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An Assessment of Medicare Beneficiaries' Understanding of the Differences Between the Traditional Medicare Program and HMOs

by

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The Public Policy Institute, formed in 1985, is part of the Research Group of the American Association of Retired Persons. One of the missions of the Institute is to foster research and analysis on public policy issues of interest to older Americans. This paper represents part of that effort.

The views expressed herein are for information, debate and discussion, and do not necessarily represent formal policies of the Association.

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Foreword

Today, the delivery of health care services in the private sector is predominately through managed care plans. This is in marked contrast to the Medicare program where managed care penetration is considerably lower than in the private sector. In 1997, over 80 percent of workers were enrolled in some type of managed care plan, while only about 14 percent of Medicare beneficiaries were similarly enrolled. The enactment of the Balanced Budget Act of 1997 is likely to narrow this difference by offering Medicare beneficiaries the opportunity to select from a wider range of health care options in addition to the traditional program.

Congress' decision to expand the range of health care options was based, in part, on consumer choice theory: consumers can make meaningful distinctions among the choices offered, and they will act on the information they receive. These informed choices, in turn, will drive improvement in the health care system. Although broadening the number of available insurance and coverage options can generally be considered a desirable end, in the case of the Medicare program, it is likely to be a mixed blessing. Marilyn Moon and her colleagues at the Urban Institute have commented on the negative impact of some of the new options on Medicare finances because these have been projected to *cost* rather than save the program money.[1] In addition, there is evidence that many beneficiaries may find more choice confusing and anxiety-provoking. The present study conducted by Judith H. Hibbard and Jacquelyn J. Jewett for AARP supports this concern by documenting the low levels of knowledge beneficiaries have of their current Medicare choices.

The study's major finding—that almost one-third of Medicare beneficiaries in five high penetration managed care markets know almost nothing about health maintenance organizations (HMOs), and further, that those enrolled in HMOs know even less than those who receive care in the traditional Medicare program—underscores the already daunting challenge of presenting information to older consumers. Hibbard and Jewett also find that beneficiaries with lower income and education levels are those selecting HMOs; thus those who are among the most vulnerable beneficiaries are those who are enrolling in this type of delivery system.

In addition to highlighting the criticality of effective decision support to help beneficiaries sort through the myriad of health plan options they may confront, these findings should buttress the case for enacting and enforcing comprehensive consumer protections in the Medicare program, so that *regardless of their health plan choice*, beneficiaries can be assured of getting the care they need when they need it. Information about health plan performance, including quality, is necessary to facilitate informed decision-making. But information alone is not sufficient to protect beneficiaries, most of whom do not understand the implications of selecting one delivery system over another. Mechanisms, such as third-party enrollment, should be tested to determine if "rapid disenrollments" (i.e., new members leaving within three months of their enrollment) can be reduced. Finally, rigorous standards for public accountability that include accessible grievance and appeals mechanisms and skilled professional oversight of the quality of care provided are also essential.

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[1] See Moon, et al. An Examination of Key Medicare Provisions in the Balanced Budget Act of 1997. Urban Institute. September 1997.

Executive Summary

Purpose. This study assesses how well beneficiaries understand the two major delivery system options currently offered by Medicare. Do Medicare consumers understand the differences between HMOs and the traditional Medicare fee-for-service option? Do they understand the implications of their choice? To make an informed choice, consumers must understand the differences among options and the implications each option has for costs, choice, and care. The study assesses whether beneficiaries understand key mechanisms of HMOs and those features that make them different from the traditional fee-for-service option. Further, the study assesses the degree to which beneficiaries understand the implications of their choice for: consumer costs, restrictions on physician choice, physician autonomy, and patient care and treatment.

Beneficiaries face a new set of consumer health care issues when they enroll in HMOs. In addition, the number and types of choices available to Medicare beneficiaries are about to increase. The Balanced Budget Act of 1997 (BBA) expands the plan design options available to beneficiaries. The new choices reflect a growing complexity of insurance mechanisms and delivery system options. The BBA also calls for the dissemination of educational material to beneficiaries to support informed choice. The findings from this study provide insight into the extent and type of educational efforts that will be required to assist beneficiaries facing these expanded choices.

Methods. Telephone interviews with 1673 respondents assessed knowledge levels. Instrument construction was a major focus of the research effort, including extensive cognitive and validity testing. Medicare beneficiaries, 65-80 years old, from five high penetration Medicare health maintenance organization (HMO) markets were included in the sample. The sampling frame was obtained from the Health Care Financing Administration (HCFA). Half the sample was enrolled in a risk HMO and half in the traditional Medicare program. Enrollment type was confirmed via HCFA data. A 61% response rate was achieved.

Findings. Thirty percent of all respondents know almost nothing about HMOs. Half of these respondents are currently enrolled in HMOs. Only about one in ten respondents has "adequate" knowledge of the differences between the two delivery systems. Education, income, and enrollment type are significant predictors of knowledge levels. The findings show that HMO respondents report lower income and education levels than do the traditional Medicare enrollees.

HMO enrollees have less understanding than those in the traditional Medicare program of the differences between traditional Medicare and HMOs. This finding is unexpected. A major misunderstanding among HMO enrollees is that they more often think that HMOs and traditional Medicare are the same on key dimensions. They more often think that the restrictions and features

of HMOs are also true for beneficiaries enrolled in the traditional Medicare program.

The knowledge differences are not fully explained by income and education differences. It is possible that the more knowledgeable traditional Medicare group has made a conscious and informed decision to not enroll in an HMO. In contrast, HMO enrollees are apparently enrolling without understanding that the plan is significantly different from the traditional Medicare plan. HMO enrollees may be enrolling based on the cost advantage that HMOs provide them.

HMO enrollees have better knowledge of their own system (that is, HMOs) than they do of differences between the two systems. Even though HMO enrollees are less able to differentiate HMO characteristics and features from those of the traditional program, they generally understand which features and restrictions apply to them.

Although, in general, respondents did not understand the important concepts underlying HMOs, the areas best understood are *primary care provider* and *network use*. Least understood are *physician reimbursement* (capitation vs fee-for-service payment), and the *potential risk of over-treatment or under-treatment associated with plan type*.

It is not surprising that beneficiaries have little understanding of physician reimbursement or physician financial incentives. Payment mechanisms are complex and have not been widely discussed in the media. But even when capitation was explained to respondents, almost half could not grasp the concept (42%). If beneficiaries are unaware of how doctors are paid, the potential risks posed by the different payment approaches of fee-for-service and managed care will also be unknown. However, of those respondents who understood incentives, only about one-third believe these incentives influence physicians to alter their treatment decisions. This finding underscores the need for beneficiaries to understand the nature of their choices.

Respondents, on average, rely on three different information sources to learn about HMOs. Chief among the information sources are HMO advertisements, newspapers or magazine articles, and friends and family. Not surprisingly, when respondents use a greater number of information sources, they also have higher knowledge scores.

Summary. The findings indicate that only a fraction of the total beneficiary population (11%) has "adequate" knowledge to make an informed choice between HMOs and regular Medicare. Thirty percent of all respondents (HMO and regular Medicare) know almost nothing at all about HMOs. This is striking given that this study was conducted in some of the highest Medicare HMO penetration markets in the country. The knowledge levels in regions with lower penetrations are likely lower than those reported here.

The findings raise serious concerns about the changes to Medicare enacted under the 1997 Balanced Budget Act. The BBA calls for expanding the plan options beneficiaries can choose from. The new plan choices include variations on HMO and fee-for-service options not currently available. However, just distinguishing between HMO and the current fee-for-service option under the most favorable circumstances (high penetration HMO markets) is beyond the current

proficiencies of a significant portion of beneficiaries. Given that almost 90% of the beneficiary population has less than "adequate" understanding of their choices, educating those functioning at lower literacy levels will be a significant challenge. Because those with less education and lower incomes are least likely to understand their current options, adding new options is not going to improve their situation. Unless special educational efforts are undertaken, those with fewer resources will be further disadvantaged, and their chances of making informed choices further reduced.

AN ASSESSMENT OF MEDICARE BENEFICIARIES' UNDERSTANDING OF THE DIFFERENCES BETWEEN THE TRADITIONAL MEDICARE PROGRAM AND HMOs

Introduction

More Medicare beneficiaries are enrolling in managed care plans each year. In 1997 about 89,000 Medicare beneficiaries joined risk health maintenance organizations (HMOs) each month (HCFA, 1998). Deciding whether to enroll in an HMO, understanding what that system of care should provide, and successfully navigating within the system are all new challenges for this population. Managed care works differently from a fee-for-service system. For example, how patients obtain access to some types of care and the financial incentive structure for the plan and the providers are different in a managed care system as compared to a fee-for-service system. Mounting evidence suggests that consumers do not understand how managed care works (Isaacs, 1996; Jewett and Hibbard, 1996). Consumers face a new set of health care issues when they enter managed care. Moreover, the Balanced Budget Act of 1997 expands the plan design options available to beneficiaries and presents them with a much more complex set of choices.

The purpose of this investigation is to assess how well Medicare consumers understand their current managed care and traditional fee-for-service choices. Do they understand the key mechanisms and features of HMOs and features that make it different from the traditional fee-for-service option (e.g., the role of primary care providers, capitation, the network of doctors and hospitals)? Do beneficiaries understand the implications of their choice for costs, patient care or treatment, physician autonomy, and choice of physicians?

With the introduction of several new plan design options, special efforts aimed at educating beneficiaries about these choices will be needed. Assessing consumers' understanding of HMOs and their current Medicare options will inform the development of interventions to help consumers: pick appropriate plan designs; analyze the trade-offs in any choice; set their expectations of a managed care system; and successfully navigate within managed care. Further, the findings will be useful for developing consumer protection strategies aimed at this population.

Background and Importance

Medicare beneficiaries are being given a greater number of choices than ever before. At the same time, beneficiaries are also expected to take on some responsibility for judging the quality of their health plans. Thus, beneficiaries will soon be faced with not only more options but an expanded information base for choosing. Before Medicare beneficiaries can make an educated choice between managed care and the traditional Medicare program, they must understand the differences between the two delivery systems. Ample evidence shows that beneficiaries have a

limited understanding of their Medicare benefits and of how the Medicare program works (IOM, 1996). In addition, most people, not just Medicare beneficiaries, do not understand the concepts underlying managed care (IOM, 1996, Isaacs, 1996). Garnick, et al. (1993) report that most newly covered consumers did not know how their managed care plans operate, even after serious efforts to inform them. A 1995 Harris survey estimates that 25% of those enrolled in HMOs or PPOs do not know that their choice of physicians is limited to those in the plan (Isaacs, 1996). Informed choices are not possible if consumers do not know the difference between managed care option and the fee-for-service system.

The Henry J. Kaiser Family Foundation (Frederick/Schneiders Inc., 1995) found that few Medicare consumers understand how managed care works. For example, the incentive HMOs have to provide preventive services was not widely understood; Medicare beneficiaries have little understanding or concern about the dangers of under-treatment in managed care arrangements. However, understanding was better in areas with high levels of managed care penetration in the market.

Although understanding was generally found to be low, beneficiaries reported they are very interested in having information to help them make choices. Some beneficiaries expressed an interest in receiving guidance to assist them in making a choice that is right for them (Frederick/Schneiders Inc., 1995).

While these findings provide some insight, they are based on convenience samples and focus groups. Findings based on larger representative samples are lacking. No existing studies look specifically at Medicare beneficiaries' understanding of managed care.

Without an understanding of how managed care works, there is a great potential for dissatisfaction with managed care (IOM, 1996). Inadequate care could also result. Recent studies raise concerns about the appropriateness of managed care for some older adults. One study found that, after enrollment in managed care, lower income elders with chronic conditions had greater health declines than did comparable elders enrolled in the fee-for-service program (Ware, et al. 1996). Similarly, Nelson, et al. (1996) report that persons with functional impairments, those in fair or poor health, and the "oldest" old were much more likely than the general population to report access problems in Medicare HMOs. If older adults do not understand how managed care works and how to use the system, they may have difficulty obtaining the care they need.

