would in part depend upon how long the person would remain in the program and continue to be not eligible for Medicaid. Assuming that persons remain in the program, we have found that it is possible to find individuals who have a 1 in 6 chance of spending down in a given year. If the targeting methods described herein are used, we may expect that it will require a minimum of six person-years of subsidy to account for one person being kept from spending down to Medicaid, assuming that the impact was complete, i.e., all persons subsidized would be prevented from spending down. Moreover, the subsidy would need to continue for an undetermined time after the presumed spend down would have taken place.

The conclusion from this analysis is that it is quite critical to examine carefully the dollar tradeoffs between the amount of subsidy and the time that it is likely to be in effect as compared with the likely savings, as discussed below.

D. Finding persons for whom a subsidy would have a substantial impact on reducing the likelihood of spend-down.

In the absence of additional data or research, it is difficult to gauge the effect that a subsidy may have on preventing or delaying spend down. However, the following ideas are presented in order to help organize the thinking about the potential impacts.

1. A premium subsidy would facilitate enrollment of these persons in managed care programs where they would pay a fixed monthly amount based upon their ability to pay.

This could result in one of the two following favorable impacts.

- (a) The premium subsidy would result in some persons being able to keep enough of their incomes and assets that they would not be eligible for full Medicaid. (In the absence of the subsidy, these persons would have been able to remain in the community, but they would have spent down and gone on full Medicaid.)
- (b) The premium subsidy would result in some persons being able to afford to continue to live in the community. If not for this subsidy, they might have been impoverished, unable to continue to afford paying for basic services (food, rent, etc.) and ended up in a nursing home, and spending down to Medicaid.

2. In the absence of the subsidy, some persons would not have been able to pay for needed services. This may have had the following consequences:

- (a) Their health condition may have gotten worse. This could lead to higher costs and earlier spend down. If these unmet needs are dealt with appropriately at an earlier stage the chances of such persons deteriorating in later stages may be minimal. Therefore a subsidy scheme that facilitates enrollment of such persons in a program that would provide the requirements at an early stage is likely to have a substantial impact on morbidity and/or disability levels. The subsidy may be beneficial to the program in two ways. First of all, a premium subsidy would entice persons who would otherwise not be able to enroll in the program, and secondly, since at risk persons go through systematic assessment once enrolled, their condition in the future may be more predictable and treatable.
- (b) The bulk of care giving is usually done through the informal care system. In the absence of a subsidy, there may be considerable burdens imposed on the informal care network, and as a result of those burdens the network is liable to disintegrate prematurely. A premium subsidy may allow persons in the community to enroll in a program that would provide supplementary services to reinforce the services already rendered through the informal network. Necessary services for persons needing help in meal preparation or help with physical IADLs may prevent such premature breakdowns in the informal care networks.

In principal, the Medicare Current Beneficiary Survey could be used to examine the potential for these favorable outcomes by comparing individuals who spend down with others having higher incomes and better insurance coverage.

E. The amount of savings to the Medicaid program that would result from preventing or delaying the person from spending down

In order for the subsidy program to be cost effective, it will be important that significant savings result from the prevention or delay of spend down. In order for this to happen, it will be necessary that the subsidized premium be considerably less than the amount

Medicaid would pay in the event that the person would spend down. Since the largest part of Medicaid's costs are for long-term care, the subsidy can only be cost-effective if a significant number of persons are diverted from institutions and/or are able to pay for significant portions of their out-of-pocket costs for medical care and community care services while they remain in the community.

Savings to Medicaid that can result from preventing even one person becoming eligible for Medicaid and entering a nursing home are substantial. Although there is no way to precisely predict the number of spend-down episodes that can be prevented over a period of time, the characteristics of various populations provide a fairly reasonable basis for making a decision regarding who should be subsidized. In this sense, the early intervention group, discussed in page 19 above, appears to possess the greatest potential for benefiting from a subsidy. Since persons in the early intervention group have not yet developed medical conditions that are costly, possibilities for prevention of such conditions occurring may exist through provision of some basic services at this early stage. Compared to the high cost group, the early intervention group is numerically larger. Some of these persons are costly to Medicaid because of cognitive impairments and lack of informal support. Others are physically disabled and are likely to be costly to both Medicare and Medicaid. A subsidy in their case is likely to be smaller since these persons are not yet costly, but the preventive value of the subsidy would be far greater compared to that for high cost individuals. Since there are more persons in this group it may cost more to subsidize them, but subsidizing them may be worthwhile since many costly episodes may be prevented later on since the subsidy has a long time to work and the managed care organization has a longer time period to manage their care thereby preventing higher costs later on.

