



Assessing Readiness of Medicare Beneficiaries To Participate in Informed Health Care Choices

Final Report

Prepared for:

Sherry Terrell, Ph.D., Project Officer
Office of Strategic Planning
Health Care Financing Administration
7500 Security Blvd., M/S 3C-19-14
Baltimore, MD 21244-1850

Prepared by:

Pro-Change Behavior Systems, Inc.
P.O. Box 755
West Kingston, RI 02892

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Prepared for:

Sherry Terrell, Ph.D., Project Officer
Health Care Financing Administration

Prepared by:

Deborah A. Levesque, Ph.D.
James O. Prochaska, Ph.D.
Carol O. Cummins, M.Ed., MLIS
Janet L. Evans, M.A.

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Executive Summary

HCFA has launched a comprehensive campaign, the National Medicare Education Program, to raise awareness among beneficiaries about their Medicare health plan options. The goal is to ensure that beneficiaries make informed choices, regardless of whether they stay in Original Medicare or select one of the new options. HCFA's campaign can benefit from empirically validated conceptual models that can explain and facilitate movement from one level of awareness about choice to another, that can provide reliable methods of identifying groups of beneficiaries who may be more or less receptive to messages and information about informed choice, and that can provide guidance in the targeting and tailoring of messages for different groups. HCFA has recently adopted an information-seeking model that segments beneficiaries into three groups—passive, reactive, and active information seekers—and has begun to use the model to target its activities.

The Transtheoretical Model (TTM), one of the leading models of health behavior change, offers an alternative approach to market segmentation. Briefly, the TTM understands change as progress over time through a series of stages: Precontemplation, Contemplation, Preparation, Action, and Maintenance. Nearly 20 years of research on a variety of health behaviors have identified interventions that work best in each stage to facilitate change. This research can serve as a foundation upon which to build stage-matched interventions to increase participation in informed health plan choice among Medicare beneficiaries. The TTM can guide the development of stage-matched interventions to help beneficiaries progress from passive acceptance of their current plan to more active participation in informed choice based on an understanding of the Medicare program and available health plan options.

The first step in the application of the TTM to a new area is the development and validation of measures of stage and other dimensions of the model. In the present project, staging algorithms were developed to assess readiness to engage in three types of informed choice: 1) learning about the Medicare program; 2) learning about Medicare HMOs; and 3) reviewing different health plan options. The first two algorithms were constructed from existing items from the Round 18 Medicare Current Beneficiary Survey (MCBS); the third algorithm was constructed from questions developed for this project and included in the Round 23 MCBS.

Stage distributions suggest that, as a group, beneficiaries are furthest along in their readiness to learn about the Medicare program (44% of respondents are in the Action stage). They are less ready to learn about the availability and benefits of HMOs (27% in Action), and to review different health plan options (12% in Action or Maintenance).

Results of validity analyses provide strong evidence for the construct validity of the staging measures. Stage of change based on all three algorithms was related to knowledge about the Medicare program, information-seeking, and most other variables (e.g., income, education) expected to vary systematically with stage. For example, compared to beneficiaries in the earlier stages of change, beneficiaries in the later stages

scored significantly higher on five measures of Medicare knowledge, and were more likely to seek out or find information on new benefits, services covered, and HMOs.

Stage of change for learning about the Medicare program was a better predictor of knowledge about the Medicare program than all demographic, health status, and health plan variables examined, even education. Stage of change for learning about Medicare HMOs and for reviewing different health plan options were the best predictors of knowledge about Medicare HMOs.

These findings provide strong evidence for the construct validity of the new stage of change measures, and evidence for the applicability of the TTM to informed choice in the Medicare population. In a separate project, work is underway to develop and refine gold standard measures of stage of change and other dimensions of the TTM, and to develop prototypes of TTM-based interventions that might be targeted to groups of beneficiaries in different stages of change.

Introduction and Overview of the Transtheoretical Model of Change

The Balanced Budget Act of 1997 authorized a number of new health plan options under the Medicare + Choice program. The Health Care Financing Administration (HCFA) has launched a comprehensive campaign, the National Medicare Education Program (NMEP), to raise awareness among Medicare beneficiaries about their options, educate beneficiaries about the characteristics of different plan types, and help them assess the advantages and disadvantages each choice holds for them. The goal is to ensure that beneficiaries are making an informed choice, regardless of whether they stay with Original Medicare or choose one of the new options. HCFA is responsible to Congress for demonstrating improvement over time in the level of awareness and understanding beneficiaries have about their health plan options.

HCFA's campaign can benefit from empirically validated conceptual models that can explain and facilitate movement from one level of awareness about choice to another, that can provide reliable methods of identifying groups of beneficiaries who may be more or less receptive to messages and information about informed choice, and that can provide guidance in the targeting and tailoring of messages for different groups. HCFA has recently adopted an information-seeking model that segments beneficiaries into three groups—passive, reactive, and active information seekers—and has begun to use the model to target its activities.

The Transtheoretical Model (TTM, also known as the “stage model”), one of the leading models of health behavior change, offers an alternative approach to market segmentation. Briefly, the TTM understands change as progress over time through a series of stages: Precontemplation, Contemplation, Preparation, Action, and Maintenance. Nearly 20 years of research on a variety of health behaviors have identified interventions that work best in each stage to facilitate change. This research can serve as a foundation upon which to build stage-matched interventions to increase participation in informed health plan choice among Medicare beneficiaries. The TTM can guide the development of stage-matched interventions to help beneficiaries progress from passive acceptance of their current plan to more active participation in informed choice based on an understanding of the Medicare program and available health plan options.

The Transtheoretical Model of Change

The TTM systematically integrates four theoretical concepts central to change:

- | | |
|------------------------|---|
| 1) Stages of Change | Readiness to take action |
| 2) Decisional Balance | Pros and cons associated with a behavior's consequences |
| 3) Self-Efficacy | Confidence to make and sustain changes in difficult situations |
| 4) Processes of Change | Ten cognitive, affective, and behavioral activities that facilitate change. |

Stage of change, the central organizing construct of the model, represents the temporal and motivational dimensions of the change process. Longitudinal studies of change have found that people move through a series of five stages when modifying behavior on their own or with the help of formal intervention (DiClemente & Prochaska, 1982; Prochaska & DiClemente, 1983). In the first stage of change, the Precontemplation Stage, individuals deny they have a problem and thus are resistant to change, are unaware of the negative consequences of their behavior, believe the consequences are insignificant, or have given up the thought of changing because they are demoralized. They are not thinking about changing in the next six months. Individuals in the Contemplation Stage are more likely to recognize the benefits of changing. However, they continue to overestimate the costs of changing and, therefore, are ambivalent and not quite ready to change. They are seriously considering making a change within the next six months. Individuals in the Preparation Stage have decided to make a change in the next 30 days, and have already begun to take small steps toward that goal. Individuals in the Action Stage are overtly engaged in modifying their problem behaviors or acquiring new, healthy behaviors. Individuals in the Maintenance Stage have been able to sustain change for at least six months, and are actively striving to prevent relapse. For most people, the change process is not linear, but spiral, with several relapses to earlier stages before they attain permanent behavior change (Prochaska & DiClemente, 1983, 1986).

The stage construct has received empirical support across studies of behavior change in several areas, including smoking cessation (DiClemente et al., 1991), alcohol abuse (DiClemente & Hughes, 1990), psychological distress (Prochaska, Rossi, and Wilcox, 1991), and safe sex practices (Prochaska, Redding, Harlow, Rossi, & Velicer, 1994). For example, smokers in Preparation are twice as likely to be abstinent at one month post-treatment than Contemplators, who in turn are twice as likely to be abstinent than precontemplators. The pattern continues at six months post-treatment (DiClemente et al., 1991). Research comparing stage distributions across behaviors and populations found that about 40% of pre-action individuals were in Precontemplation, 40% in Contemplation, and only 20% in Preparation (Laforge, Velicer, Richmond, & Owen, 1999; Velicer et al., 1995). These data suggest that if we offer all beneficiaries action-oriented interventions that assume readiness to participate in informed choice, we are mis-serving the majority who are not prepared to take action.

Stage of change is generally assessed using a staging algorithm, a set of decision rules that place individuals in one of five mutually exclusive stage categories based on their responses to a few questions about their intentions, past behavior, and present behavior. This approach to staging is robust across behaviors and populations (e.g., DiClemente et al., 1991; Prochaska et al., 1994).

Stage-Matched Interventions

In a comparative analysis of 24 major systems of psychotherapy, Prochaska (1984) distilled a set of 10 fundamental processes by which people change. The set was refined following further theoretical analyses (Prochaska & DiClemente, 1984) and empirical studies (Prochaska & DiClemente, 1985, 1986). These processes describe the basic patterns of activity therapists try to encourage or elicit to help clients change problem behaviors, affects, cognitions, or interpersonal relationships. The 10 processes applied to informed choice are defined below:

Consciousness Raising	Increasing awareness and information about making an informed choice or its benefits
Dramatic Relief	Experiencing strong negative emotions that go along with not making an informed choice
Environmental Reevaluation	Realizing the impact of making or not making an informed choice on other people
Self-Reevaluation	Emotional and cognitive reappraisal of values related to informed choice
Self-Liberation	Making or demonstrating a firm commitment to making an informed choice
Reinforcement Management	Increasing intrinsic and extrinsic rewards for making an informed choice
Helping Relationships	Seeking and using social support to encourage or help with informed choice
Counter-Conditioning	Substituting new behaviors and cognitions for old responses
Stimulus Control	Adding cues or reminders to make an informed choice
Social Liberation	Realizing that society is changing to support informed choice

Nearly 20 years of research on a variety of health behaviors have identified processes of change that work best in each stage to facilitate change. For example, the data show that individuals in the Precontemplation stage rely on Consciousness Raising, Dramatic Relief, and Environmental Reevaluation; individuals in Action rely more on Reinforcement Management, Helping Relationships, and Stimulus Control (DiClemente et al., 1991; Prochaska & DiClemente, 1983; 1984; Prochaska, DiClemente, & Norcross, 1992). Stage-matched interventions can have a greater impact than action-oriented, one-size-fits-all programs by increasing participation and increasing the likelihood that individuals will take action. Stage-matched interventions for smokers more than double the smoking cessation rates of the best traditional interventions available (Prochaska,

DiClemente, Velicer, & Rossi, 1993; also see Strecher et al., 1994). Stage-matched interventions have out-performed one-size-fits-all interventions for exercise acquisition (Marcus et al., 1998), dietary behavior (Campbell et al., 1994), and mammography screening (Rakowski et al., 1998) and other health behaviors in 20 population-based studies.