Confusion, misinformation, and lack of information also leave Medicare beneficiaries more open to manipulation through aggressive marketing by health plans. Managed care represents a new paradigm for providing care. Consumers may not understand the potential benefits and pitfalls of this new environment. While consumers may benefit from lower out-of-pocket costs and a wider array of benefits, they also trade off some advantages they enjoy under the regular Medicare program. Understanding these trade-offs and having realistic expectations about what they are choosing is crucial.

Methods

Research Questions

Informed Choice: How much do beneficiaries understand about the differences between the traditional Medicare plan and HMO plans?

- How many have no knowledge of HMOs?
- How many have at least a minimal knowledge of HMOs?
- Do beneficiaries understand how the mechanisms of traditional Medicare and HMOs differ (e.g., primary care provider, networks, physician payment incentives)?
  - ➢Which mechanisms are best understood?
  - ➢Which mechanisms are least understood?
- How well do Medicare beneficiaries understand the potential implications of this choice for care, patient costs, physician autonomy, and choice of physicians?
  - ➢Which implications are best understood?
  - ➢Which implications are least understood?
- What is the relationship between enrollment type (HMO vs. traditional) and knowledge of the differences between the two systems of care?

Informed use of HMOs: Do HMO enrollees understand the features of HMOs (e.g., primary care provider, networks, physician payment incentives)?

Once explained, what do beneficiaries believe the impact of financial incentives will be on physician treatment behavior?

- Are these beliefs related to demographics? health status? enrollment type?
- Do those who are aware of financial incentives have different beliefs from those unaware of financial incentives?

Study Design

The study uses a cross-sectional survey design to assess knowledge of differences between HMOs and the traditional Medicare program. Because comprehension of HMOs is likely higher in high-penetration managed-care markets, assessment is limited to these geographic regions. The sampling frame from the Health Care Financing Administration (HCFA) listed beneficiaries in the target area and their enrollment type (HMO or traditional). The sample includes Medicare beneficiaries residing in five regions with high market penetration of managed care. Three criteria are used to select the regions: 1) highest HMO market penetration (1994 data); 2) high increases in HMO enrollment over a four year period, 1990-1994 (Welch, 1996); and 3) geographic diversity . The regions selected are the metropolitan areas of: San Diego, CA; San Bernardino, CA; Tucson, AZ; Albuquerque, NM; and Miami, FL.

The Study Population

The study population is limited to Medicare beneficiaries with parts A and B, ages 65 to 80, who are living independently in the community. Half the sample is enrolled in traditional Medicare, and the other half is enrolled in a Medicare risk HMO. HMO enrollees in plans with cost contracts, those in health care prepayment plans, and those with dual eligibility (i.e., enrolled in Medicare and Medicaid) were eliminated from the sample. All HMO enrollees have at least one year of continuous enrollment in a risk HMO. Enrollment type is verified by HCFA data rather than relying on respondent reports.

The sample size (n=1673) is sufficient to yield 95% confidence for detecting 2% of unique variance explained in the dependent variable (a=.05, two tailed test) for each group (Cohen, 1988).

The overall response rate was 61%. The protocol called for refusal conversion on all initial refusals and for six call backs to all those the survey research contractor was unable to reach. Excluded from the denominator when calculating the response rate were those: deceased, ineligible for Medicare, non-English speakers, and those too impaired or too ill to complete the interview. These latter exclusions likely have the effect of over-stating overall knowledge levels.

Demographic data from the HCFA sampling frame allow comparison of respondent and refuser characteristics. Table 1 shows no differences between refusers and respondents on sex, race, or enrollment type. Refusers are slightly older (0.4 years older).

Census data from the regions on annual household income are compared with the income reported by respondents (Table A). The sample has fewer low income ($10,000 or less)

respondents than are reflected in the census data. However, for the other income categories, survey respondents closely resemble the regional population for ages 65-74 reported in census data.

Eighty-seven percent of refusals occurred before the start of the interview or at the first item (an opinion about doctors). Thus, the refusal rate appears to be unrelated to the content of the survey, and no bias is introduced due to the content.

The refusal rate varied by region. Arizona and New Mexico had the lowest refusal rate, while California had the highest rate. No differences in knowledge scores were found in regions with different refusal rates. The mean overall knowledge score for Arizona and New Mexico was 55% correct, similar to the California mean of 56% correct. Thus, the demographics and enrollment type are similar for refusers and respondents, and knowledge scores do not differ in regions with higher and lower refusal rates. This suggests that almost no detectable bias is introduced to the findings by the refusal rate.

Instrument Development

Because there are no existing instruments that assess knowledge about HMOs, instrument development is a major focus of the research effort. Extensive validity (content and criterion) assessments were used in the development of this tool for the American Association of Retired Persons (AARP). These efforts include a panel of health policy experts, reviews by educational consultants, cognitive testing of the instrument with Medicare beneficiaries, and the application of a criterion test to assess empirical validity. Details of instrument development and validity testing are provided in Appendix A.

The term “regular Medicare” is used throughout the text and in the instrument to refer to the traditional fee-for-service Medicare program. In cognitive testing this term was more understandable to respondents than the term “traditional Medicare program.”

Data Collection

Names, addresses, enrollment type (HMO or regular Medicare), race, sex, and age of beneficiaries in the target areas were obtained from HCFA. The survey research contractor sent an advance letter to beneficiaries and did the telephone interviews. Interviewing occurred in the winter/fall of 1997. The interview averaged 20 minutes.

Structure of Instrument

The instrument assesses both knowledge and beliefs. Knowledge items assess whether beneficiaries know about the differences between regular Medicare and HMOs. Most knowledge items describe a mechanism or an implication and then ask respondents whether it describes regular Medicare, HMOs, neither or both. (Respondents can always answer that they don't know.) Thus, most items have at least four response categories, making guessing more difficult. The second part of the survey assesses beliefs about physician treatment behavior, given different financial incentives. Some beneficiaries were not asked the knowledge questions but were skipped to this series of items on beliefs. All beneficiaries were asked the belief questions. (Full instrument is in Appendix C.)

Those skipped out of the knowledge items:

Five reasons trigger a skip-out of the knowledge items to the series of items on beliefs. Three reasons are related to plan type, and two are based on the respondent's level of knowledge.

Skipped out of knowledge items due to plan type:

Some variations of plan options blur the distinction between HMO and regular Medicare, for example, point of service (POS) options and Medicare Select. Beneficiaries who have these options would have difficulty responding to questions about the mechanisms of either regular Medicare or HMOs. Thus, those who reported plan characteristics of either Medicare Select or HMO POS options were skipped out of the knowledge items. One hundred seventy-three HMO enrollees said their plan would pay for patient-initiated doctor office visits to physicians outside the plan. These enrollees likely have a POS HMO. Similarly, 63 regular Medicare enrollees indicated that their supplement required them to see only doctors on an approved list. They were likely in a Medicare Select plan. Finally, those who did not know their type of plan were skipped out (n=48). Thus, 284 or 17% were ineligible to answer the knowledge items due to their plan type. These 284 respondents are treated as missing data in the reporting of knowledge scores. Because some of these respondents were likely confused about their coverage and may not actually be enrolled in a point-of-service or Medicare Select plan, the exclusions may have the effect of overstating the extent of knowledge among beneficiaries.

Skipped out of knowledge items due to low level of knowledge:

The decision to skip out those with very little or no HMO knowledge was based on extensive cognitive testing and pretesting. Respondents who responded that they knew "nothing at all" about HMOs could not answer the items and became upset or irritated if forced through the testing. Two simple screening knowledge questions were also tested and found to be reliable markers of very low to no knowledge. Those who could not answer at least one of the two items were skipped to the belief questions. Thus, respondents could "fail" the screening questions by either incorrectly responding to both of the simple knowledge screening items, or by responding that they "knew nothing at all about HMOs."

Screening Question 1: A patient is given a list of approved doctors. To be covered, she can only choose doctors from that list. Does this best describe the Regular Medicare plan, an HMO plan, both or neither?

Screening Question 2: A patient visits a specialist. However, he has to pay the total cost of the visit himself, because he didn't get the regular doctor's approval in advance. Does this best describe the Regular Medicare plan, an HMO plan, both or neither?

Major Dependent Variables

The major dependent variables are all measures of knowledge. The **knowledge score** is an index made up of all 22 knowledge items. Scores on the overall knowledge index are reported as percent of correct answers. The reliability on this 22 item index is .76 (Cronbach's Alpha). In interpreting the overall knowledge index, scores of 76-100% correct reflect "adequacy to mastery," scores of 51-75% correct reflect "poor to near adequate knowledge," and scores of 50% or lower reflect "inadequate knowledge."

Domains of knowledge (See Appendix B).

The items are grouped into two major categories of domains. These two major domains represent what consumers must know to make informed choices.

(1) knowledge of plan **mechanisms**: primary care provider (2 items); network (3 items); physician payment (3 items); obtaining emergency care (2 items); right to appeal (1 item); and

(2) understanding the **implications** of plan choice for: treatment and care (2 items); cost of care (4 items); restrictions on choice of physicians (1 item); physician autonomy (3 items).

Primary and secondary analysis.

The primary analysis focuses on how well beneficiaries understand their options. Specifically, do they have the knowledge needed to make an informed choice? The secondary analysis focuses just on HMO enrollees and assesses their understanding of HMO features. This analysis has implications for whether enrollees have the knowledge necessary to get the care they need and to navigate within an HMO. The secondary analysis ("HMO knowledge") uses the same items that are used in the primary analysis. However, in this secondary analysis the items are scored differently. So, when the right answer was "HMO," for HMO enrollees, we scored their response as correct when they answered either "HMO" or " it is true for both." In other words, the HMO enrollees are scored correct if they know an item was true for HMOs (even if they think it was also true for regular Medicare). Similarly, when the correct answer was "regular Medicare," we scored a response of "regular Medicare" or "neither" as correct for HMO enrollees (i.e., they correctly knew it did not apply to them).

Findings

Demographic differences in education and income exist between those enrolled in HMOs and those in the regular Medicare program (Table 2). While age is similar, regular Medicare enrollees have significantly higher income and educational levels. Similar findings are reported by Brown and Hill (1994), using a national sample.

Figures 1a and b show education and income distributions by enrollment type. Seventeen percent of HMO enrollees report they have less than a high school degree, compared to only 6% for regular Medicare. HMO enrollees also report they have lower incomes. Thirteen percent of those in HMOs have incomes below $10,000, compared to 5% for those in regular Medicare.

The lower income of the HMO population is likely a function of the prevalence of zero premium HMOs (with no premium cost to enrollees) in the regions included in the study.[2] Lower premium costs (compared to premium costs for medigap policies) may attract the lowest income beneficiaries into HMOs. Overall, regular Medicare enrollees are more advantaged in terms of income and education. However, those regular Medicare enrollees who have no medigap policy have levels of education and income similar to HMO enrollees. Regular Medicare enrollees with a medigap policy have significantly higher income and educational levels than the other two groups.

[2]In the high penetration managed care regions included in the study, beneficiaries are able to choose among several zero-premium HMO options.

Informed Choice

Two different assessments focus on the adequacy of beneficiaries' knowledge to make an informed *choice*. First, do beneficiaries know anything at all about HMOs? This assessment separates the population into those who know almost nothing about HMOs (failed to pass screening questions) and those who have at least some minimal knowledge of HMOs (passed screening questions). For those who passed the screening questions, a second assessment (the 22-item knowledge test) measures knowledge of differences between HMOs and regular Medicare.

How many beneficiaries have no knowledge of HMOs? How many have a minimal knowledge of HMOs?

Many respondents know almost nothing about HMOs (30.5%). Thirty-one percent of HMO respondents and 30% of regular Medicare respondents failed to pass the screening questions and did not go on to take the knowledge test. Thus, over half of total respondents who know almost nothing about HMOs are enrolled in HMOs.