Once the group for a subsidy is selected it is also important to identify and arrange for appropriate services for that group in order to reap the full benefit of the financial subsidy. Persons in the early intervention group are not frail enough to be nursing home certifiable, however, many persons in this group have moderate disability and medical conditions. The role of the subsidy, as such, is to attract such persons into a managed care setting. However, preventing spend down within this group depends heavily upon whether such persons receive appropriate support (with respect to risk factors related to spend-down) from the managed care environment. To that extent, it is necessary to specify administrative entities responsible for planning, providing, and assessing needs of such groups at the initial stages of planning programs for dually eligibles.

The question as to whether the subsidy would represent an additional burden to the state arises here since it is not clear that such subsidies could be counted under Medicaid expenditures thereby making them eligible for federal matching funds. Medicaid expenditures for persons who spend down are eligible for federal matching funds. However, some persons who receive the subsidy are not expected to spend down. In such cases, it is not clear whether such expenditures used for prevention of spend down would be treated as Medicaid funds eligible for federal matching funds. There is no clear answer to this question at the moment. However, one could surmise that the way in which such

funds are defined by individual programs may enable such expenditures on prevention to be counted under Medicaid expenditures.

V. Need for further research

This paper was intended to be an initial exploration into the complex issues surrounding provision of premium subsidies to various populations, the likely effects of such subsidies on those populations, and a rudimentary scheme to evaluate tradeoffs in providing the subsidy to one population as opposed to another. Our evaluation of tradeoffs was hampered by the absence of any outcome measures such as number or proportion of spend downs that would be averted by selecting various groups for the subsidy. A better understanding of such outcomes can be obtained by comparing the trajectories of persons who spend down with those who have higher incomes and/or better insurance coverage. In addition, data about non-Medicare costs of various subgroups could be obtained from States linked Medicare/Medicaid data, and this cost data could be used to estimate the likely size of needed subsidies. Such an analysis would provide a valuable basis for administrators in deciding who would be subsidized, and the expected effects of such subsidies. It is essential that more intensive studies on implications of premium subsidies be undertaken in order to make optimum use of the money spent on health care.

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Appendix: Logit Analysis

As discussed in Section III.C.5. (page 15), we estimated the influence of medical vulnerability and functional level on the probability of spending down with the aid of a Logit analysis, using data from the 1991 Medicare Current Beneficiary Survey, with follow-up data from administrative Medicare files in 1992 indicating whether an individual was eligible for Medicaid any time during 1992.

According to this analysis, the probability P of spending down is given by the following equation:

$$P = 1/[1 + \exp(-F)], \text{ where } F \text{ is given by the following:}$$

Logit Estimates		Number of obs - 5487	
Log Likelihood = -335.80984		chi2(12) = 213.82	Prob > chi2 = 0.0000
		Pseudo R2 = 0.2415	

F	Coef.	Std. Error	z	P> z	[95th Conf. Interval]
sex	.5533836	.2911553	1.901	0.057	-.0172704 1.124038
mdcronly	.7795525	.2581839	3.019	0.003	.2735213 1.285584
income1	2.019759	.3183321	6.345	0.000	1.39584 2.643679
income2	1.234695	.2764898	4.466	0.000	.6927853 1.776606
inpsw92	1.329239	.234021	5.680	0.000	.8705659 1.787911
poor	.8126636	.2820325	2.881	0.004	.2598901 1.365437
nourine	-.4739219	.2469417	-1.919	0.055	-.9579187 .010075
mealiad1	.7792028	.2784981	2.798	0.005	.2333566 1.325049
stroke	.453377	.3058604	1.482	0.138	-.1460985 1.052852
arth	.6500342	.2450792	2.652	0.008	.1696878 1.130381
alzhm	1.602788	.4377544	3.361	0.000	.7448053 2.460771
cskin	-1.436745	.5480808	-2.621	0.009	-2.510963 -.3625263
_cons	-6.185447	.4289713	-14.419	0.000	-7.026215 -5.344679

The variables appearing in the above equations are all dummy variables that take on the value of 1 or 0. The symbols which apply to the values 1 are defined as follows:

Sex:	Female
Mdcronly:	Has no Medigap insurance
Income1:	Family income <\$5,000
Income2:	Family income \$5,000 - \$10,000
Inpsw92:	Person was hospitalized in 1992
Poor:	Self-reported health is "poor"
Bladder:	Person reports bladder incontinence at least weekly
Mealiad1:	Receives help from in-meal preparation because of a health problem
Stroke:	Doctor said they had a stroke (any time in the past)
Arth:	Doctor said they had arthritis (any time in the past)
Alzhm:	Doctor said they had Alzheimer's disease (any time in the past)
Cskin	Doctor said they had skin cancer (any time in the past).