TTM research provides a scheme for tailoring population-based education programs by matching them to the needs of people at each stage of change. It can serve as a scientific framework for integrating and coordinating diverse components of an educational campaign, such as web sites, mailings, hotlines, counselors, and health fairs. Each component can be evaluated and enhanced to maximize stage appropriateness for the target population. The TTM assessments also can be used to provide individually tailored educational materials. For example, stage-matched interventions for Medicare beneficiaries could be administered via informed choice booklets, by State Health Insurance Assistance Program counselors, or by computerized expert systems accessed via the Internet, desktop computers or kiosks. Once education programs are in place, stage assessments can identify segments of the population that are progressing toward action and segments that are stalled in the early stages. Such sensitive assessments can help program leaders understand where the population is at in its readiness to make informed choices. These assessments also allow programs to meet the challenge of assisting individuals in the early stages to move forward by enhancing communications to match the needs of those who are not progressing.

Assessing Readiness of Medicare Beneficiaries to Participate in Informed Health Plan Choices

The first step in the application of the TTM to a new area is the development of valid measures of stage and other dimensions of the model. The goal of the present project is to develop multiple staging algorithms to assess beneficiaries' readiness to move from passive acceptance of their current plan to informed choice based on an understanding of the Medicare program and available health plan options. To achieve this goal, the project has five objectives:

- 1) To determine if "proxy" staging algorithms assessing readiness to learn about the Medicare program and about Medicare HMOs, two components of informed choice, can be created from questions that currently exist in the Current Medicare Beneficiary Survey;
- 2) To test the construct validity of these proxy staging algorithms;
- 3) To assess stage progression and regression over time using the proxy staging algorithms;
- 4) To develop, for inclusion in upcoming beneficiary assessments, new TTM measures assessing stage of change and self-efficacy for a third component of informed choice: reviewing health plan options;

- 5) To test the construct validity of these new measures.

This preliminary research can provide measurement tools for assessing the efficacy of HCFA's communication and education campaigns, and can lay the foundation for other work underway to develop more refined TTM assessments and stage-matched programs.

The Medicare Current Beneficiary Survey

The Medicare Current Beneficiary Survey (MCBS), conducted by HCFA's Office of Strategic Planning and administered by Westat, is designed to provide longitudinal data on Medicare beneficiaries' health care utilization and expenditures, health status, and demographic and behavioral characteristics. The survey contains periodic supplements to address pressing policy issues (e.g., assessments of beneficiaries' experiences with and attitudes about health maintenance organizations, assessments of knowledge about the Medicare program).

The MCBS has been administered three times annually since 1991, and now utilizes a rotating panel design. Each year, over 3,000 beneficiaries drawn from HCFA's Medicare enrollment file are recruited into the survey and invited to participate for up to four years before being rotated out and replaced by new participants. Stratified random sampling techniques are used to ensure adequate representation of beneficiaries from targeted geographical areas throughout the nation, and the over-representation of beneficiaries who are under age 65, over age 85, and enrolled in Medicare health maintenance organizations (HMOs). Surveys are administered in person to beneficiaries or designated proxies.

The current project involves cross-sectional and longitudinal analyses of data from Rounds 18, 19, 20, 23, and 24 of the MCBS administered in 1996, 1997 and 1998. The new stage of change and self-efficacy measures developed specifically for this project were included in the Round 23 MCBS.

Development of Proxy Staging Algorithms to Assess Readiness to Learn about the Medicare Program and Readiness to Learn about Medicare HMOs

Survey items in the MCBS Round 18 supplement were used to construct two staging algorithms to assess beneficiaries' readiness to make informed health plan choices. The first staging algorithm, which classifies beneficiaries into one of four stages representing readiness to learn about the Medicare program, utilizes the two following questions from the Round 18 MCBS:

- 1) How much do you feel you know about the Medicare program, such as what medical services Medicare covers or does not cover?
- 2) From which source would you most like to get information about the Medicare program?

Figure 1 illustrates the decision rules for the Medicare program algorithm. Beneficiaries who reported that they knew “almost none,” “a little” or “some” of what they needed to know and stated that they did not want or need additional information were classified in the Precontemplation stage. Beneficiaries who knew “almost none” or “a little” of what they needed to know and listed sources from which they would like to get information were classified in the Contemplation stage. Beneficiaries who knew “some” of what they needed to know and listed additional information sources were classified in the Preparation stage. Finally, individuals who reported that they knew “most” or “just about everything” they needed to know were classified in the Action stage. The MCBS did not include questions that might differentiate between beneficiaries in the Action and Maintenance stage (e.g., questions about how long individuals had been seeking information or been at their current knowledge level). Thus, the Maintenance stage was not identified using this staging algorithm.

The second staging algorithm, which classifies beneficiaries into one of four stages representing readiness to learn about Medicare Health Maintenance Organizations (HMOs), utilized the following two questions from the MCBS:

- 1) How much do you feel you know about the availability and benefits of Medicare Health Maintenance Organizations (Medicare HMOs)?
- 2) From which source would you most like to get information about Medicare HMOs?

Decision rules for classifying individuals into the Precontemplation, Contemplation, Preparation and Action stages for learning about Medicare HMOs are identical to the rules outlined above and illustrated in Figure 1.

Development of New TTM Measures of Readiness to Review Different Health Plan Options

Although knowledge about the Medicare program and Medicare HMOs is necessary for informed choice, a major goal of the NMEP is to increase beneficiaries’ awareness about different health plan options. Thus, a third staging algorithm was developed to assess beneficiaries’ readiness to review their options. Pro-Change staff and research and operations staff from HCFA’s Office of Strategic Planning and Center for Beneficiary Services participated in the development of the following staging questions:

- 1) Starting in 1999, Medicare will offer new health plan choices. You may want to review these choices. Have you reviewed information about different Medicare health plan choices?
- 2) How long have you been reviewing information about different Medicare health plan choices?

- 3) Do you intend to review information about your Medicare health plan choices in the next year?
- 4) Do you intend to review information in the next three months?

Beneficiaries were classified into stages based on the following rules:

Precontemplation:	Has not reviewed health plan options and has no intention of reviewing in the next year
Contemplation:	Has not reviewed options, but intends to review in the next year
Preparation:	Has not reviewed options, but intends to review in the next three months
Action:	Has been reviewing options for one year or less
Maintenance:	Has been reviewing options for more than one year

Similar decision rules have been used in TTM staging algorithms for a wide range of behaviors, from smoking cessation to seatbelt use (see, for example, Nigg et al., 1999). However, in most algorithms, Contemplation and Preparation are defined by intention to make a change in the next 6 months and in the next 30 days, respectively, rather than the 12 months and 3 months used here; Maintenance is generally defined by engagement in the new behavior for at least 6 months, not the 12 months used here. We reasoned that the 12-month timeframe was more appropriate for informed choice, given the annual publication of the Medicare & You handbook, annual enrollment period in November, and the potential lock-in provision.

A final question was developed to assess self-efficacy for informed choice: “How confident are you that you could choose a plan that best matches your needs?” Response options ranged from 1=Not at all confident to 5=Extremely confident.

The stage of change and self-efficacy questions for review were included in the Round 23 MCBS supplement, which focused on beneficiary knowledge.

Stage Distributions

Readiness to Learn about the Medicare Program

The 12,621 beneficiaries who completed the Round 18 staging algorithm questions were classified into stages. Figure 2 illustrates the percentage of Medicare beneficiaries in each of the stages of change for learning about the Medicare program. Fifteen percent of beneficiaries are in the Precontemplation stage, 22% in Contemplation, 19% in Preparation, and 44% in Action, indicating that a majority of beneficiaries consider themselves to be knowledgeable about the Medicare program, or are prepared to become

more informed. There were no differences in the stage distributions for beneficiaries who completed the measures on their own or through a designated proxy respondent.

Readiness to Learn about Medicare HMOs

As illustrated in Figure 3, beneficiaries, as a group, are far less ready to learn about the availability and benefits of Medicare HMOs. Based on the second proxy algorithm, 45% of the 12,480 beneficiaries who completed the staging questions were classified in the Precontemplation stage. These beneficiaries, who have no intention of seeking additional information about Medicare HMOs, are unlikely to benefit from traditional action-oriented educational materials. Twenty-two percent were classified in the Contemplation stage for learning about Medicare HMOs, 6% in the Preparation stage, and 27% in the Action stage. Stage distributions were the same for beneficiaries who completed the measures on their own or through a designated proxy respondent.

Readiness to Review Different Health Plan Options

As illustrated in Figure 4, beneficiaries are even less ready to review their health plan options. Among the 12,862 beneficiaries who answered the new staging questions included in the Round 23 MCBS, 60% were in the Precontemplation stage for review. Eleven percent were classified in the Contemplation stage, 17% in the Preparation stage, 10% in the Action stage, and 2% in the Maintenance stage. Once again, stage distributions were the same for beneficiaries who completed the measures on their own or through a designated proxy respondent.