Table 3 shows the characteristics of those passing and failing the screening items ("the screener"). Those failing the screener are slightly older, have lower incomes, have lower education, have spent more nights in the hospital, and have had fewer doctor office visits (DOVs).

Multiple logistic regression assessed the importance of health status, enrollment type, and demographic factors to passing the screener. Enrollment type is not related to ability to pass. The only statistically significant factors are: education ($p<.001$), income ($p<.001$), and gender ($p<.05$). After controlling for other demographic and health status factors, females are more likely to be able to pass the screener. Overall, those able to pass have higher income and educational levels.

Generalizing to two populations: The total beneficiary population and those who have at least some minimal knowledge of HMOs.

Two population groups must be considered in educational efforts. One is the total Medicare beneficiary population, some of whom have no knowledge at all of HMOs. The other population is a subset with at least some minimal knowledge of HMOs. In generalizing to a larger Medicare population, knowledge estimates would be inflated if those who know nothing at all about HMOs (i.e., failed the screener) are excluded from the analysis. Thus, those who failed the

screener are assigned a knowledge score of zero[3] (one point lower than the lowest knowledge score). Two different population distributions are reported:

1) *Test-takers*. Test-takers include only those who passed the screener and who actually took the knowledge test.

2) *Combined sample*. This includes the test-taker sample, as well as those who could not take the knowledge test and were assigned a score "of zero."

The test-takers represent Medicare beneficiaries who have some minimal knowledge of HMOs. The combined sample represents a more general Medicare population.

Knowledge Scores

The knowledge items are designed to assess whether respondents can differentiate the characteristics of HMO plans from those of the regular Medicare plan.

Among the combined sample, the average knowledge score is 42% (s.d. 29.3) correct. However, test-takers had an average score of 56% (s.d. 19.0) correct.

Figure 2 shows the frequency distribution of correct responses for regular Medicare and HMO test-takers. The distribution shows that regular Medicare test-takers generally score higher. They more often score 60% correct and above, while HMO test-takers predominate in the 40% correct and lower scores. The average score for the HMO test-takers is 51.4% correct. The average score for the regular Medicare test-takers is 59.5%. These differences are statistically significant ($p<.001$).

Table 4a shows the distribution of the combined sample on knowledge scores. *Only about 11% of respondents have adequate knowledge (scores of 76% or higher) to choose between regular Medicare and an HMO.* Fifty-nine percent scored in the "inadequate range" (by scoring 50% or less correct), with 35% scoring in the lowest quartile (equal to or worse than guessing). Because those who know nothing about HMOs are included, the distribution is bimodal with most respondents falling into either the bottom or the third quartiles. Forty-eight percent of regular Medicare compared to only 32% of HMO enrollees answered more than half the questions correctly.

[3] An alternative would be to assign the average score respondents would get based on guessing. Assigning a "guess" score would also place those respondents in the bottom quartile–the same as the assignment of zero.

Table 4b shows the distribution of test-takers on knowledge scores. Only 16% have adequate knowledge to choose between regular Medicare and an HMO (with scores of 76% or higher). More than 41% scored in the inadequate range on the test (with scores of 50% or less), with 7% scoring in the lowest quartile (equal to or worse than just guessing).

Table 5 shows the characteristics of test-takers scoring in the lowest and highest quartile on the knowledge test. Those scoring in the lowest quartile are more often female, enrolled in an HMO, and have lower education and lower income levels than those scoring in the highest quartile. It is interesting to note that women are more likely than men to pass the screening items; however, having made that initial hurdle, they tend to score lower on the knowledge test.

Factors associated with knowledge scores.

Table 6 shows the zero-order correlations between the knowledge scores and personal characteristics among test-takers. Education most strongly correlates with knowledge, followed by income, enrollment type, and sex. Males, regular Medicare enrollees, those with higher educational attainment, and higher incomes have higher knowledge scores.

The results of a linear multiple regression equation for test-takers is shown in Table 7. Demographic variables, health status, utilization, and enrollment type are regressed on overall knowledge scores. Education, income, and enrollment type are statistically significant, together accounting for about 10% of the variation in knowledge scores. Enrollment type remains a statistically significant factor in knowledge scores, even when controlling for education and income. Regular Medicare test-takers appear to know more about the differences between regular Medicare and HMOs, regardless of income and education levels.

What information sources do beneficiaries rely on for learning about HMOs?

Table 8 shows the information sources respondents use to learn about HMOs. All respondents were asked about each source. On average, respondents use three of these information sources to learn about HMOs. It is interesting to note that HMO advertisements are the most common information source for learning about HMOs.

Using a greater number of sources is associated with greater knowledge. Correlations between number of sources and knowledge scores show that this is true for the combined sample ($r=.29$, p, .001), as well as for test-takers ($r=.21$, $p<.001$).

Understanding the Mechanisms of Delivery Systems and the Implications of Choice: Item-Level Analyses of the Knowledge Test

Understanding delivery system mechanisms.

This portion of the analysis moves to item-level analyses. Tables 9a-9e and Tables 10a-10d report analyses of individual items and groups of items from the knowledge test. The results are shown for test-takers only.

Tables 9a-9e present the knowledge domains measured in the knowledge test. These domains include the mechanisms consumers need to know to make an informed choice between HMOs and regular Medicare (see appendix B): primary care providers (PCP); networks; physician payment and incentives; emergency care; and appeal rights. The individual items focus on the differences between the two delivery systems. Comprehension of the domains is measured by the number of correct items within each domain. The top of each table shows the percentage of test-takers who understand the domain. The individual items in each domain are shown in the lower part of the table.

About half of test-takers understand the PCP and network domains. Even fewer understand: how physicians are paid; issues in obtaining emergency care; and appeal rights. Only 13% correctly answered all three of the physician payment items. For emergency care, only 16% correctly answered both items. Only 40% correctly answered the one item on appeal rights.

Understanding the implications of choice.

Tables 10a-10d show a different set of domains measured in the knowledge test. These include a summary of items that focus on the potential implications of choice. The domains included are implications for treatment; patient costs; restrictions on choice of physician; and physician autonomy. At the top of tables 10a-10d, the percentage of test-takers who understand the domain are shown (the percentage who correctly answered most of the items in the domain). The individual items included in the domain are shown in the lower part of the tables.

Only about 15% understand the implications of plan type for treatment (potential risks of under-treatment or over-treatment). The implications of plan type for patient costs are also understood by only a small proportion (35% answered at least three of the four items correctly). Only 43% comprehend the implications of plan type on physician autonomy. However, a high percentage (82%) know that plan type has implications for whether there are restrictions on an enrollee's choice of physician.

Thus, implications of plan type for restrictions on choice of physician are understood, while implications for cost and implications for treatment are not understood by most. Implications of plan type for physician autonomy are understood by less than half of test-takers.

What Are the Misunderstandings?

Looking at the individual items within each domain of the knowledge test is more revealing (bottom portion of tables 9a-e and 10a-d). This analysis goes beyond "correct/incorrect" to assess exactly what is misunderstood. The bottom portion of tables 9a-e shows the cross-tabulations between the individual items in each domain and the respondent's enrollment type. These tables show: the items included in each domain; the distribution of responses on each item; and differences between how regular Medicare and HMO enrollees responded on each item. *The percentages refer only to test-takers, not the combined sample.*

A common misunderstanding among HMO enrollees is that HMOs and the regular Medicare plan are basically the same. HMO test-takers are significantly more likely than their regular Medicare counterparts to think that an implication or mechanism is the same for both HMOs and the regular Medicare plan. For 72% of the knowledge items (listed in tables 9a-9e and tables 10a-10d), HMO test-takers are significantly more likely to respond that the mechanism or the implication is the same for both the regular Medicare plan and HMOs. In about two-thirds of these items, HMO test-takers are two to three times more likely to think that the mechanisms or implications are the same. *Overall, HMO test-takers are 66% more likely to think that a given mechanism or implication is true for both types of Medicare coverage. For example, HMO test-takers are more likely to think that the implications of cost, treatment, restriction on the choice of physicians, and physician autonomy are about the same, whether one chooses an HMO or regular Medicare. They are less able to distinguish between the two plan types—and to understand the implications of choice—than the regular Medicare test-takers .*

Mechanism items.

Table 9a shows the two items in the "primary care provider" domain. Most test-takers understand that approval from a PCP is necessary to see a specialist. About 47% of HMO test-takers do not understand that they must see their own PCP and cannot opt to see a non-network PCP who may be more convenient. (question 2 of table 9a.)

Table 9b shows the items in the "network" domain. Almost one third of HMO test-takers do not know that to receive full coverage they may have to give up their regular doctor if he/she is not on the HMO's approved list (question 2 of Table 9b.) Forty-four percent of HMO test-

takers do not know that hospitals are also part of plan networks (question 3). Those in HMOs score lower on two of these three "network" items. They are also more likely to give a response of "I don't know" to these same two items.

All items on physician payment (Table 9c) are poorly understood by both groups (HMO and regular Medicare). A high percent respond with "I don't know" (19-24%).

The two emergency care items are shown in Table 9d. Twenty-one percent of HMO test-takers do not know that they can go to the nearest emergency room in a life-threatening situation to get care, compared to only 14% for regular Medicare. Strict definitions for emergency care apply only to HMOs. However, 35% of regular Medicare test-takers think it applies to them. At the same time, 36% of HMO test-takers think these restrictions do not apply to them (or do not know).

Table 9e shows that 37% of HMO test-takers do not know that they have appeal rights, compared to 19% of regular Medicare test-takers. As these findings apply only to test-takers, it is likely that even fewer beneficiaries in the total population know of their appeal rights.

Implication items.

Tables 10a-10d show the implication items. The "implications for care items" focus on the risks of under-treatment and over-treatment associated with plan type (Table 10a). The risk of over-treatment is the least well understood (29% correct of all test-takers). Thirty-two percent of all test-takers believe that the risk of over-treatment is the same for both plan types. The risk of under-treatment associated with HMOs is somewhat understood among regular Medicare test-takers and very poorly understood among the HMO test-takers. Forty-one percent of HMO test-takers think that there is no difference between regular Medicare and HMO plans in the risk of under-treatment (and 15% "don't know"). HMO test-takers are almost three times more likely than regular Medicare test-takers to think that the risk of under-treatment is the same for both types of delivery systems.

Although understanding of cost implications is low, HMO test-takers score higher than regular Medicare respondents on three of the four items (Table 10b). For example, they are more aware that co-payments and premiums are lower in an HMO. For both HMO and regular Medicare test-takers, the least understood cost implication is that HMOs pay for more prevention and early detection services (33% correct). Better understood is that medigap policies are often needed with regular Medicare (67% correct of all test-takers). Regular Medicare test-takers are more likely to know this than HMO enrollees.

That HMOs restrict one's choice of doctors is the best understood of the implications (82% correct). However, more regular Medicare test-takers are knowledgeable about this than HMO test-takers (Table 10c). Thirty percent of HMO test-takers either do not know or think the restrictions on physician choice are about the same for those in HMOs as those in regular

Medicare. HMO test-takers are three times more likely than regular Medicare test-takers to think that restrictions on the choice of doctors is the same in HMOs as in the regular Medicare plan.

The implications for physician autonomy in decision-making are well understood by regular Medicare test-takers (Table 10d). However, they are poorly understood among HMO test-takers.

Can Medicare Beneficiaries Make an Informed Choice?

The items are written to assess how well respondents can differentiate the two types of Medicare coverage. This is particularly important when it comes to choosing a plan, since understanding the differences is necessary for informed choice. The findings suggest that regular Medicare test-takers have a better understanding of these differences than do those in HMOs. Regular Medicare respondents have higher income and educational levels, which are significant predictors of knowledge. When HMO enrollees are compared to a group with more similar demographics (regular Medicare with no medigap), knowledge levels are similar. A major misunderstanding among those in HMOs is the belief that the restrictions and characteristics of HMOs are also true for the regular Medicare plan.

How Much Do HMO Enrollees Know about Their Own Delivery System?