In a Westat debriefing session, 46 MCBS interviewers shared their experiences administering the Round 23 supplement, and provided feedback on individual questions. Interviewers reported that beneficiaries who felt they had only limited choices (e.g., were enrolled in employer-sponsored plans), or no choices at all (e.g., had no HMOs in their area) found the staging questions inapplicable (R. Sutterling, memorandum to F. Eppig, July 6, 1999).

The questions evoked concerns among some beneficiaries who felt that the interviewer was, at that moment, pressuring them to change their health plan. This kind of reaction can occur with change-oriented assessments, especially among individuals in the early stages of change. These concerns are being addressed in other TTM projects for HCFA.

Construct Validity of the Staging Algorithms

To assess the construct validity of the three staging algorithms, we determined whether stage of change for informed choice was related to knowledge about the Medicare program and other beneficiary characteristics (e.g., education level) and behaviors (e.g., information-seeking) that are expected to vary systemically with stage.

Knowledge

It was hypothesized that beneficiaries in the later stages of change for informed choice would have greater knowledge of the Medicare program than beneficiaries in the earlier stages. To test this hypothesis, we used the following five measures of Medicare knowledge constructed from MCBS items for HCFA by the Center for Health Systems Research and Analysis and the Research Triangle (Bann, Lissy, Keller, Garfinkel, & Bonito, 2000):

- 1) Medicare Understandability Question: This single-item measure, drawn from the Round 20 MCBS, asks, “In general, do you think the Medicare program is understandable?” Response options are 0=No and 1=Yes.
- 2) Global Know-All-Need-to-Know Question: This single-item measure, drawn from the Round 23 MCBS, asks, “How much do you think you know about the Medicare program?” Response options range from 1=Almost none of what you need to know to 5=Just about everything you need to know.
- 3) 3-Item Quiz: This measure, drawn from the Round 24 MCBS, is composed of three true/false questions about the Medicare program (e.g., “Medicare covers an annual flu shot”). The scale score, which ranges from 0 to 3, is calculated by summing the number of correct responses. The scale has low internal reliability, with a Cronbach’s alpha of .46.
- 4) 4-Item Quiz: This measure is composed of four true/false questions drawn from the Round 18 MCBS. The scale score is calculated by summing the number of correct responses. Cronbach’s alpha is .52.
- 5) 8-Item Quiz: This measure, drawn from the Round 23 MCBS, is composed of eight true/false questions about Medicare HMOs (e.g., “If someone joins a Medicare HMO that covers people on Medicare, they can change or drop the plan and still be covered by Medicare”). The scale score is calculated by summing the number of correct responses. Cronbach’s alpha is .76.

A sixth MCBS knowledge measure, the “Know-All-Need-to-Know Index” from the Round 18 MCBS is comprised of several of the same items used in the proxy staging algorithms, and thus cannot be considered an independent measures of knowledge. See Bann et al. (2000) for a detailed description of the development and validation of these six knowledge measures.

Readiness to Learn about the Medicare Program

Since it is unclear whether proxy respondents can accurately answer knowledge questions on behalf of beneficiaries, cases relying on proxies were excluded from the following analyses.

A multivariate analysis of variance (MANOVA) was conducted in which the independent variable was stage of change based on the proxy staging algorithm assessing readiness to learn about the Medicare program; the dependent variables were the five knowledge measures listed above. The results of the MANOVA, follow-up univariate tests, and post-hoc tests, summarized in Table 1, show that beneficiaries in different stages of change differed significantly on all five knowledge measures. In general, beneficiaries in the later stages of change had significantly higher knowledge scores than beneficiaries in the middle stages, who in turn had higher knowledge scores than beneficiaries in the earlier stages. The strongest relationship was found between stage of change and the Global Know-All-Need-to-Know question ($\eta^2=.124$), perhaps because of the similarity in wording of the questions used in the two measures.

Readiness to Learn about Medicare HMOs

A second MANOVA was conducted to assess the relationship between stage of change based on the Medicare HMO algorithm and the five knowledge measures. Results, summarized in Table 2, show that beneficiaries in the various stages of change differed significantly on all five knowledge measures. Once again, beneficiaries in the later stages of change tended to have significantly higher knowledge scores than beneficiaries in the middle stages, who in turn had higher scores than beneficiaries in the earlier stages. As further evidence of the validity of this measure, stage of change for learning about Medicare HMOs was most strongly related to the 8-item knowledge measure assessing knowledge about HMOs ($\eta^2=.052$).

Readiness to Review Different Health Plan Options

A final MANOVA was conducted to assess the relationship between stage of change based on the newly developed Review algorithm administered in the Round 23 MCBS and the three knowledge measures administered during or after Round 23. Individuals in the Action and Maintenance stages were combined into a single group for analyses. Results are summarized in Table 3. Once again, beneficiaries in the later stages had significantly greater knowledge than beneficiaries in the earlier stages. Stage of change for reviewing options was most strongly associated with the 8-item knowledge measure focusing on Medicare HMOs ($\eta^2=.068$).

Demographics, Health and Cognitive Functioning, Healthcare Utilization and Health Insurance Characteristics

Prior research has identified a number of demographic, health status, healthcare utilization, and health insurance characteristics related to beneficiary *knowledge* about the Medicare program. We reasoned that many of these same variables should be related to stage of change for informed choice as well. Table 4 lists the following: 1) variables hypothesized to be associated with stage of change (e.g., education); 2) the group of beneficiaries hypothesized to be further along in the stages (e.g., high school graduates); and 3) when available, prior studies finding a relationship between the variables and beneficiary knowledge. Chi Square tests were conducted to assess the relationship

between these variables and stage of change for informed choice. Measures of the variables were taken from the Round 19 MCBS. Cases relying on proxy respondents in the MCBS were included in these analyses.

- Demographic variables examined included race, gender, age, marital status, preferred language, income, and education. It was hypothesized that individuals who were white, male, younger aged, married, English-speaking, and had higher levels of income and education would be more highly represented in the later stages of change.
- Beneficiaries were compared on three health and cognitive functioning variables: self-reported health status, Medicare disability, and self-reported memory loss. It was hypothesized that individuals with better health, who were not eligible for Medicare disability, and who reported no memory difficulties would be more highly represented in the later stages of change.
- Healthcare utilization variables examined were inpatient and outpatient healthcare utilization during the last year, assessed using MCBS measures of inpatient discharges and Part B claims. It was hypothesized that individuals with recent experiences with the healthcare system would be more likely to be in the later stages of change. These data were only available for individuals enrolled in regular, fee-for-service Medicare. As a result, individuals who were enrolled in an HMO during the last year were excluded from the six analyses examining the relationship between inpatient and outpatient health care utilization and stage of change.
- Beneficiaries were compared on the following four health insurance variables: Medicaid eligibility, having additional insurance, enrollment in an HMO during the last year, and market penetration of HMOs in geographical area. Based on prior research on Medicare knowledge, it was hypothesized that individuals with Medicaid or other insurance plans would be more likely to be in the later stages of change based on all three staging algorithms. Individuals enrolled in an HMO and who had one or more HMOs in their geographical area would be more likely to be in the later stages of change, especially for learning about HMOs and reviewing options¹.

Readiness to Learn about the Medicare Program

Chi square tests supported most hypotheses about the relationship between stage of change and demographic, health and cognitive functioning, health care utilization, and health plan characteristics examined. As hypothesized, the following groups were more likely to be in the later stages of change for learning about the Medicare program:

- Beneficiaries who were white
- Beneficiaries aged 65 to 74
- Beneficiaries who were married

¹ While individuals enrolled in HMOs are relatively knowledgeable about managed care, they tend to be less knowledgeable than regular, fee-for-service enrollees about the Medicare program and how it differs from managed care (Jewett & Hibbard, 1999).

- Beneficiaries who spoke English
- Beneficiaries with higher incomes
- Beneficiaries with better health status
- Beneficiaries without disability insurance
- Beneficiaries without memory loss
- Beneficiaries using outpatient services in the last year
- Beneficiaries having additional insurance
- Beneficiaries enrolled in an HMO in the last year
- Beneficiaries with HMOs in their geographical area.

Stage distributions and results of statistical analyses are summarized in Tables 5-8. Race, preferred language, income, and education were most strongly related to stage of change for learning about the Medicare program (Cohen's $h = .32, .35, .28, \text{ and } .29$, respectively). Contrary to predictions, stage of change was unrelated to gender and inpatient healthcare utilization, and individuals who were eligible for Medicaid were more likely to be in the earlier stages of change, not the later stages (see Carrerata 1984).

Readiness to Learn about Medicare HMOs

Chi square tests generally supported hypotheses about relationships between variables of interest and stage of change for learning about Medicare HMOs. The following groups were more likely to be in the later stages of change for learning about the Medicare program:

- Beneficiaries who were white
- Beneficiaries aged 65 to 74
- Beneficiaries who were married
- Beneficiaries who spoke English
- Beneficiaries with higher incomes
- Beneficiaries with better health status
- Beneficiaries without disability insurance
- Beneficiaries without memory loss
- Beneficiaries enrolled in an HMO in the last year
- Beneficiaries with HMOs in their geographical area.

Statistical findings are reported in Tables 9-12. Stage of change was most strongly related to enrollment in an HMO in the past year (Cohen's $h = .77$), and to the presence of one or more HMOs in one's geographical area (Cohen's $h = .47$). Stage was unrelated to gender and to inpatient and outpatient healthcare utilization. Contrary to predictions, individuals with Medicaid or additional insurance tended to be under-represented in the later stages.

Readiness to Review Different Health Plan Options

Stage of change for reviewing different health plan options displayed patterns of relationships to demographic, health and cognitive functioning, health care utilization,

and health plan characteristics that were similar to—though weaker than—those reported above. The following groups were more likely to be in the later stages of change for reviewing options:

- Beneficiaries who were white
- Beneficiaries aged 65 to 74
- Beneficiaries who were married
- Beneficiaries who spoke English
- Beneficiaries with higher incomes
- Beneficiaries with better health status
- Beneficiaries without disability insurance
- Beneficiaries enrolled in an HMO in the last year.