A different question from whether beneficiaries have enough knowledge for choice is whether HMO enrollees understand their own delivery system. This has implications for enrollees' ability to get the care they need and to navigate within HMOs. For this analysis, the same items used in the "choice" analysis are scored differently to assess understanding of HMOs. (See methods section for scoring.) HMO enrollees only need to know that something is true or not true for an HMO. Whether regular Medicare has the same mechanism is irrelevant to this analysis.

Scores on HMO knowledge (needed for navigation) improve in comparison to scores for understanding the differences (needed for choosing among options). Table 11 shows that in moving from "choice knowledge scores" to "HMO knowledge scores," scores are, on average, 17% higher. HMO knowledge scores still remain low for the "physician payment" items, and for the "right to appeal item." For example, only 63% of HMO test-takers know they have the right to appeal. This finding is similar to that reported by of the Office of the Inspector General in a

study of beneficiary knowledge of grievance procedures (1996)[4].

Thus for HMO test-takers, knowledge about their own plan is higher than the knowledge needed to make an informed choice between delivery systems. *However, 31% of the HMO respondents knew too little to even take the knowledge test, and are not included in this analysis. Thus, for the total HMO population, HMO knowledge is much lower than reflected among test-takers.*

Findings: Analysis of Beliefs

Once Explained, What Do Beneficiaries Believe the Impact of Financial Incentives Will Be on Physician Treatment Behavior?

Respondents were given a short description of how doctors are paid under fee-for-service and capitation (see below). After each explanation, respondents were asked a simple question (the last question in each box below) to ensure that they understood what had just been described to them. If they could not correctly answer the simple question, they were skipped out of the subsequent questions that relied on that description.

Excerpt 1: (READ SLOWLY) Here's the situation: Doctors are paid for each test or treatment they give to patients. So, doctors who give more tests and treatments earn more money. Here's the question: If these doctors gave their patients extra tests and treatments, would they make MORE MONEY or LESS MONEY in a given month?

[4]Sixty-six percent of respondents stated that they were informed of their appeal and grievance rights when they first joined an HMO. Eighty-six percent of respondents were knowledgeable about their general right to make a formal complaint about their HMO's medical care or services. However, beneficiaries were less aware of specific instances when they might exercise their appeal and grievance rights.

Excerpt 2: Here's an entirely DIFFERENT situation. Each month, 100 doctors share a flat amount of money. They use this money to give services like tests and treatments to patients. Each doctor does NOT get paid for each test or treatment he gives to patients. Remember there is just so much money that is available each month. SO, if they give their patients lots of tests and treatments, they have less money for themselves. Here's the question: if this doctor group did not give their patients any tests or treatments, would they earn MORE money or LESS money in a given month?

For the description of how fee-for-service doctors are paid, 22% could not answer the simple screening question. For the description of how HMO doctors are paid, 42% could not answer the simple screening question. Complex and unfamiliar concepts like capitation are more difficult to absorb and process. This is particularly true for elderly persons, who process information more slowly than younger adults (Salthouse, 1991 and 1996; Hasher and Zacks, 1988). An analysis of the characteristics of those unable to answer either simple screening question showed that they are older, are less educated, and had lower knowledge scores than those who could correctly respond to the screening items.

Thirty-eight percent of respondents believe that fee-for-service physicians are likely to be influenced by financial incentives, while only 33 percent of respondents believe HMO physicians are likely to be influenced by financial incentives (Table 12a). Those who believed that physicians are influenced by financial incentives were asked what percent of physicians will give more tests and treatments (or fewer tests and treatments). Respondents in this sub-group believed that more fee-for-service physicians (51%) are influenced by these incentives than are HMO physicians (41%) (Table 12b).

Who is more likely to believe that financial incentives affect physician behavior?

Using logistic regression, the predictors of beliefs about HMO and fee-for-service financial incentives were assessed separately. Age, education, income, sex, self-rated health status, doctor office visits, enrollment type, and knowledge scores were all entered into the regression equations. Only sex and knowledge scores are significant predictors of beliefs about HMO financial incentives. Males and those with higher knowledge scores are more likely to believe that HMO financial incentives influence HMO physician behavior. None of the predictor variables are significantly related to beliefs about fee-for-service financial incentives.

Does knowing about financial incentives affect beliefs about physician treatment behavior?

Responses to knowledge items on "how physicians are paid" are examined in relationship

to beliefs about physician behavior (once incentives are explained). The findings show that those who correctly answered the knowledge question about "how fee-for-service doctors are paid" are no more likely to think that fee-for-service doctors respond to financial incentives than those who answered it incorrectly (Table 13). However, those who correctly answered the knowledge question on "how HMO doctors are paid" are more likely to think that HMO doctors respond to these financial incentives.

Thus, having prior awareness of how HMO doctors are paid is related to believing that these financial incentives affect HMO physician behavior. However, this is not true for prior awareness of how fee-for-service doctors are paid. This difference may be due to the relative degree of familiarity with the two types of physician payment systems. Getting paid to do more work is a more familiar model, both in the broader marketplace and within the health care market.

Do beneficiaries believe that more (or fewer) tests and treatments result in better care?

Whether or not they thought physicians respond to fee-for-service financial incentives, respondents were asked:

> Let's say the doctors DO give more than the usual number of tests and treatments. Does this mean patients are getting better diagnoses and treatments?
> Again, let's say the doctors DO give more than the usual number of tests and treatments. Does this mean patients are getting tests and treatments they don't really need?

It is possible to respond affirmatively or negatively to both items. Eleven percent thought neither statement was true, and 19% thought both statements were true (Table 14).

With regard to giving fewer tests and treatments, respondents were asked:

> Let's say doctors DO give less than the usual number of tests and treatments. Does this mean patients are protected from unnecessary tests and treatments?
> Again, let's say doctors DO give less than the usual number of tests and treatments. Does this mean patients are NOT getting the tests and treatments they really do need?

Almost 29% thought that neither statement was true, while 15% thought that both statements were true (Table 14).

Table 15a shows the cross-tabulations between beliefs about fee-for-service physicians'

response to financial incentives and the meanings ascribed to more tests and treatments. Seventy-six percent of respondents believe that giving more services means patients are getting unneeded care or over-treatment (Table 15a). Moreover, those who believe that fee-for-service incentives influence doctors are significantly more likely to believe that more tests and treatments reflect over-treatment (85.4%). Only 69.6% of those who do not believe financial incentives influence physician behavior think that more tests and treatments reflect over-treatment.

Table 15b shows the cross-tabulations between beliefs about HMO physicians' response to financial incentives and the meanings ascribed to fewer tests and treatments. Sixty-six percent of respondents believe that giving fewer tests and treatments means patients are NOT getting the care they need. Those who believe that financial incentives influence doctors are significantly more likely to believe that fewer tests and treatments reflect under-treatment (76.5%).

Summary

The results of this research indicate that most beneficiaries in this study lack the knowledge to make an informed choice between HMO and fee-for-service Medicare. The findings indicate that 31% of the Medicare beneficiaries in these high penetration managed care markets knew almost nothing about HMOs; only 11% of beneficiaries in these markets had an adequate knowledge of the differences between the two delivery systems. This is discouraging, given the high managed care penetration of the markets in which the study was conducted. The knowledge levels in regions with lower managed care penetration are likely lower.

Education, income, and enrollment type are predictors of knowledge levels. The findings show that in the high penetration markets included in this study, HMO enrollees are a less advantaged population in comparison to those beneficiaries in the regular Medicare program. The HMO enrollees have lower education and income levels than the regular Medicare enrollees.

HMO test-takers have less understanding of the differences between regular Medicare and HMOs than test-takers in regular Medicare. The finding that regular Medicare respondents have greater knowledge of the differences between HMOs and regular Medicare is unexpected and is not explained by income and education differences alone. HMO test-takers more often mistakenly think that HMOs and regular Medicare are the same on key dimensions.

It is possible that the more knowledgeable regular Medicare group has made a conscious and informed decision to not enroll in an HMO. In contrast, the HMO enrollees are apparently enrolling without understanding that the HMO plan is significantly different from the regular Medicare plan. However, HMO enrollees may be enrolling based on the cost advantage that HMOs provide them.

Although some HMO test-takers think the restrictions and mechanisms of managed care apply to all Medicare beneficiaries, most *do* know that these mechanisms and restrictions apply to

them. HMO test-takers apparently have more adequate knowledge when it comes to knowledge necessary to navigate within HMOs (at least those who had enough knowledge to take the knowledge test).

While, in general, the test-takers had inadequate knowledge of key managed care concepts, best understood were the concepts of "primary care provider" and "networks." The least understood features are physician payment and the implications of plan type for care and treatment. It is not surprising that beneficiaries have little understanding of how physicians are paid or about physician financial incentives. Payment mechanisms are complex and have not been widely discussed in the media. But, even when capitation was explained to survey respondents, many (42%) could not grasp the concept.

The relative risks of under-treatment and over-treatment associated with the different delivery systems are potentially linked to physician payment mechanisms. However, beneficiaries appeared to be unaware of this linkage. If beneficiaries do not understand how doctors are paid, it is not surprising that the potential risks posed by the different payment approaches would also be unknown. However, when told about incentives, about one-third of respondents believed that physicians will respond to these financial incentives and alter their treatment behavior. This finding underscores the need for beneficiaries to fully understand the implications of their choices. Additional research is needed to determine how to educate beneficiaries about the effects of financial incentives on physician behavior.

Respondents, on average, rely on three different information sources to learn about HMOs. Chief among the information sources are HMO advertisements. Not surprisingly, when respondents use a greater number of information sources, they also have higher knowledge scores.

Implications and Recommendations

The informed choice strategy assumes that consumers will: (1) understand the differences among health care delivery systems and options; and (2) bring together comparative information on plan design, coverage, cost, and quality into a cogent decision. In most of our efforts to inform consumers, we have failed to help them integrate this information into one decision. Yet this is the assistance consumers need most. Developing a model to help Medicare consumers integrate these areas into a decision is a crucial step toward supporting informed consumer choice. If consumers do not understand their choices and do not have the information to successfully navigate within their health care delivery systems, the potential for receiving good quality care is diminished from the outset.

This research shows that Medicare beneficiaries currently have insufficient knowledge to make informed choices. The needed information is apparently unavailable, not available in an effective form, or is not being accessed. The findings raise serious concerns about the recent

changes to Medicare enacted under the 1997 Balanced Budget Act (BBA) that expanded the number of options that may be offered to beneficiaries. This study demonstrates that just distinguishing between HMOs and fee-for-service under the most favorable circumstances (i.e., in high penetration HMO markets where familiarity with HMOs would presumably be greater) is beyond the current proficiencies of a significant portion of beneficiaries.

Given that almost 90% of the beneficiary population studied had less than an "adequate" understanding of their choices, educating those functioning at lower literacy levels will be a significant challenge. Because those with less education and lower incomes are least likely to understand their current options, adding new options is not going to improve their situation. Unless special efforts are undertaken to help these individuals, they will be further disadvantaged and their chances of making informed choices further reduced.

A Framework for Decision-making

Almost all current efforts to inform Medicare beneficiaries about their choices focus on detailed information comparing benefit packages, costs, and the features of these choices. Thus, beneficiaries are given long lists of benefits, conditions, and restrictions associated with each option. These lists can be mind-numbing; at worst, they discourage beneficiaries from ever hoping to understand their choices (Hibbard, Slovic, and Jewett 1997). If we attempt to inform beneficiaries about these new plan options by simply listing all the different features and particulars of each option, we will leave even the most sophisticated consumer bewildered.

Education theory holds that individuals learn much better if they are given the "big ideas" first. Then they can grasp the meaning of details that can be categorized within the "big ideas" (Carnine 1994). Medicare beneficiaries need such a framework for understanding their choices. The "big ideas" behind the concept of choice are the differences between managed care and the fee-for-service system and the inherent tradeoffs that must be made between the two. The *major* risks, protections, and advantages associated with these options—i.e., the "big ideas"—should be made clear initially; these ideas will then form a framework that should make the additional details more comprehensible to consumers.

- The Implications of Choice

What beneficiaries need to know is how all these different features, restrictions, and conditions translate into *implications* for their care and their costs. What kinds of tradeoffs must they make in choosing one option over another?

Both fee-for-service and managed care options contain features (e.g., utilization review, use of primary care providers, capitation, financial incentives) that can affect patient care, patient choice, or patient costs. Although the potential implications of these features are rarely spelled out for consumers, it is precisely these implications that consumers need to know. Otherwise, how can consumers be expected to make "informed" choices?

However, all potential implications need not be painstakingly described. This, too, would overwhelm consumers and ultimately be counterproductive. Rather, consumers need a broad-brush understanding of the major implications of the available options. For example, consumers may understand that, under managed care, they get all their care for one flat fee. However, they may *not* understand that a managed care plan and/or its affiliated physicians may have a financial incentive to limit care. Similarly, they may understand the reverse incentive to over-treat in fee-for-service, but not grasp the potential implications for care that those incentives may produce. Consumers do not need to know about the implications associated with every permutation of physician financial incentive arrangements, but they should understand that the risks under fee-for-service are in the direction of over-treatment, while the risks under managed care lie in the direction of under-treatment.

Helping beneficiaries to understand the trade offs, differences, and implications of plan design options should be the initial focus of information intended to support informed choice. Details about plan rules and restrictions and benefits, while extremely important, are not the top layer of information that beneficiaries need. Rather, these can be provided as a second or third layer of information after a framework for understanding the general differences has been presented.

- Multiple Pathways and Exposures to Communicate Information About Choices

Adults learn in different ways. Some people can understand by reading written materials, while others need a person-mediated approach. Using multiple pathways for informing beneficiaries about choices will help reach more segments of the Medicare population.

Processing and understanding the new concepts is particularly difficult for older adults, who perform these functions at a slower rate than younger adults. (Salthouse 1991 and 1996; Hasher and Zacks 1988). Findings from this investigation show that a new concept such as capitation is not easily absorbed by Medicare beneficiaries the first time it is explained. Because the information needed to make informed choices involves a considerable amount of unfamiliar and complex material, it may take multiple exposures for educational efforts to be successful. Thus, both multiple pathways and multiple exposures will likely facilitate learning in the diverse Medicare population.

Finally, efforts to inform beneficiaries should be based on sound educational principles and tested thoroughly to assess efficacy with the target population.

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Tables and Figures

Please note: The following convention is used to denote significance levels:

*p<.05
**p<.01
***p<.001

Figure 1a: Education By Enrollment Type

Figure 1b: Income By Enrollment Type

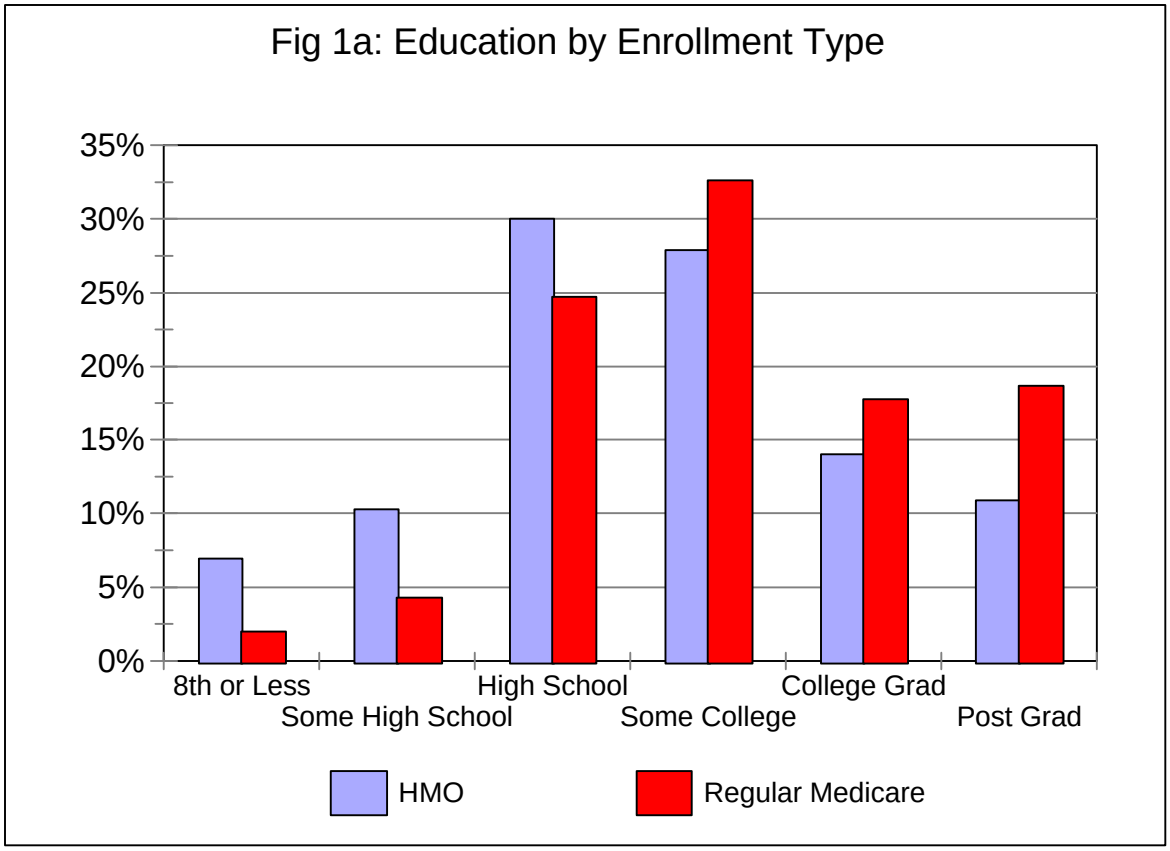
Fig 1a: Education by Enrollment Type
35%
30%
25%
20%
15%
10%
5%
0%
8th or Less
Some High School
High School
Some College
College Grad
Post Grad
HMO
Regular Medicare

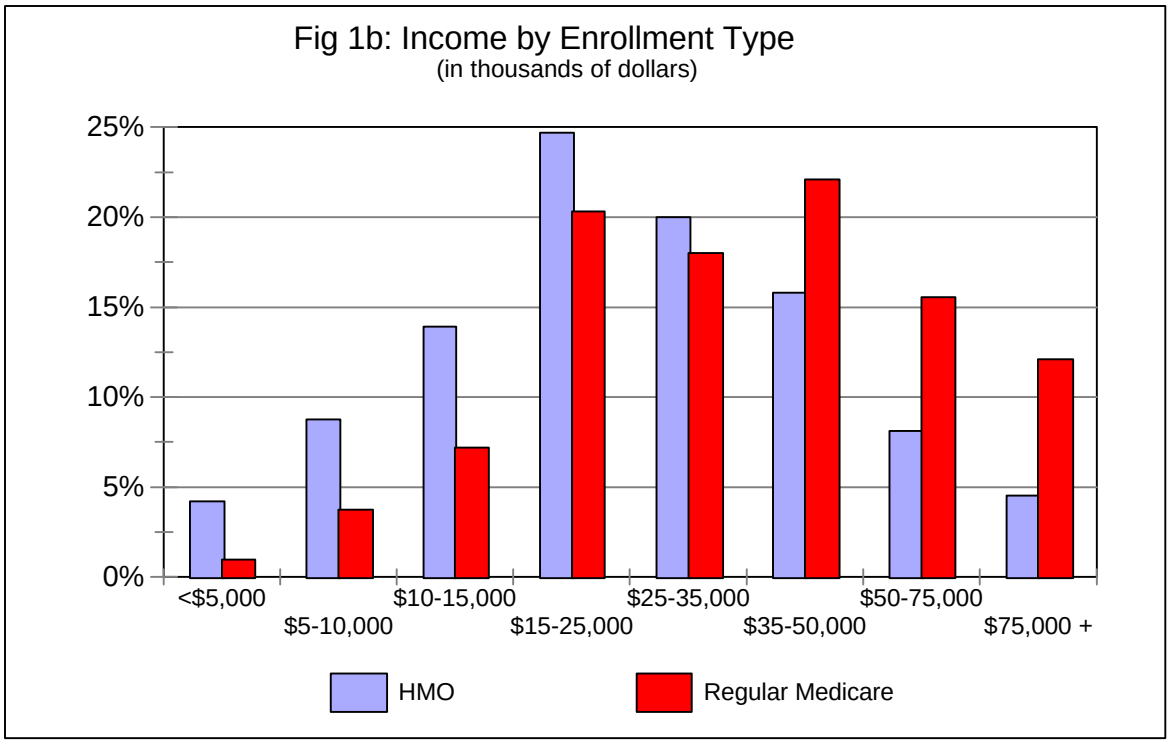
Fig 1b: Income by Enrollment Type
(in thousands of dollars)
25%
20%
15%
10%
5%
0%
<$5,000
$5-10,000
$10-15,000
$15-25,000
$25-35,000
$35-50,000
$50-75,000
$75,000 +
HMO
Regular Medicare

Figure 2: Distribution Of Overall Knowledge Scores By Enrollment Type (Test Takers Only)

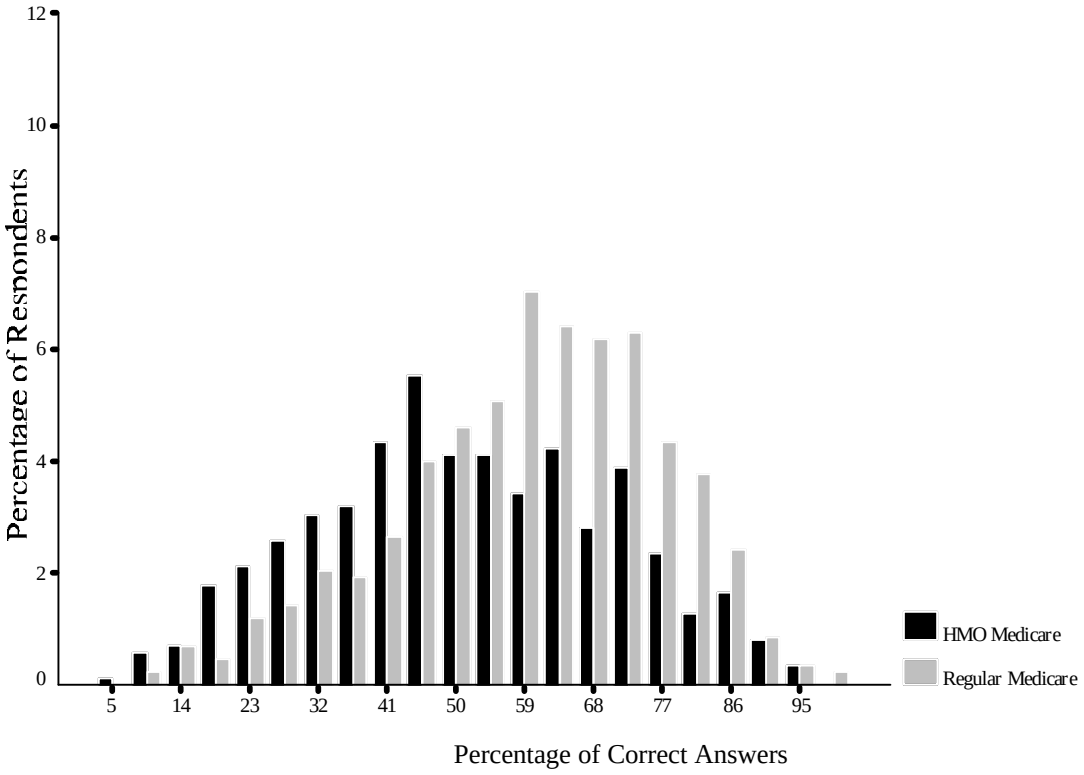

Table A: Annual Household Income. Comparison of Regional Population With Study Sample

Annual Household Income	Regional Population (%)‡	Sample Population (Only ages 65 to 74) (%)
Less than $5,000	5.0	2.7
$5,000 to $9,999	11.7	6.1
$10,000 to $14,999	12.4	9.5
$15,000 to $24,999	19.5	22.2
$25,000 to $34,999	17.1	19.2
$35,000 to $49,999	14.3	19.5
$50,000 to $74,999	10.8	12.7
$75,000 or more	9.3	8.1

‡ 1990 Census data adjusted for Cost of Living increases, 24.5% (1990-1997)
http://www.ssa.gov/OACT/COLA/autoAdj.html

Table B: Annual Household Income. Comparison of Study Sample with National Medicare Population (ages 65-80)

Annual Household Income	National Medicare Population (%)	Study Sample (%)
Less than $5,000	2.2	2.6
$5,000 to $9,999	11.6	6.3
$10,000 to $14,999	13.5	10.6
$15,000 to $24,999	24.4	22.5
$25,000 to $34,999	15.8	19.0
$35,000 to $49,999	13.9	18.9
$50,000 to $74,999	10.1	11.8
$75,000 or more	8.5	8.2

Source of national data: CPS March 1997 Microdata. Tabulations prepared by Carlos Figueiredo, PPI/AARP.