Results are summarized in Tables 13-16. Surprisingly, stage of change for comparing different plans was unrelated to memory loss, and to the presence of HMOs in one's geographical area.

Information Seeking

To assess the construct validity of the staging algorithms, an additional set of analyses was conducted to examine the relationship between stage of change for informed choice and information seeking behavior. Compared to individuals in the earlier stages of change, it was hypothesized that individuals in the later stages would be more likely to use their Medicare & You Handbook, to find information when they need it, and to be satisfied with information on Medicare.

Readiness to Learn about the Medicare Program

Chi Square tests were conducted to assess the relationship between information seeking and stage of change for learning about the Medicare program. The following self-report measures of information seeking were taken from Rounds 18 and 20 of the MCBS:

- Ever used Medicare & You handbook
- Found handbook very useful
- Received handbook in last year
- If needed, found information on changes in benefits
- If needed, found information on services covered
- If needed, found information on the benefits and availability of HMOs
- Was very satisfied with information on the Medicare program

Results, summarized in Table 17, show significant relationships between stage of change and all indicators of information seeking. Individuals who reported using the handbook and/or being very satisfied with their efforts or available materials were more likely to be in the Action stage than individuals who did not seek information or who were less satisfied.

Readiness to Learn about Medicare HMOs

Chi Square tests revealed statistically significant relationships between stage of change for learning about the availability and benefits of Medicare HMOs and all of the above measures of information-seeking, with one exception: there were no differences among the stages in ability to find needed information on changes in benefits. Stage distributions and results of statistical tests are summarized in Table 18.

Readiness to Review Different Health Plan Options

Chi Square tests were conducted to assess the relationship between stage of change for reviewing different health plan options and the following measures of information-seeking drawn from the Round 23 MCBS:

- Received Medicare & You Handbook
- Read Handbook Thoroughly
- Used Handbook to Look Up a Telephone Number
- Used Handbook to Learn about Health Plan Options
- Used Comparison Chart
- Still Has Handbook
- Tried to Find Information on New Benefits or Changes
- Tried to Find Information on Medical Services Covered
- Tried to Find Information on Availability and Benefits of Medicare HMOs
- Very Satisfied with Availability of Information

Results are summarized in Table 19. Stage of change was significantly related to all measures of information-seeking examined. Several effects were quite large (i.e., Cohen's η^2 as great as .78). For example, individuals who had read their handbook thoroughly, or had used it to look up a telephone number, learn about different options or compare plans, were more than three times as likely to be in the Action/Maintenance stage as those who had not read the handbook thoroughly or used it as a resource. Once again, individuals who were very satisfied with the availability of information about the Medicare program were more likely to be in the Action/Maintenance stage.

Self-Efficacy

A final analysis was conducted to assess the construct validity of the Round 23 staging algorithm assessing readiness to review different health plan options. Prior research on the TTM for health behavior change has consistently found a relationship between stage of change and self-efficacy: confidence that one can make and sustain successful change tends to increase with progression through the stages (DiClemente, 1981; DiClemente, Prochaska, & Gibertini, 1985). In the present study, we examined the relationship between stage of change for review and beneficiaries' confidence that they could choose a plan that best meets their needs. Confidence was assessed using the 1-item confidence measure, described above, developed for the Round 23 MCBS.

A oneway analysis of variance (ANOVA) found a significant relationship between stage of change and confidence ($F(3,12858)=87.55, p<.001$). Post hoc tests showed that beneficiaries in Precontemplation has significantly lower confidence scores than beneficiaries in Contemplation, who in turn has lower scores than beneficiaries in Preparation, and so on. Mean confidence scores for individuals in the Precontemplation, Contemplation, Preparation, and Action/Maintenance stages for reviewing different health plan options were 2.42, 2.84, 3.01, and 3.21, respectively.

Summary of Validity Analyses

For algorithms assessing readiness to learn about the Medicare program, readiness to learn about Medicare HMOs, and readiness to review different health plan options, stage of change was related to knowledge about the Medicare program, information-seeking, and most beneficiary characteristics expected to vary systemically with stage. Beneficiaries in the later stages of change scored significantly higher on five measures of knowledge than beneficiaries in the middle stages, who in turn scored higher than beneficiaries in the earlier stages. Stage of change was positively associated with various forms of information seeking, including reading HCFA's Medicare & You handbook, and looking for and finding information on Medicare benefits and plan options. Beneficiaries who were very satisfied with Medicare information were more likely to be in the Action stage than less satisfied consumers. As hypothesized, stage of change was related to race, age, marital status, income, health status, and a number of other variables associated with Medicare knowledge. Contrary to expectations, stage of change was unrelated to gender, inpatient (and in some cases outpatient) healthcare utilization, and was inversely related to Medicaid eligibility. Overall, however, results provide strong evidence of the construct validity of the three stage of change measures.

The Relative Contribution of Stage of Change to Beneficiary Knowledge about the Medicare Program

Extensive research on smoking cessation has shown that stage of change is a better predictor of future behavior than demographic variables (Prochaska, DiClemente, Velicer, Ginpil, & Norcross, 1985). Such findings have important implications for intervention: 1) unlike many demographic variables such as race and gender, stage of change is not static, but dynamic and modifiable; and 2) stage-matched interventions that facilitate progression through the stages can increase the likelihood of successful behavior change.

In the present study, analyses were conducted to determine if stage of change is a better predictor of beneficiary knowledge than the following demographic, health status, and health plan variables. Health care utilization variables, unavailable for HMO subscribers, were not examined in these analyses. Years of participation in the survey was included as a predictor to account for any increase in knowledge that might be attributable to experience with the MCBS.

- Gender
- Age
- Race
- Income
- Education
- Health status
- HMO enrollment
- Additional insurance
- Medicaid eligibility
- Marital status
- Memory loss
- Preferred language
- Years in of participation in MCBS.

Knowledge measures were the five MCBS knowledge scales developed for HCFA by the Center for Health Systems Research and Analysis and the Research Triangle (Bann et al., 2000)². These are the same measures used in the validity analyses above.

Separate multiple regression analyses were conducted in which the independent variables were the predictor variables, and the dependent variables were the five knowledge measures. Aged and disabled beneficiaries were analyzed separately, given possible differences in their informational needs. Cases relying on proxy respondents in the MCBS were excluded from analyses because it is unclear whether proxies can accurately answer knowledge questions on behalf of beneficiaries. Data on the predictor variables were taken from the Round 19 MCBS. An outline of the coding scheme used for the predictor variables is provided in Table 20.

Readiness to Learn about the Medicare Program

Results of the multiple regression analyses for aged Medicare beneficiaries are summarized in Table 21. These final models list only the significant predictors of scores on each of the five knowledge measures. For example, stage of change and memory loss were the only significant predictors of scores on the Medicare Understandability Question. The partial correlation coefficients (partial r 's) provide an index of the amount of unique variance in knowledge scores accounted for by each of the predictors. For each of the five knowledge measures, stage of change accounted for more variance than all other variables—even education, a powerful predictor of Medicare knowledge.

Results of multiple regression analyses for disabled beneficiaries are summarized in Table 22. Stage of change out-predicted all other variables for four of the five knowledge measures.

² To validate these MCBS knowledge measures, Bann et al. (2000) used the first nine predictor variables listed above. We excluded one of the variables they examined, healthcare utilization, because the MCBS does not gather inpatient and outpatient service utilization data on beneficiaries enrolled in Medicare HMOs.

Readiness to Learn about Medicare HMOs

Results of multiple regression analyses, summarized in Tables 23 and 24, show that stage of change for learning about HMOs is a significant predictor of Medicare knowledge among aged and disabled beneficiaries. In many cases, it out-predicted all other variables.

Readiness to Review Different Health Plan Options

Two final sets of multiple regression analyses were conducted to assess the relative contribution of stage of change for reviewing options to beneficiary knowledge about the Medicare program. Another TTM variable, self-efficacy, was included as a predictor in these models. The dependent variables were scores on the three knowledge measures administered during or after Round 23, when the stage and self-efficacy measures for review were administered.

Results, summarized in Tables 25 and 26, show that self-efficacy and stage of change for reviewing different health plan options were significant predictors of Medicare knowledge among aged and disabled beneficiaries. They were the strongest predictors of knowledge about Medicare HMOs assessed using the 8-item knowledge quiz.

Stage Progression Over Time

The final aim of this study was to examine the probability of progression, regression, and no movement through the stages over time. MCBS questions used to construct the first proxy staging algorithm assessing readiness to learn about the Medicare program were administered at Round 18 and twenty months later, at Round 24³. Latent Transition Analysis (LTA), a recently developed statistical procedure ideally suited to the study of change (Collins & Wugalter, 1992; Velicer, Martin, & Collins, 1996), was used to examine stage transitions during the intervening period. From one occasion to the next, an individual can progress to a later stage, regress to an earlier stage, or remain in the same stage. The probability of making each transition can be calculated.

LTA was used to determine the best model for representing the pattern of change in readiness to learn about the Medicare program. Figure 5 displays seven models representing the possible patterns of progression and regression examined. Figure 6 displays the best-fitting model. This model shows that beneficiaries tended to progress one or two stages, or to regress one stage, during the 20-month period in question. The numbers on each arrow indicate the proportion of people moving from one stage to another. The numbers within the circles indicate the proportion of people remaining in

³The MCBS significantly altered the wording of questions used in the development of the second proxy algorithm: Whereas Round 18 asked about Medicare health maintenance organizations, Round 24 asked about Medicare managed care plans. As a result, we were unable to examine changes over time in stage of change for learning about Medicare HMOs. The Round 23 algorithm assessing readiness to review different health plans has not yet been re-administered.

that stage. For example, 55% of individuals in the Precontemplation stage at Round 18 had progressed to a later stage—37% to the Contemplation stage and 18% to the Preparation stage—at Round 24. Only 12% of individuals in the Action stage at Round 18 had regressed to an earlier stage during the same period.