Table C: Education. Comparison of National Population with Study Sample

Educational Attainment	National Population (Age 65 to 74) (%)	Study Sample (Age 65 to 74) (%)
8th grade or less	16.2	4.5
Some high school	14.9	7.4
High school graduate	36.4	27.4
Business associate	2.3	5.2
Some college	16.0	25.0
College graduate	9.0	15.9
Post graduate/Professional	5.2	14.7

Source: U.S. Bureau of the Census, 1995. Educational Attainment in the United States, March 1995. (http://www.census.gov/prod/2/pop/p20/p20-493u.pdf accessed June 16, 1998.)

Table 1: Characteristics of Refusers & Respondents

Final Disposition	Plan (% HMO)	Race (% White)	Age (Mean)	Sex (% Female)
Interviewed (n=1,673)	50.7	92.2	71.0*	54.1
Refused (n=1,073)	49.0	91.6	71.4*	52.3

* $p < .05$

Source: HCFA Enrollment File 1996-1997

Table 2: Characteristics of Respondents by Enrollment Type

	SEX % Female	AGE Mean	EDUC. ≤High School (%)	INCOME ≤$15,000 (%)	Living with spouse/ partner (%)	HEALTH %Excellent/ V. Good	HOSP. NIGHTS (mean)	DOC. OFC. VISITS (mean)
Regular Medicare (n= 825, 49.3%)	54.8	71.2	31.0***	11.9***	68.5	46.3	1.0	3.2*
HMO Medicare (n=848, 50.7%)	53.6	70.8	47.2***	26.9***	64.0	45.2	0.9	2.7*

* p <.05, *** p < .001

Table 3: Characteristics of Those Passing & Failing the Screening Knowledge Items[†]

(Those Able and Unable to Take Knowledge Test)

	SEX % Female	AGE Mean	EDUC. ≤High School	INCOME ≤$15,000	Living with spouse/ partner (%)	HEALTH %Excellent/ V. Good	HOSP. NIGHTS (mean)	DOC. OFC. VISITS (mean)
Failed Screening Items (Unable to take knowledge test) (n=423)	56.5	71.7***	51.0***	33.6***	62.8	40.6	1.4*	2.7**
Passed Screening Items (Able to take knowledge test) (n=966)	55.4	70.9***	33.2***	13.9***	67.7	47.6	0.8*	3.3**

[†] Respondents were not given the knowledge test if they reported they knew "nothing at all" about HMOs or if they could not correctly answer at least one of the basic knowledge screening questions.
* p<.05. ** p <.01, *** p<.001

Table 4a: Distribution of Respondents on Knowledge Scores by Enrollment Type (Combined Population[a])

	Scored 0 to 25% Correct	Scored 26 to 50% Correct	Scored 51 to 75% Correct	Scored 76 to 100% Correct
Regular Medicare (n=738)	33.2%	18.7%	34.7%	13.4%
HMO Medicare (n=651)	37.6%	29.8%	24.1%	8.4%
Total (n=1389)	35.3% (490)	23.9% (332)	29.7% (413)	11.1% (154)

Scores of 0-25% are equal to guessing or worse.
Scores of 0-75% indicate inadequate knowledge levels.
Scores of 76% or higher indicate adequate or better levels of knowledge.

Average Scores: Regular Medicare - 41.5%, HMO Medicare - 35.5%

[a] Includes the combined populations of those able and unable to take the knowledge test

Table 4b: Distribution of Respondents on Knowledge Scores by Enrollment Type (Test Takers Only)

	Scored 0 to 25% Correct	Scored 26 to 50% Correct	Scored 51 to 75% Correct	Scored 76 to 100% Correct
Regular Medicare (n=515)	4.3%	26.8%	49.7%	19.2%
HMO Medicare (n=451)	10.0%	43.0%	34.8%	12.2%
Total (n=966)	6.9% (67)	34.4% (332)	42.8% (413)	15.9% (154)

Scores of 0-25% are equal to guessing or worse.
Scores of 0-75% indicate inadequate knowledge levels.
Scores of 76% or higher indicate adequate or better levels of knowledge.

Average Scores: Regular Medicare - 59.5%, HMO Medicare - 51.4%

Table 5: Characteristics of Those Scoring Lowest and Highest on the Knowledge Test (Test Takers Only)

	SEX % Female	PLAN %HMO	EDUC %≤H.S.	INCOME %<$15,000	Living with spouse/ partner (%)	AGE (mean)	HEALTH %Excellent/ V. Good	HOSP. NIGHTS (mean)	DOC. OFC. VISITS (mean)
Scoring in the Lowest Quartile (n=67)	70.1***	53.7***	52.3***	24.4**	65.6	70.1	47.4	0.4	2.5
Scoring in the Highest Quartile (n =154)	44.8***	35.7***	17.0***	8.5**	71.5	70.4	50.0	0.5	3.5

**p<.01. ***p<.001.

Table 6: Correlations Between Knowledge Scores and Respondent Characteristics (Test-Takers Only)

Characteristic	Correlation
Enrollment Type	0.22***
Sex (male = 1, female = 0)	0.15***
Age	-0.05
Education	0.28***
Income	0.24***
Hospital Nights	0.02
Doctor Office Visits	0.06
Self-Reported Health	0.06

*** p<.001.

Table 7: Linear Regression of Respondent Characteristics on Knowledge Scores (Test-Takers Only)

Characteristic	Beta	Significance (p =)
Education	0.171	0.00
Income	0.117	0.01
Age	-0.029	0.40
Sex	0.042	0.25
Health Status	0.007	0.84
Hospital Nights	0.026	0.48
Doctor Office Visits	0.012	0.73
Enrollment Type	0.134	0.00

Adjusted R Square: .10
F 11.0
Significance .0000

Table 8: Sources of Information for Learning About HMOs

Source of Information	Percentage using information from
Medicare	10.9%
Your own experience in an HMO	34.1%
TV programs	33.2%
An employer or former employer	26.1%
Friends or family	44.1%
HMO advertisements	54.7%
AARP	24.7%
Doctors or other health professionals	15.1%
Newspapers or magazine articles	47.0%
Consumer groups other than AARP like *Consumer Reports*	15.0%
No sources of information	7.0%

Table 9a: Knowledge Necessary for Choice
Mechanisms of HMOs: Primary Care Provider Items (2 Items)

The Primary Care Provider Domain is understood by 51% of respondents (correctly answered two out of the two items [a])

Question 1[5]: A patient visits a specialist. However, he has to pay the total cost of the visit himself, because he didn't get his regular doctor's approval in advance. Does this best describe the Regular Medicare Plan, an HMO plan, both or neither?

Enrollment Type	Regular Medicare	HMO Plan	Both	Neither	Don't Know
HMO Enrollee	5.3%	**71.4%**	9.1%	4.0%	10.2%
R. Medicare Enrollee	4.3%	**76.7%**	6.0%	3.5%	9.5%
Total (966)	4.3%	**74.2%**	7.5%	3.7%	9.8%

Question 2: A patient's primary care doctor has no appointments available. The patient looks in the phone book and chooses another doctor who can see her immediately. The visit is covered. Does this best describe regular Medicare, an HMO, both or neither?

Enrollment Type	Regular Medicare	HMO Plan	Both	Neither	Don't Know
HMO Enrollee	**52.8%**	10.6%	11.5%	11.3%	13.7%
R. Medicare Enrollee	**76.1%**	4.9%	4.9%	4.9%	9.3%
Total (966)	**65.2%**	7.6%	8.0%	7.9%	11.4%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

[a] Among those taking the test

[5] This question is one of two screening questions. Respondents who answered both questions incorrectly were not asked further knowledge questions. Only respondents who passed the screening test are included in this analysis. Therefore, a high percentage of respondents included in the analysis correctly answered this item.

Table 9b: Knowledge Necessary for Choice Mechanisms: Network Domain (3 Items)

The Network Domain is understood by 55% of respondents (correctly answered three out of the three items [a])

Question 1[6]: A patient is given a list of approved doctors. To be covered, she can only choose doctors from that list. Does this best describe regular Medicare, an HMO, both or neither?

Enrollment Type	Regular Medicare	HMO Plan	Both	Neither	Don't Know
HMO Enrollee	2.0%	**89.4%**	4.9%	1.1%	2.7%
R. Medicare Enrollee	3.3%	**91.5%**	2.1%	1.4%	1.7%
Total (966)	2.7%	**90.5%**	3.4%	1.2%	2.2%

Question 2: A patient is told she must give up her regular doctor. She must choose a new one from an approved list if she wants to get any part of her visits paid for. Could this happen with regular Medicare, an HMO, both or neither?

Enrollment Type	Regular Medicare	HMO Plan	Both	Neither	Don't Know
HMO Enrollee	2.9%	**67.8%**	13.1%	4.4%	11.8%
R. Medicare Enrollee	2.1%	**85.8%**	6.0%	1.6%	4.5%
Total (966)	2.5%	**77.4%**	9.3%	2.9%	7.9%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

[a] Among those taking the test

[6] This question is one of two screening questions. Respondents who answered both questions incorrectly were not asked further knowledge questions. Only respondents who passed the screening test are included in this analysis. Therefore, a high percentage of respondents included in the analysis correctly answered this item.

Table 9b: (Continued) Knowledge Necessary for Choice Mechanisms: Network Domain

Question 3: A patient has a heart attack and is taken to the nearest hospital. The next day he is notified that to get the bill paid, he must be transferred to a hospital that is on an approved list. Could this happen with regular Medicare, an HMO, both or neither?

Enrollment Type	Regular Medicare	HMO Plan	Both	Neither	Don't Know
HMO Enrollee	3.1%	**56.3%**	19.5%	5.8%	15.3%
R. Medicare Enrollee	1.7%	**75.7%**	8.9%	4.9%	8.7%
Total (966)	2.4%	**66.7%**	13.9%	5.3%	11.8%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

Table 9c: Knowledge Necessary for Choice Mechanisms: Physician Payment Domain (3 Items)

The Physician Payment Domain is understood by 13% of respondents (correctly answered three of three items [a])

Question 1: Sometimes doctors earn more money if their patients stay well and don't need much medical care. Could this happen with regular Medicare, an HMO, both or neither?

Enrollment Type	Regular Medicare	HMO Plan	Both	Neither	Don't Know
HMO Enrollee	5.3%	**39.0%**	24.6%	12.0%	19.1%
R. Medicare Enrollee	7.8%	**42.5%**	18.3%	10.3%	21.2%
Total (966)	6.6%	**40.9%**	21.2%	11.1%	20.2%

Question 2: Doctors get a flat amount of money for each Medicare patient. This monthly payment is the same whether a patient visits the doctor often or never. Could this happen with regular Medicare, an HMO, both or neither?