These data suggest that beneficiaries as a group are indeed making progress through the stages of change for learning about the Medicare program. Some of this change, however, may be attributable to participation in the MCBS; the assessment is informative in its own right, and may motivate beneficiaries to attend more closely to Medicare-related information in the environment. The goal of future research would be to develop and test TTM-based interventions that can accelerate and facilitate progress and prevent relapse.

Summary and Conclusions

We have completed the initial step in the application of TTM to informed choice in the Medicare population: the development and validation of stage of change measures. Staging algorithms were developed to assess readiness to engage in three types of informed choice: 1) learning about the Medicare program; 2) learning about Medicare HMOs; and 3) reviewing different health plan options. The first two “proxy” algorithms were constructed from existing items from the Round 18 MCBS; the third algorithm was constructed from questions developed for this project and included in the Round 23 MCBS.

Stage distributions can provide an index of the difficulty of HCFA’s task of ensuring that beneficiaries are making informed health plan choices—and an index of HCFA’s success over time. For example:

- As a group, beneficiaries are relatively far along in their readiness to learn about the Medicare program: only 15% of beneficiaries were in the Precontemplation stage, whereas 44% were in Action.
- Beneficiaries were less ready to learn about the availability and benefits of HMOs: 45% were in the Precontemplation stage, and 27% in Action.
- Beneficiaries were even less ready to review different health plan options: 60% of beneficiaries surveyed were in the Precontemplation stage, and only 12% in Action or Maintenance.
- For each algorithm, stage distributions were the same for beneficiaries who completed the measures on their own or through a designated proxy respondent.
- During a 20-month follow-up period, beneficiaries made good progress through the stages of change for learning about the Medicare program: 55% progressed out of the Precontemplation stage to Contemplation or Preparation; only 12% of beneficiaries in the Action stage regressed to an earlier stage. However, it is possible that some of this change is due to participation in the MCBS assessments.

Analyses examining construct validity found that stage of change based on all three algorithms was related to knowledge about the Medicare program, information-seeking, and most other variables (e.g., income, education) expected to vary systematically with stage. For example, compared to beneficiaries in the earlier stages of change, beneficiaries in the later stages scored significantly higher on five measures of Medicare knowledge, and were more likely to seek out or find information on new benefits, services covered, and HMOs. They were more likely to report receiving and using their Medicare & You handbook, and to be satisfied with information available on the Medicare program. Compared to beneficiaries in the earlier stages, beneficiaries in the later stages of change for reviewing different health plan options had significantly more confidence that they could choose a health plan that best meets their needs.

Stage of change for learning about the Medicare program was a better predictor of knowledge about the Medicare program than all demographic, health status, and health plan variables examined, even education. Stage of change for learning about Medicare HMOs and for reviewing different health plan options were the best predictors of knowledge about Medicare HMOs.

Rarely are preliminary research findings so clear and consistent. Results provide strong evidence for the construct validity of the stage of change measures, and for the applicability of the TTM to informed choice in the Medicare population. This is good news for HCFA and the National Medicare Education Program. Twenty years of research on the TTM interventions can provide guidance in the development of stage-matched educational programs that meet the needs of beneficiaries.

There are four steps in the application of the TTM to informed choice in the Medicare population: 1) development of an operational definition of “informed choice;” 2) customization of TTM measures; 3) model testing; and 4) development and testing of TTM-based interventions. The present findings provide a solid foundation for proceeding with the next phases in the application of the TTM to informed choice.

In Phase I of a separate project (HCFA Contract No. 500-97-0040, Subcontract No. 20036-3.1), work is underway to develop and refine gold standard measures of stage of change and other dimensions of the TTM. A qualitative report entitled, “Application of the Transtheoretical Model of Change to Informed Choice in the Medicare Population: Development of a Draft Survey” (Levesque, Cummins, & Prochaska, 2000), describes the procedures followed—and the challenges encountered—in the development of an operational definition of informed choice and the customization of TTM measures.

In Phase II of the project (HCFA Prime Contract No. 500-95-0057, Task Order #7, Subcontract No. HCF-01-1-0057-007-0014), the goal is to develop prototypes of TTM-based interventions that might be administered to beneficiaries to accelerate progress through the stages of change for informed choice. Possible channels for administration of stage-matched interventions include: 1) mass media campaigns; 2) informed choice booklets; 3) SHIP counselors and/or other intermediaries; and 4) computerized expert systems accessed via the Internet, desktop computers or kiosks. Pro-Change will receive guidance from a Technical Expert Panel (TEP) to identify beneficiary groups who might be targeted to receive stage-matched interventions via each channel (e.g., new beneficiaries), and to identify the best intervention delivery channels for each group.

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Table 1

Knowledge Scores Among Beneficiaries in Different Stages of Readiness to Learn about the Medicare Program

(Wilks' Λ =.805, approximate $F(15,15526)$ =84.36, p <.001, η^2 =.070)

Univariate Follow-Up Tests:	PC	C	PR	A	$F(3,5628)$	η^{2**}	Post-Hoc Comparisons
	(n =844)	(n =1278)	(n =1095)	(n =2415)			
	Mean (sd)						
1) Medicare Understandability Question	0.64 (0.48)	0.68 (0.47)	0.78 (0.41)	0.86 (0.35)	$F=89.96^*$	.046	PC<C<PR<A
2) Global Know-All-Need-to-Know Question	2.60 (1.18)	2.48 (1.13)	3.10 (1.03)	3.45 (1.11)	$F=264.97^*$	.124	C<PC<PR<A
3) 3-Item Quiz	1.52 (0.94)	1.54 (0.92)	1.84 (0.91)	2.01 (0.89)	$F=103.91^*$	.052	PC,C<PR<A
4) 4-Item Quiz	2.04 (1.27)	2.17 (1.18)	2.61 (1.02)	2.78 (1.00)	$F=145.38^*$	.072	PC<C<PR<A
5) 8-Item Quiz	3.55 (2.53)	4.06 (2.37)	4.79 (2.13)	5.11 (2.17)	$F=127.42^*$	.064	PC<C<PR<A

* p <.01

**To assess whether significant findings can be attributed to effect size, and not just large sample size, a measure of effect size, η^2 , is provided. A small effect is defined as η^2 =.01, medium effect as η^2 =.06, and a large effect as η^2 =.14 (Cohen, 1988).

Table 2
Knowledge Scores Among Beneficiaries in Different Stages of Readiness to Learn about Medicare HMOs
(Wilks' Λ =.926, approximate $F(15,15379)=29.02$, $p<.001$, $\eta^2=.025$)

Univariate Follow-Up Tests:	PC	C	PR	A	$F(3,5575)$	η^{2**}	Post-Hoc Comparisons
	($n=2491$)	($n=1234$)	($n=329$)	($n=1525$)			
	Mean (sd)						
1) Medicare Understandability Question	0.73 (0.44)	0.74 (0.44)	0.82 (0.38)	0.85 (0.36)	$F=4.77^*$	.015	PC,C<PR,A
2) Global Know-All-Need-to-Know Question	2.89 (1.19)	2.91 (1.15)	3.11 (1.13)	3.36 (1.16)	$F=77.73^*$	.030	PC,C<PR<A
3) 3-Item Quiz	1.69 (0.94)	1.72 (0.94)	1.87 (0.91)	2.02 (0.88)	$F=38.86^*$	.024	PC,C<PR<A
4) 4-Item Quiz	2.39 (1.20)	2.43 (1.12)	2.60 (1.01)	2.70 (1.01)	$F=33.71^*$	.014	PC,C<PR,A
5) 8-Item Quiz	4.07 (2.41)	4.56 (2.30)	5.04 (2.05)	5.33 (2.11)	$F=527.94^*$	.052	PC<C<PR<A

* $p<.01$

**See note in Table 1

Table 3

Knowledge Scores Among Beneficiaries in Different Stages of Readiness to Review Health Plan Options

(Wilks' Λ =.923, approximate $F(9,21030)=77.86$, $p<.001$, $\eta^2=.026$)

Univariate Follow-Up Tests:	PC	C	PR	A/M	$F(3,8643)$	η^{2**}	Post-Hoc Comparisons
	($n=5244$)	($n=902$)	($n=1480$)	($n=1021$)			
	Mean (sd)						
1) Global Know-All-Need-to-Know Question	2.87 (1.22)	2.96 (1.14)	2.99 (1.16)	3.37 (1.11)	$F=49.44^*$	.016	PC<PR<A; C<A
2) 3-Item Quiz	1.66 (0.96)	1.87 (0.90)	1.83 (0.91)	2.13 (0.85)	$F=79.42^*$	.027	PC<C,PR<A
3) 8-Item Quiz	4.08 (2.49)	4.83 (1.91)	5.01 (1.98)	5.85 (1.79)	$F=209.83^*$	.068	PC<C<PR<A

* $p<.01$

**See note in Table 1

Table 4

Variables Hypothesized to Be Related to Stage of Change for Informed Choice

Grouping Variables	Group Hypothesized To Be Further Along in the Stages		Prior Research
<i>Demographics</i>			
Race	White	vs. Non-white	Marquis, 1983; McCall, Rice & Sangl, 1986
Gender	Male	vs. Female	Hibbard & Jewett, 1998; Lambert, 1980
Age (for 65 or older)	Under 75	vs. 75 or older	McCall, Rice, & Sangl, 1986
Marital Status	Living with spouse	vs. Not living with spouse	McCall, Rice, & Sangl, 1986
Language	Interview in English	vs. Interview in Spanish	Barents Group, 1999
Income	\$25,000 or higher	vs. Under \$25,000	Lambert, 1980; Hibbard & Jewett, 1998; Hibbard, Jewett, Engelmann, & Tusler, 1998
Education	High school grad	vs. Less than high school	Hibbard & Jewett, 1998; Hibbard et al., 1998; Marquis, 1983; McCall, Rice & Sangl, 1986
<i>Health and Cognitive Functioning</i>			
Health Status	Good to excellent health	vs. Fair to poor health	McCormack, Ross, Dougherty, & Garfinkel, 2000
Disability	No Medicare disability	vs. Medicare disability	
Memory Loss	No memory loss	vs. Memory loss	
<i>Healthcare Utilization</i>			
Inpatient Care	Inpatient Discharges	vs. No inpatient discharges	McCall, Rice, & Sangl, 1986; McCormack et al., under review
Outpatient Care	Part B Claims	vs. No Part B claims	McCall, Rice, & Sangl, 1986; McCormack et al., under review
<i>Health Plan Characteristics</i>			
Additional Insurance	Some	vs. None	Carrerata, 1984; Hibbard & Jewett, 1998; McCall, Rice, & Sangl, 1986
Medicaid	Eligible	vs. Not eligible	Carrerata, 1984
Group Health Plan	Participation	vs. No participation	Hibbard & Jewett, 1998
HMO Market Penetration	Some	vs. None	

Table 5
Demographic Variables and Stage of Change for Learning about the Medicare Program

	N	PC	C	PR	A	χ^2 (df=3)	Cohen's \underline{h} **
		Percent					
<i>Race</i>							
White	8,135	15.5	20.3	18.8	45.4	153.62*	.32
Non-White	1,479	17.2	32.4	20.2	30.2		
<i>Gender</i>							
Male	4,253	16.1	21.6	18.0	44.3	9.26	--
Female	5,399	15.4	22.7	19.8	42.0		
<i>Age (over 65 only)</i>							
Age 65 to 74	3,412	12.5	22.4	20.4	44.7	47.39*	.01
Age 75 and older	4,757	17.7	20.5	17.4	44.4		
<i>Marital Status</i>							
Married, Living with Spouse	4,693	12.9	20.7	19.7	46.7	86.93*	.14
Other	4,955	18.4	23.6	18.3	39.6		
<i>Preferred Language</i>							
MCBS in English	9,273	15.8	21.6	18.9	43.7	71.87*	.35
MCBS in Spanish	331	12.1	39.9	20.8	27.2		
<i>Income</i>							
\$25,000 or greater	2,632	11.1	15.5	20.4	53.0	210.93*	.28
Under \$25,000	6,711	17.5	24.9	18.6	39.1		
<i>Education</i>							
High School Graduate	5,737	13.1	18.4	19.7	48.9	266.76*	.29
Less than High School	3,770	19.5	28.0	18.0	34.5		

* $p < .01$

**To assess whether significant findings can be attributed to effect size, and not just large sample size, a measure of effect size, Cohen's \underline{h} based on the arcsine transformation of proportions, is provided. Measures represent the magnitude of the difference in percentages for Action versus Pre-Action (Precontemplation, Contemplation, and Preparation combined). A small effect is defined as $\underline{h} = .20$, medium effect as $\underline{h} = .50$, and a large effect as $\underline{h} = .80$ (Cohen, 1988).

Table 6
 Health and Cognitive Functioning Variables and Stage of Change for Learning about the Medicare Program

	N	PC	C	PR	A	χ^2 (df=3)	Cohen's \underline{h} **
		Percent					
<i>Health Status</i>							
Good to Excellent	6,878	14.5	20.6	19.1	45.8	94.00*	.20
Fair to Poor	2,704	18.8	26.3	18.8	36.1		
<i>Medicare Disability Insurance</i>							
No Disability	8,169	15.5	21.3	18.7	44.5	50.22*	.19
Disability	1,483	16.9	27.3	20.7	35.1		
<i>Memory Loss</i>							
No Memory Loss	8,290	15.1	21.4	19.3	44.2	56.69*	.18
Memory Loss	1,281	19.9	27.4	17.3	35.4		

* $p < .01$

** See note in Table 5

Table 7
Healthcare Utilization Variables and Stage of Change for Learning about the Medicare Program
 (Regular, Fee-For-Service Enrollees Only)

	N	PC	C	PR	A	χ^2 (df=3)	Cohen's \underline{h} **
		Percent					
<i>Inpatient Discharges</i>							
One or More in Last Year	1,552	17.8	21.3	18.9	42.0	8.31	--
None in Last Year	6,569	14.9	23.0	19.4	42.7		
<i>Part B Claims</i>							
One or More in Last Year	7,346	14.9	21.9	19.5	43.7	57.84*	.24
None in Last Year	775	20.6	29.8	17.5	32.0		

* $p < .01$

** See note in Table 5

Table 8
Health Plan Characteristics and Stage of Change for Learning about the Medicare Program

	N	PC	C	PR	A	χ^2 (df=3)	Cohen's \underline{h} **
		Percent					
<i>Medicaid Eligibility</i>							
Eligible	1,500	21.4	29.7	15.6	33.3	130.35*	-.24
Not eligible	8,152	14.7	20.8	19.6	44.8		
<i>Additional Insurance</i>							
Some	6,615	14.1	19.9	19.7	46.3	143.13*	.21
None	3,037	19.2	27.3	17.6	35.9		
<i>HMO Enrollment in Past Year</i>							
Some	1,531	17.1	19.8	17.4	45.7	12.08*	.06
None	8,121	15.5	22.7	19.3	42.6		
<i>HMOs in Geographical Area</i>							
Some	6,766	15.2	20.8	18.7	45.3	51.62*	.15
None	2,886	17.0	25.5	19.7	37.8		

Table 9
Demographic Variables and Stage of Change for Learning about Medicare HMOs

	N	PC	C	PR	A	χ^2 (df=3)	Cohen's \underline{h} **
		Percent					
<i>Race</i>							
White	8,066	45.0	21.0	5.6	28.3	43.22*	.17
Non-White	1,478	47.2	26.3	5.7	20.8		
<i>Gender</i>							
Male	4,220	44.0	22.3	5.8	27.9	6.36	--
Female	5,362	46.6	21.5	5.5	26.4		
<i>Age (over 65 only)</i>							
Age 65 to 74	3,390	41.2	22.5	6.6	29.7	47.55*	.07
Age 75 and older	4,720	48.3	19.4	4.7	27.7		
<i>Marital Status</i>							
Married, Living with Spouse	4,657	41.4	22.6	6.3	29.7	63.76*	.11
Other	4,921	49.2	21.1	5.0	24.6		
<i>Preferred Language</i>							
MCBS in English	9,208	45.3	21.5	5.7	27.5	33.16*	.30
MCBS in Spanish	326	47.5	31.9	5.2	15.3		
<i>Income</i>							
\$25,000 or greater	2,616	37.9	20.5	6.8	34.8	139.86*	.27
Under \$25,000	6,657	48.2	22.6	5.2	24.0		
<i>Education</i>							
High School Graduate	5,691	41.1	20.6	6.7	31.6	206.70*	.26
Less than High School	3,747	51.9	23.9	4.1	20.1		

* $p < .01$

** See note in Table 5

Table 10
Health and Cognitive Functioning Variables and Stage of Change for Learning about the Medicare Program

	N	PC	C	PR	A	χ^2 (df=3)	Cohen's η^{2**}
		Percent					
<i>Health Status</i>							
Good to Excellent	6,825	44.1	20.9	5.9	29.1	57.61*	.16
Fair to Poor	2,687	48.7	24.3	5.0	22.0		
<i>Medicare Disability Insurance</i>							
No Disability	8,110	45.3	20.7	5.5	28.5	76.25*	.22
Disability	1,472	46.2	28.3	6.4	19.1		
<i>Memory Loss</i>							
No Memory Loss	8,223	44.7	21.7	5.5	28.0	29.20*	.16
Memory Loss	1,279	50.0	22.7	6.3	21.0		

* $p < .01$

** See note in Table 5

Table 11
Healthcare Utilization Variables and Stage of Change for Learning about Medicare HMOs
 (Regular, Fee-For-Service Enrollees Only)

	N	PC	C	PR	A	χ^2 (df=3)	Cohen's \underline{h} **
		Percent					
<i>Inpatient Discharges</i>							
One or More in Last Year	1,538	52.0	21.9	4.4	21.7	3.26	--
None in Last Year	6,506	50.3	23.9	4.7	21.1		
<i>Part B Claims</i>							
One or More in Last Year	7,272	50.7	23.3	4.6	21.4	4.94	--
None in Last Year	772	49.4	25.9	5.4	19.3		

* $p < .01$

** See note in Table 5

Table 12
 Health Plan Characteristics and Stage of Change for Learning about Medicare HMOs

	N	PC	C	PR	A	χ^2 (df=3)	Cohen's η^2 **
		Percent					
<i>Medicaid Eligibility</i>							
Eligible	1,497	54.5	24.0	3.6	17.8		
Not eligible	8,085	43.8	21.4	6.0	28.8	104.89*	-.26
<i>Additional Insurance</i>							
Some	6,552	47.0	21.3	5.5	26.2		
None	3,030	42.0	23.0	6.0	28.9	20.70*	-.06
<i>HMO Enrollment in Past Year</i>							
Some	1,538	50.6	23.5	4.6	21.2		
None	8,088	18.5	13.1	10.8	57.7	1078.24*	.77
<i>HMOs in Geographical Area</i>							
Some	6,720	43.3	17.6	6.3	32.9		
None	2,862	50.5	31.9	4.2	13.5	505.09*	.47

* $p < .01$

** See note in Table 5

Table 13
Demographic Variables and Stage of Change for Reviewing Different Health Plan Options