Enrollment Type	Regular Medicare	HMO Plan	Both	Neither	Don't Know
HMO Enrollee	6.9%	**41.7%**	18.8%	8.2%	24.4%
R. Medicare Enrollee	7.2%	**50.9%**	8.2%	9.9%	23.9%
Total (966)	7.0%	**45.6%**	13.1%	9.1%	24.1%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

[a] Among those taking the test

Table 9c: (Continued) Knowledge Necessary for Choice Mechanisms: Physician Payment Domain

Question 3: Doctors are paid for each test or treatment they give patients. The more tests and treatments doctors give, the more money they make. Does this best describe regular Medicare, an HMO, both or neither?

Enrollment Type	Regular Medicare	HMO Plan	Both	Neither	Don't Know
HMO Enrollee	**32.6%**	11.1%	19.5%	14.4%	22.4%
R. Medicare Enrollee	**33.4%**	15.0%	15.3%	12.8%	23.5%
Total (966)	**33.6%**	13.1%	17.3%	13.6%	23.0%

[a] Among those taking the test

Table 9d: Knowledge Necessary for Choice Mechanisms: Emergency Care Domain (2 Items)

The Emergency Care Domain is understood by 16% of respondents (correctly answered two out of two questions [a])

Question 1: In a life-threatening situation, a patient can go to the nearest hospital emergency room and the visit will be covered. Does this best describe regular Medicare, an HMO, both or neither?

Enrollment Type	Regular Medicare	HMO Plan	Both	Neither	Don't Know
HMO Enrollee	11.3%	23.1%	**56.1%**	2.9%	6.7%
R. Medicare Enrollee	52.8%	3.9%	**33.2%**	2.7%	7.4%
Total (966)	33.4%	12.8%	**43.9%**	2.8%	7.0%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

Question 2: This type of plan has strict definitions of what an emergency is and what will be paid for if a patient goes to the emergency room. Does this best describe regular Medicare, an HMO, both or neither?

Enrollment Type	Regular Medicare	HMO Plan	Both	Neither	Don't Know
HMO Enrollee	8.2%	**36.4%**	28.2%	6.9%	20.4%
R. Medicare Enrollee	13.4%	**42.3%**	21.2%	4.7%	18.4%
Total (966)	11.0%	**39.5%**	24.4%	5.7%	19.4%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

[a] Among those taking the test

Table 9e: Knowledge Necessary for Choice Mechanisms: Appeal Rights Domain (1 Item)

The Appeal Rights Domain is understood by 40% of respondents (correctly answered the one item [a])

Question 1: A medical bill which should have been covered is not paid. The patient has the right to appeal this. Does this best describe regular Medicare, an HMO, both or neither?

Enrollment Type	Regular Medicare	HMO Plan	Both	Neither	Don't Know
HMO Enrollee	21.5%	17.1%	**46.1%**	2.0%	13.3%
R. Medicare Enrollee	46.8%	5.8%	**34.2%**	1.6%	11.7%
Total (966)	35.0%	11.1%	**39.8%**	1.8%	12.4%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

[a] Among those taking the test

Table 10a: Knowledge Necessary for Choice
Implications for: Treatment and Care Domain (2 Items)

The Treatment and Care Domain is understood by 15% of the respondents (correctly answered two out of the two items [a])

Question 1: Some people want to avoid over-treatment. Over-treatment is when patients get tests and treatments they don't really need. To lower the chance of over-treatment, should they choose regular Medicare, an HMO, or are they about the same?

Enrollment Type	Regular Medicare	HMO Plan	About the Same	Don't Know
HMO Enrollee	14.9%	**35.5%**	34.8%	14.9%
R. Medicare Enrollee	28.0%	**23.5%**	30.1%	18.4%
Total (966)	21.8%	**29.1%**	32.3%	16.8%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

Question 2: Some people want to avoid under-treatment. Under-treatment is when patients are not give the treatments they really do need. To lower the chances of under-treatment, should they choose regular Medicare, an HMO, or are they about the same?

Enrollment Type	Regular Medicare	HMO Plan	About the Same	Don't Know
HMO Enrollee	**25.3%**	19.5%	40.6%	14.6%
R. Medicare Enrollee	**66.8%**	8.7%	14.2%	10.3%
Total (966)	**47.4%**	13.8%	26.5%	12.3%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

[a] Among those taking the test

Table 10b: Knowledge Necessary for Choice
Implications for: Cost of Care Domain (4 Items)

The Cost of Care Domain is understood by 35% of respondents (correctly answered at least three of the four items [a])

Question 1: Some people want a wide range of services covered, like glasses and foot care. Should they choose regular Medicare, an HMO, or are they about the same?

Enrollment Type	Regular Medicare	HMO Plan	About the Same	Don't Know
HMO Enrollee	10.9%	**45.9%**	27.5%	15.7%
R. Medicare Enrollee	23.3%	**40.0%**	14.0%	22.7%
Total (966)	17.5%	**42.8%**	20.3%	19.5%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

Question 2: Some people want to pay little or nothing for each visit to the doctor and have low monthly premiums. Should they choose regular Medicare, an HMO, or are they about the same?

Enrollment Type	Regular Medicare	HMO Plan	About the Same	Don't Know
HMO Enrollee	7.5%	**63.0%**	15.1%	14.4%
R. Medicare Enrollee	21.9%	**51.1%**	11.7%	15.3%
Total (966)	15.2%	**56.6%**	13.3%	14.9%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

[a] Among those taking the test

Table 10b (Continued): Knowledge Necessary for Choice
Implications for: Cost of Care Domain

Question 3: Some people want a plan that pays the most for prevention and early detection of disease. Should they choose regular Medicare, an HMO, or are they about the same?

Enrollment Type	Regular Medicare	HMO Plan	About the Same	Don't Know
HMO Enrollee	7.5%	**47.9%**	31.0%	13.5%
R. Medicare Enrollee	38.3%	**19.8%**	25.6%	16.3%
Total (966)	23.9%	**32.9%**	28.2%	15.0%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

Question 4: To help pay her "out of pocket" doctor bills, a patient may need a Medigap or supplemental policy. Does this best describe regular Medicare, an HMO, both or neither?

Enrollment Type	Regular Medicare	HMO Plan	Both	Neither	Don't Know
HMO Enrollee	**60.1%**	8.4%	12.0%	3.3%	16.2%
R. Medicare Enrollee	**72.0%**	4.7%	11.8%	2.1%	9.3%
Total (966)	**66.5%**	6.4%	11.9%	2.7%	12.5%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

Table 10c: Knowledge Necessary for Choice
Implications for: Restriction in Choice of Doctors Domain (1 Item)

The Restriction in Choice of Doctors Domain is understood by 82% of respondents (correctly answered the item [a])

Question 1: Some people want to freely choose a doctor whenever they want. They don't want their choice limited and they don't want to have to get approvals to see doctors. Should they choose regular Medicare, an HMO, or are they about the same?

Enrollment Type	Regular Medicare	HMO Plan	About the Same	Don't Know
HMO Enrollee	**70.3%**	9.1%	10.9%	9.8%
R. Medicare Enrollee	**91.3%**	1.6%	2.5%	4.7%
Total (966)	**81.5%**	5.1%	6.4%	7.0%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

[a] Among those taking the test

Table 10d: Knowledge Necessary for Choice
Implications for: Physicians' Autonomy Domain (3 Items)

The Physicians' Autonomy Domain is understood by 43% of respondents (correctly answered three out of the three questions [a])

Question 1: Some people want their own doctor to choose whichever treatments are best. They don't think their doctor should have to get approval for treatment from someone in the plan. Should they choose regular Medicare, an HMO, or are they about the same?

Enrollment Type	Regular Medicare	HMO Plan	About the Same	Don't Know
HMO Enrollee	**50.3%**	13.7%	20.0%	16.0%
R. Medicare Enrollee	**82.1%**	2.3%	7.0%	8.5%
Total (966)	**67.3%**	7.7%	13.0%	12.0%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

Question 2: Primary care doctors may be asked to save money for the plan by sending fewer patients to specialists. Could this happen with regular Medicare, an HMO, both or neither?

Enrollment Type	Regular Medicare	HMO Plan	Both	Neither	Don't Know
HMO Enrollee	4.9%	**50.1%**	26.4%	6.2%	12.4%
R. Medicare Enrollee	2.5%	**70.9%**	13.4%	1.9%	11.3%
Total (966)	3.6%	**61.2%**	19.5%	3.9%	11.8%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

[a] Among those taking the test

Table 10d (Continued): Knowledge Necessary for Choice
Implications for: Physicians' Autonomy Domain

Question 3: A doctor recommends a certain treatment but his decision is overruled by the plan and the treatment is not given to the patient. Is this more likely to happen with regular Medicare, an HMO, both or neither?

Enrollment Type	Regular Medicare	HMO Plan	Both	Neither	Don't Know
HMO Enrollee	7.5%	**47.2%**	18.0%	7.5%	19.7%
R. Medicare Enrollee	2.3%	**79.2%**	7.6%	2.3%	8.5%
Total (966)	4.8%	**64.3%**	12.4%	4.8%	13.8%

(HMO and regular Medicare enrollees' responses are significantly different, p<.001)

[a] Among those taking the test

Table 11: HMO Enrollees' Knowledge for Choice and Knowledge of HMOs (Navigation)

	Item	% Correct for Choice	% Correct for HMOs (Navigation)
PCP	Patient pays for specialist unless pre-approved	71.4%	80.5%
	A patient chooses a doctor from phone book	52.8%	64.1%
Network	Patient can only choose from approved list	89.4%	94.3%
	Patient must give up doctor, choose new one from list	67.8%	80.9%
	Heart patient transferred to new hospital	56.7%	76.8%
Physician Payment	Drs. earn more money if patients stay well	39.0%	63.6%
	Drs. are paid a flat fee for each patient	41.7%	60.5%
Emergency	Patient may go to any hospital in an emergency	56.1%	79.2%
	Strict definition of emergency	36.4%	64.6%
Appeal Right	Patient has right of appeal	46.1%	63.2%

Table 12a: Percent of Respondents Who Believe that Physicians Are Influenced by Financial Incentives

	HMO Doctor	Fee-For-Service Doctor
HMO Enrollee	29.0% *	38.0%
Regular Medicare Enrollee	36.3% *	38.6%
Total	32.6% (n = 854)	38.3% (n = 1161)

* $p<.05$

Table 12b: The Percent of Physicians Who Respondents Believe Are Influenced by Financial Incentives

(Among Respondents Who Believe Any Doctors Are)

	HMO Doctor	Fee-For-Service Doctor
HMO Enrollee	42.5%	52.1%
Regular Medicare Enrollee	39.4%	49.7%
Total	40.8% (n = 257)	50.9% (n = 407)

Table 13: Prior Knowledge of Physician Incentives and Belief About Physician Response

	Percent of Respondents Who Believe Fee-For-Service Physicians Will Respond to Incentives
Prior Knowledge of Fee-For-Service Payment Mechanism (Answered physician payment knowledge item correctly)	
Yes	43.4%
No	40.4%
Total	41.4% (n = 719)

	Percent of Respondents Who Believe HMO Physicians Will Respond to Incentives
Prior Knowledge of HMO Payment Mechanism (Answered physician payment knowledge item correctly)	
Yes	40.5%*
No	31.6%*
Total	36.2% (n = 569)

* $p<.05$

Table 14: Beliefs About the Effects of More (or Fewer) Tests and Treatments on Care

% who believe			
More tests and treatments mean patients are getting <u>better</u> care.	More tests and treatments mean patients are getting <u>unneeded</u> care.	Both are true.	Neither is true.
37.8% (n = 1512)	70.1% (n = 1454)	19.0% (n = 1360)	11.3% (n = 1360)

% who believe			
Fewer tests and treatments mean patients are <u>protected</u> from unnecessary care.	Fewer tests and treatments mean patients are <u>not</u> getting care they need.	Both are true.	Neither is true.
28.2% (n = 1448)	59.7% (n = 1435)	15.2% (n = 1299)	28.8% (n = 1299)

Table 15a: Beliefs About the Effects of More Tests and Treatments on Care and Beliefs About Physician Response to Incentives

	Believes that: More tests and treatments mean patients are getting <u>better</u> care.
Believes that: Fee-For-Service physicians respond to incentives by giving <u>more</u> tests/treatments	
Yes	27.1%**
No	36.7%**
Total	33.0% (n =1092)

	Believes that: More tests and treatments mean patients are getting <u>unneeded</u> care.
Believes that: Fee-For-Service physicians respond to incentives by giving <u>more</u> tests/treatments	
Yes	85.4%***
No	69.6%***
Total	75.8% (n =1066)

** p<.01, *** p<.001

Table 15b: Beliefs About the Effects of Fewer Tests and Treatments on Care and Beliefs About Physician Response to Incentives

	Believes that: Fewer tests and treatments mean patients are protected from unneeded care
Believes that: HMO physicians respond to incentives by giving fewer tests/treatments:	
Yes	23.2%
No	25.3%
Total	24.6% (n = 785)

	Believes that: Fewer tests and treatments mean patients are not getting care they need
Believes that: HMO physicians respond to incentives by giving fewer tests/treatments:	
Yes	76.5%***
No	60.9%***
Total	66.2%(n = 783)

** p<.01, *** p<.001

Appendices

APPENDIX A: Validity Assessments

Content Validity

The research team is assisted in instrument development tasks by an expert panel, educational test construction consultants, and AARP policy analysts. The panel of experts is used to assure the content validity of the domains and the items (Thorndike, 1991; Popham, 1978, 1990). The four-person panel includes professionals who have expert knowledge about what consumers need to know to use and choose managed care plans. The panel includes Diane Archer, Director of Medicare Rights Center, Dr. Jeanne McGee of McGee Evers Consulting, Dr. Steve Garfinkel of The Research Triangle Institute, and Dr. Marc Rodwin of the University of Indiana.

The research team generated the domains to be covered and the individual items for assessing each domain. The experts were asked to review the domains, the items, and the total instrument to assure that they reflect "what a Medicare beneficiary needs to know to: choose a plan, to understand what to expect from a managed care plan, and to navigate within a plan."

AARP policy analysts and the four-member expert panel provided review and comment on the domains and the items. These reviews were carried out in separate rounds. The first round focused on the domains to be included. Panel members indicated the domains that a consumer should know about to make an informed choice of a managed care plan or to choose between managed care and traditional fee-for-service Medicare. The second round of input focused on the individual items for inclusion. Here the focus was on whether the items are technically correct and how well they measure the selected domains. Panel members assessed whether each item is congruent or incongruent with the survey's stated purposes. A third round of input was obtained from a subgroup of the panel, the review focused on the entire instrument, assessing comprehensiveness, technical correctness (regarding managed care), and properties of the instrument itself (flow, wording, skip patterns). (The findings from the expert panel are included in appendix D)

Expert

In addition to the expert panel and the AARP reviewers, a team of experts in educational assessment and measurement reviewed the instrument. The educational and measurement consultants, Dr. Siegfried Engelmann, Dr. Don Steely, and Dr. Douglas Carnine, reviewed the instrument for clarity, wording, level of difficulty, ease of interpretation, skip patterns and format. For example, they helped select answer formats that provide the most information about consumers' comprehension and reduce the possibility of guessing. They also assessed the mix of questions to ensure that the appropriate mix of concrete examples, scenario questions, and the domains of interest were included. They also gave input on wording, skip patterns, introductions, and testing procedures.

Consumer

Content validity procedures which included consumer validation of the items were also carried out. Did the respondents clearly understand the questions being asked? Extensive cognitive testing with individual Medicare beneficiaries ensured that the items used clear and appropriate language, were correctly interpreted, and that the correct concepts were conveyed and understood. A series of comprehension questions were asked regarding the meaning of each item, the terms used, and the important concepts embedded within items. Several iterations of cognitive testing with over 50 Medicare beneficiaries helped to refine the draft instrument.

Empirical or Criterion-related Validity

As a knowledge "test," we are interested in the degree to which it correlates with other measures of knowledge. In this type of criterion-related validity, some other measure of knowledge is taken as the criterion of success, and we judge the instrument in terms of its relationship to that criterion measure. The higher the correlation, the better the "test" of knowledge. The basic procedure is to give the instrument to a group of respondents from the target population, then follow them up a week or so later to get, from each one, the specific criterion measure. Then, the correlations between the scores and the criterion measure of success are computed. This procedure is commonly used for knowledge tests. The higher the correlation, the more effective the instrument is as a predictor of true knowledge and the higher its "criterion-related" or "empirical" validity (Thorndyke 1991).

One of the most difficult problems is that of locating or creating a satisfactory measure to be used as the criterion measure for test validation. It should be relevant, free of bias, have high face validity, and be obtainable in a simple, straightforward fashion. Since no such test existed, it was decided to create a simple test that got straight to the heart of the knowledge issue. The first question was open-ended and asked respondents to answer in their own words: "In your opinion, what are the major differences between an HMO plan and the regular Medicare plan?" Next, 10 multiple choice questions covered the HMO "component" domains in the AARP instrument (e.g. primary care physician, network, utilization review, coverage, financial incentives).

Validity Test Procedures.

Medicare beneficiaries were selected from a telephone company generated list and screened, via telephone, to exclude individuals with cost Medicare HMO plans. The AARP instrument was then administered to 25 respondents. Only the knowledge items, however, were scored, yielding a total possible "knowledge" score of 22 (1 point per item). Of the 25 respondents, four scored in the high range, 12 in the mid range , and four in the low range. Five respondents were skipped-out of the knowledge section. Respondents can be skipped-out of the knowledge items for two reasons: 1) stating that they know "nothing at all" about HMOs ; or (2) answering the two screening items incorrectly.

Two weeks after the first survey, the four high and the four low scorers were recalled and the validity instrument was administered. An independent interviewer, blind to the high or low score status of the respondents, administered and tape recorded the interview. The open-ended item was then transcribed and scored . Each correct multiple choice question was given one point.

The findings from the validity studies suggest that the domains measured are the domains that need to be measured, that the items are understood by respondents, and the items do accurately measure respondents' knowledge of the domains included in the AARP instrument. Respondents who scored low on the AARP instrument tended to also score low on the same domains on the validity instrument.

Results

All four high scorers on the AARP instrument again were high scorers on the validity instrument (Table 1). Of the four low scorers on the AARP instrument, two scored in the low range on the validity instrument. One low scorer on the AARP instrument declined to take the validity survey, stating that he knew so little about HMOs that he felt uncomfortable being interviewed again. This was the person who got the lowest score (6|23) on the AARP instrument. One low scorer crossed into the "mid" range on the validity instrument. This person scored poorly on the open-ended question but correctly answered eight of 10 multiple choice questions. Her individual component scores on the AARP instrument showed her to be unusual in that she scored very well on "financial incentives," a component that even high scorers didn't understand. However, her other component scores were low. Her knowledge of financial incentives gave her an advantage on the multiple choice questions on the validity instrument.

Alternative Procedure for "skip-out" Respondents.

Three of the five "skip-out" respondents were included in the follow-up validity study. These three individuals are important because they represent the group with the least knowledge about HMOs and who would, theoretically, get a zero knowledge score. For the validity study, they were first asked the open-ended question from the validity instrument. All three scored zero points. Next, they were asked a few questions from the first instrument (AARP), some of the questions they had skipped. It is important to know whether they were legitimately skipped out of the knowledge items or could they have answered them correctly. The two respondents who were skipped out because they said they knew "nothing at all" about HMOs were asked the two original screener questions which cover the HMO domains of "network" and "primary care physician." They were also asked three additional questions representing three other HMO domains. No points were scored by either respondent. One respondent was skipped-out due to failing the two screener questions and was asked only three additional questions. No points were scored. These findings are consistent with cognitive testing and, in fact, confirm the need for the skip out procedure.

Summary

The findings from the validity studies suggest that the domains measured are the domains

that need to be measured, that the items are understood by respondents, and the items do accurately measure respondents' knowledge of the domains included in the AARP instrument.

APPENDIX B: Domains of Knowledge: How the Items Are Grouped

Mechanisms of HMOs and the Regular Medicare Plan

Primary Care Provider (2 items)

1. A patient visits a specialist. However, he has to pay the total cost of the visit himself, because he didn't get his regular doctor's approval in advance. Does this best describe the regular Medicare plan, an HMO plan, both or neither?

2. A patient's primary care doctor has no appointments available. The patient looks in the phone book and chooses another doctor who can see her immediately. The visit is covered. Does this best describe regular Medicare, an HMO, both or neither?

Network (3 items)

1. A patient is give a list of approved doctors. To be covered, she can only choose doctors from that list. Does this best describe regular Medicare, an HMO, both or neither?

2. A patient is told she must give up her regular doctor. She must choose a new one from an approved list if she want to get any part of her visits paid for. Could this happen with regular Medicare, an HMO, both or neither?

3. A patient has a heart attack and is taken to the nearest hospital. The next day he is notified that to get the bill paid, he must be transferred to a hospital that is on an approved list. Could this happen with regular Medicare, an HMO, both or neither?

Physician Payment (3 items)

1. Sometimes doctors earn more money if their patients stay well and don't need much medical care. Could this happen with regular Medicare, an HMO, both or neither?

2. Doctors get a flat amount of money for each Medicare patient. This monthly payment is the same whether a patient visits the doctor often or never. Could this happen with regular Medicare, an HMO, both or neither?

3. Doctors are paid for each test or treatment they give patients. The more tests and treatments doctors give, the more money they make. Does this best describe regular Medicare, an HMO, both or neither?

Emergency Care (2 items)

1. In a life-threatening situation, a patient can go to the nearest hospital emergency room and the visit will be covered. Does this best describe regular Medicare, an HMO, both or neither?

2. This type of plan has strict definitions of what an emergency is and what will be paid for if a patient goes to the emergency room. Does this best describe regular Medicare, an HMO, both or neither?

Appeal Rights (1 item)

1. A medical bill which should have been covered is not paid. The patient has the right to appeal this. Does this best describe regular Medicare, an HMO, both or neither?

Implications of Choice:

Treatment and Care (2 items)

1. Some people want to avoid over-treatment. Over-treatment is when patients get tests and treatments they don't really need. To lower the chance of over-treatment, should they choose regular Medicare, an HMO, or are they about the same?

2. Some people want to avoid under-treatment. Under-treatment is when patients are not give the treatments they really do need. To lower the chances of under-treatment, should they choose regular Medicare, an HMO, or are they about the same?

Cost of Care (4 items)

1. Some people want a wide range of services covered, like glasses and foot care. Should they choose regular Medicare, an HMO, or are they about the same?

2. Some people want to pay little or nothing for each visit to the doctor and have low monthly premiums. Should they choose regular Medicare, an HMO, or are they about the same?

3. Some people want a plan that pays the most for prevention and early detection of disease. Should they choose regular Medicare, an HMO, or are they about the same?

4. To help pay her 'out of pocket' doctor bills, a patient may need a Medigap or supplemental policy. Does this best describe regular Medicare, an HMO, both or neither?

Choice of Doctors (1 item)

1. Some people want to freely choose a doctor whenever they want. They don't want their choice limited and they don't want to have to get approvals to see doctors. Should they choose regular Medicare, an HMO, or are they about the same?

Physician Autonomy (3 items)

1. Some people want their own doctor to choose whichever treatments are best. They don't think their doctor should have to get approval for treatment from someone in the plan. Should they choose regular Medicare, an HMO, or are they about the same?

2. Primary care doctors may be asked to save money for the plan by sending fewer patients to specialists. Could this happen with regular Medicare, an HMO, both or neither?

3. A doctor recommends a certain treatment but his decision is overruled by the plan and the treatment is not given to the patient. Is this more likely to happen with regular Medicare, an HMO, both or neither?

Appendix C: Survey Instrument

To obtain a copy of the Survey Instrument, please send your request to

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