	N	PC	C	PR	A/M	χ^2 (df=3)	Cohen's \underline{h}^{**}
		Percent					
<i>Race</i>							
White	7,685	61.0	10.4	16.5	12.1	20.50*	.12
Non-White	1,308	61.2	10.0	20.1	8.6		
<i>Gender</i>							
Male	3,819	59.6	10.7	17.2	12.4	7.43	--
Female	5,207	62.1	10.1	16.8	11.0		
<i>Age (over 65 only)</i>							
Age 65 to 74	3,846	55.3	11.8	18.6	14.3	102.95*	.13
Age 75 and older	3,907	66.5	9.2	14.3	10.0		
<i>Marital Status</i>							
Married, Living with Spouse	4,657	57.0	10.9	18.4	13.6	74.67*	.13
Other	4,367	65.4	9.7	15.5	9.4		
<i>Preferred Language</i>							
MCBS in English	8,707	63.2	4.6	18.5	13.6	11.53*	.06
MCBS in Spanish	302	61.0	10.5	17.0	11.5		
<i>Income</i>							
\$25,000 or greater	2,463	56.9	10.5	18.6	14.0	28.94*	.09
Under \$25,000	6,205	62.6	10.1	16.4	10.9		
<i>Education</i>							
High School Graduate	5,738	56.8	10.9	18.8	13.5	133.25*	.17
Less than High School	3,242	68.7	9.2	13.9	8.2		

* p<.01

** See note in Table 5

Table 14

Health and Cognitive Functioning Variables and Stage of Change for Reviewing Different Health Plan Options

	N	PC	C	PR	A/M	χ^2 (df=3)	Cohen's η^{2**}
		Percent					
<i>Health Status</i>							
Good to Excellent	6,710	59.7	10.7	17.2	12.4	27.15*	.10
Fair to Poor	2,297	65.3	9.1	16.2	9.4		
<i>Medicare Disability Insurance</i>							
No Disability	7,753	60.9	10.5	16.4	12.1	24.48*	.13
Disability	1,273	62.0	9.4	20.3	8.3		
<i>Memory Loss</i>							
No Memory Loss	8,168	60.8	10.5	16.9	11.8	8.55	--
Memory Loss	845	64.3	8.2	17.8	9.8		

* p<.01

** See note in Table 5

Table 15
Healthcare Utilization Variables and Stage of Change for Reviewing Different Health Plan Options
 (Regular, Fee-For-Service Enrollees Only)

	N	PC	C	PR	A/M	χ^2 (df=3)	Cohen's \underline{h} **
		Percent					
<i>Inpatient Discharges</i>							
One or More in Last Year	1,190	65.1	9.3	15.1	10.4	6.84	--
None in Last Year	6,292	61.1	10.6	16.8	11.4		
<i>Part B Claims</i>							
One or More in Last Year	6,668	61.8	10.3	16.6	11.3	0.63	--
None in Last Year	814	61.5	11.2	16.2	11.1		

* p<.01

** See note in Table 5

Table 16
Health Plan Characteristics and Stage of Change for Reviewing Different Health Plan Options

	N	PC	C	PR	A/M	χ^2 (df=3)	Cohen's \underline{h}^{**}
		Percent					
<i>Medicaid Eligibility</i>							
Eligible	1,039	71.7	8.2	13.5	6.6	60.39*	-.19
Not eligible	7,987	59.7	10.6	17.4	12.2		
<i>Additional Insurance</i>							
Some	5,896	60.4	10.5	16.3	12.8	26.93*	.11
None	3,130	62.3	10.0	18.3	9.4		
<i>HMO Enrollment in Past Year</i>							
Some	1,544	57.8	10.0	19.1	13.1	12.35*	.06
None	7,482	61.8	10.4	16.5	11.3		
<i>HMOs in Geographical Area</i>							
Some	6,427	60.7	10.1	17.3	11.9	5.45	--
None	2,599	62.1	11.0	16.2	10.8		

* p<.01

** See note in Table 5

Table 17
Information Seeking and Stage of Change for Learning about the Medicare Program

	N	PC	C	PR	A	χ^2 (df=3)	Cohen's \underline{h} **
		Percent					
Ever Used Handbook							
Yes	6,506	9.6	15.5	20.4	54.4	841.67*	.43
No	5,999	20.8	28.7	17.2	33.3		
Found Handbook Very Useful							
Yes	2,570	6.6	12.1	18.4	63.0	542.91*	.48
No	9,544	17.1	24.2	19.2	39.4		
Received Handbook in Last Year							
Yes	5,757	11.3	18.2	19.2	51.3	248.00*	.26
No	5,849	17.7	24.9	18.7	38.6		
If Needed, Found Information on Changes in Benefits							
Yes	487	8.0	20.1	27.3	44.6	33.17*	.45
No	89	12.4	46.1	18.0	23.6		
If Needed, Found Information on Services Covered							
Yes	606	7.3	23.9	24.1	44.7	29.69*	.54
No	127	9.4	40.9	29.9	19.7		
If Needed, Found Information on Availability and Benefits of HMOs							
Yes	626	10.9	21.1	19.2	48.9	13.27*	.55
No	52	13.5	32.7	30.8	23.1		
Very Satisfied with Availability of Information on Medicare							
Yes	1,331	9.0	12.9	17.9	60.2	166.97*	.35
No	11,134	15.5	22.7	19.0	42.7		

* p<.01

** See note in Table 5

Table 18
Information Seeking and Stage of Change for Learning about Medicare HMOs

	N	PC	C	PR	A	χ^2 (df=3)	Cohen's h^{**}
		Percent					
Ever Used Handbook							
Yes	6,454	40.0	21.4	7.3	31.3	176.76*	.17
No	5,944	49.6	22.4	4.3	23.7		
Found Handbook Very Useful							
Yes	2,536	35.5	21.7	7.3	35.5	140.74*	.22
No	9,475	46.8	22.1	5.5	25.6		
Received Handbook in Last Year							
Yes	5,687	42.1	21.3	6.3	30.2	39.57*	.10
No	5,815	46.1	22.9	5.4	25.7		
If Needed, Found Information on Changes in Benefits							
Yes	485	34.6	26.6	9.5	29.3	8.87	--
No	89	41.6	36.0	5.6	16.9		
If Needed, Found Information on Services Covered							
Yes	603	37.8	27.4	8.1	26.7	17.11*	.40
No	125	53.6	25.6	9.6	11.2		
If Needed, Found Information on Availability and Benefits of HMOs							
Yes	629	20.5	17.5	14.3	47.7	20.33*	.49
No	53	20.8	41.5	13.2	24.5		
Very Satisfied with Availability of Information on Medicare							
Yes	1,290	36.5	18.4	6.5	38.5	90.98*	.26
No	11,041	45.5	22.3	5.8	26.4		

* $p < .01$

** See note in Table 5

Table 19
Information Seeking and Stage of Change for Reviewing Different Health Plan Options

	N	PC	C	PR	A/M	χ^2 (df=3)	Cohen's h^{**}
		Percent					
Received Medicare & You Handbook							
Yes	4,677	53.1	10.2	16.8	19.9	424.02*	.38
No	7,196	63.5	10.8	18.5	7.3		
Read Handbook Thoroughly							
Yes	889	43.4	7.9	11.2	37.5	570.54*	.67
No	10,975	60.7	10.7	18.4	10.2		
Used Handbook to Look Up a Telephone Number							
Yes	193	38.3	5.7	18.1	37.8	123.97*	.62
No	11,675	59.7	10.6	17.9	11.8		
Used Handbook to Learn about Health Plan Options							
Yes	386	24.6	8.0	22.8	44.6	430.15*	.78
No	11,481	60.6	10.6	17.7	11.1		
Used Comparison Chart							
Yes	302	40.4	9.6	14.9	35.1	263.06*	.69
No	8,017	62.9	10.7	18.4	8.0		
Still Has Handbook							
Yes	3,297	49.7	10.1	18.0	22.3	469.04*	.41
No	8,222	63.5	10.6	17.8	8.1		
Tried to Find Information on New Benefits or Changes							
Yes	654	36.1	11.6	28.0	24.3	199.96*	.35
No	12,202	61.2	10.7	16.9	11.2		
Tried to Find Information on Medical Services Covered							
Yes	1,002	40.6	12.9	27.6	18.9	181.93*	.21
No	11,847	61.6	10.6	16.6	11.3		
Tried to Find Information on Availability and Benefits of Medicare HMOs							
Yes	743	31.2	10.9	30.4	27.5	346.70*	.43
No	12,111	61.7	10.7	16.7	10.9		
Very Satisfied with Availability of Information							
Yes	1,309	47.4	12.5	20.4	19.7	96.15*	.22
No	10,012	59.8	10.7	17.7	11.8		

* p<.01

Table 20
Coding Scheme for Variables Predicting Knowledge about the Medicare Program

Gender	0=female, 1=male
Age	in years
Race	0=non-white, 1=white
Income	0=under \$25,000, 1=\$25,000 or greater
Education	in years
Health status	0=fair to poor, 1=good to excellent
HMO enrollment	0=none in last year, 1=some in last year
Additional insurance	0=none, 1=some
Medicaid eligibility	0=ineligible, 1=eligible
Marital status	0=not married, living with partner, 1=married, living with partner
Memory problems	0=none, 1=some
Preferred language	0=MCBS conducted in Spanish, 1=MCBS conducted in English
Years in Study	in years
Stage of Change	1=Precontemplation, 2=Contemplation, 3=Preparation, 4=Action/Maintenance

Table 21

Multiple Regressions of Stage of Change for Learning about the Medicare Program
And Demographic, Health, and Health Plan Characteristics on Knowledge Measures
(Aged Sample)

	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>Medicare Understandability Question</u>					
Stage of Change	.08	.21	18.33	.22	.21
Memory Loss	-.09	-.06	-5.20	-.08	-.06
$R^2 = .05$					
Adjusted $R^2 = .05$ Constant = .57					
$R = .23$					
$F(2,6986) = 190.81^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>Global Know-All-Need-to-Know Question</u>					
Stage of Change	.31	.29	21.01	.34	.29
Gender	.11	.05	3.39	.06	.05
Race	.15	.04	2.87	.12	.04
Highest Grade Completed	.05	.15	10.60	.25	.15
Health Status	.06	.06	4.05	.13	.06
Memory Loss	-.21	-.05	-3.51	-.10	-.05
HMO Enrollment in Last Year	.12	.04	2.72	.02	.04
Additional Insurance	.12	.05	2.92	.11	.04
Years in Study	.06	.06	4.07	.05	.06
$R^2 = .17$					
Adjusted $R^2 = .16$ Constant = .93					
$R = .41$					
$F(9,4710) = 103.52^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>3-Item Quiz</u>					
Stage of Change	.13	.16	11.49	.23	.17
Age	-.01	-.10	-6.89	-.13	-.10
Race	.25	.09	5.85	.16	.09
Marital Status	.14	.07	5.13	.15	.08
Highest Grade Completed	.03	.13	8.65	.23	.13
Language	.20	.03	2.40	.09	.04
HMO Enrollment in Last Year	.15	.07	4.36	.02	.06
Additional Insurance	.22	.11	6.58	.14	.10
$R^2 = .13$					
Adjusted $R^2 = .13$ Constant = 1.35					
$R = .36$					
$F(8,4607) = 83.46^*$					

Table 21, Continued
Multiple Regressions of Stage of Change for Learning about the Medicare Program
And Demographic, Health, and Health Plan Characteristics on Knowledge Measures
(Aged Sample)

	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>4-Item Quiz</u>					
Stage of Change	.21	.21	18.30	.28	.21
Age	-.01	-.05	-4.07	-.09	-.05
Race	.41	.12	10.12	.21	.12
Marital Status	.15	.07	5.68	.16	.07
Income	.16	.06	5.41	.17	.06
Highest Grade Completed	.03	.10	8.19	.24	.10
Language	.30	.04	3.60	.12	.04
Memory Loss	-.16	-.04	-3.57	-.10	-.04
HMO Enrollment in Last Year	-.08	-.03	-2.14	-.07	-.03
Additional Insurance	.23	.10	6.55	.20	.08
Medicaid	-.12	-.03	-2.07	-.17	-.02
Years in Study	-.03	-.03	-2.83	-.02	-.03
$R^2 = .17$ Adjusted $R^2 = .16$ Constant = 1.26 $R = .41$ $F(12,7019) = 116.16^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>8-Item Quiz</u>					
Stage of Change	.35	.17	12.34	.24	.18
Gender	.14	.03	2.11	.07	.03
Age	-.04	-.12	-8.56	-.16	-.12
Race	.55	.08	5.45	.16	.08
Marital Status	.20	.04	2.80	.15	.04
Highest Grade Completed	.11	.16	11.28	.28	.16
Health Status	.14	.07	4.80	.16	.07
Memory Loss	-.25	-.03	-2.16	-.10	-.03
HMO Enrollment in Last Year	1.06	.20	11.94	.17	.17
Additional Insurance	.32	.06	3.59	.05	.05
Medicaid Eligibility	-.37	-.04	-2.64	-.19	-.04
Years in Study	.10	.05	3.59	.00	.05
$R^2 = .19$ Adjusted $R^2 = .18$ Constant = 3.67 $R = .43$ $F(12,4727) = 89.37^*$					

* $p < .01$

Table 22

Multiple Regressions of Stage of Change for Learning about the Medicare Program
And Demographic, Health, and Health Plan Characteristics on Knowledge Measures
(Disabled Sample)

	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>Medicare Understandability Question</u>					
Stage of Change	.09	.21	7.07	.21	.21
HMO Enrollment in Last Year	.11	.08	2.54	.07	.08
Medicaid Eligibility	.07	.08	2.52	.06	.08
$R^2 = .05$					
Adjusted $R^2 = .05$	Constant = .45				
$R = .23$					
$F(3,1095) = 20.74^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>Global Know-All-Need-to-Know Question</u>					
Stage of Change	.38	.34	9.82	.36	.34
Highest Grade Completed	.05	.14	4.03	.19	.15
$R^2 = .15$					
Adjusted $R^2 = .15$	Constant = 1.14				
$R = .39$					
$F(2,724) = 63.10^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>3-Item Quiz</u>					
Stage of Change	.13	.15	4.06	.17	.15
Age	.01	.14	3.77	.13	.14
Highest Grade Completed	.06	.20	5.40	.19	.20
Health Status	-.08	-.08	-2.33	-.08	-.09
$R^2 = .09$					
Adjusted $R^2 = .08$	Constant = .00				
$R = .30$					
$F(4,714) = 17.07^*$					

* $p < .01$

Continued on Next Page

Table 22, Continued
Multiple Regressions of Stage of Change for Learning about the Medicare Program
And Demographic, Health, and Health Plan Characteristics on Knowledge Measures
(Disabled Sample)

	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>4-Item Quiz</u>					
Stage of Change	.33	.30	10.64	.31	.30
Gender	-.16	-.07	-2.42	-.08	-.07
Age	.01	.13	4.75	.15	.14
Income	.30	.09	3.34	.11	.10
$R^2 = .13$					
Adjusted $R^2 = .12$	Constant = .47				
$R = .36$					
$F(4,1119) = 40.52^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>8-Item Quiz</u>					
Stage of Change	.50	.22	6.28	.25	.23
Highest Grade Completed	.11	.15	4.13	.18	.15
Group Health Plan Participation	1.04	.14	3.84	.15	.14
$R^2 = .10$					
Adjusted $R^2 = .10$	Constant = 1.09				
$R = .32$					
$F(3,724) = 28.06^*$					

* $p < .01$

Table 23
Multiple Regressions of Stage of Change for Learning about Medicare HMOs
And Demographic, Health, and Health Plan Characteristics on Knowledge Measures
(Aged Sample)

	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>Medicare Understandability Question</u>					
Stage of Change	.03	.10	8.61	.12	.10
Highest Grade Completed	.01	.06	4.75	.08	.06
Memory Loss	-.10	-.07	-5.61	-.08	-.07
$R^2 = .02$					
Adjusted $R^2 = .02$	Constant = .64				
$R = .15$					
$F(3,6923) = 52.72^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>Global Know-All-Need-to-Know Question</u>					
Stage of Change	.12	.12	8.59	.16	.12
Gender	.08	.03	2.15	.06	.03
Race	.19	.05	3.54	.12	.05
Marital Status	.10	.04	2.86	.10	.04
Highest Grade Completed	.06	.18	12.00	.25	.17
General Health	.07	.06	4.41	.13	.06
Memory Loss	-.25	-.06	-4.01	-.10	-.06
Additional Insurance	.15	.06	3.84	.11	.06
Years in Study	.06	.05	3.77	.05	.06
$R^2 = .10$					
Adjusted $R^2 = .10$	Constant = 1.38				
$R = .32$					
$F(9,4664) = 58.33^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>3-Item Quiz</u>					
Stage of Change	.08	.11	7.23	.16	.11
Age	-.01	-.10	-6.90	-.13	-.10
Race	.27	.09	6.29	.16	.09
Marital Status	.14	.07	4.92	.15	.07
Income	.06	.03	1.99	.13	.03
Highest Grade Completed	.04	.14	8.84	.23	.13
Language	.19	.03	2.23	.09	.03
HMO Enrollment in Last Year	.08	.04	2.08	.02	.03
Additional Insurance	.23	.12	6.72	.14	.10
$R^2 = .11$					
Adjusted $R^2 = .11$	Constant = 1.55				
$R = .34$					
$F(9,4570) = 64.73$					

* $p < .01$

Continued on Next Page

Table 23, Continued
Multiple Regressions of Stage of Change for Learning about Medicare HMOs
And Demographic, Health, and Health Plan Characteristics on Knowledge Measures
(Aged Sample)

	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>4-Item Quiz</u>					
Stage of Change	.06	.07	5.86	.10	.07
Age	-.01	-.05	-4.24	-.09	-.05
Race	.44	.13	10.56	.21	.13
Marital Status	.16	.07	5.91	.16	.07
Income	.19	.08	6.39	.17	.08
Highest Grade Completed	.04	.12	9.68	.24	.12
Language	.27	.04	3.21	.12	.04
Memory Loss	-.20	-.05	-4.21	-.10	-.05
HMO Enrollment in Last Year	-.13	-.05	-3.48	-.07	-.04
Additional Insurance	.25	.10	6.94	.20	.08
Medicaid Eligibility	-.15	-.04	-2.68	-.17	-.03
Years in Study	-.03	-.03	-2.82	-.02	-.03
$R^2 = .13$ Adjusted $R^2 = .13$ Constant = 1.69 $R = .36$ $F(12,6960) = 86.81^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>8-Item Quiz</u>					
Stage of Change	.23	.13	8.67	.23	.13
Age	-.04	-.12	-8.53	-.16	-.12
Race	.60	.08	5.83	.16	.08
Marital Status	.26	.05	3.89	.15	.06
Highest Grade Completed	.12	.17	11.69	.28	.17
Health Status	.15	.07	5.01	.16	.07
Memory Loss	-.28	-.03	-2.38	-.10	-.03
HMO Enrollment in Last Year	.82	.15	8.67	.17	.13
Additional Insurance	.32	.06	3.55	.05	.05
Medicaid Eligibility	-.45	-.05	-3.20	-.19	-.05
Years in Study	.10	.05	3.34	.00	.05
$R^2 = .17$ Adjusted $R^2 = .17$ Constant = 4.19 $R = .41$ $F(11,4689) = 88.05^*$					

* $p < .01$

Table 24
Multiple Regressions of Stage of Change for Learning about Medicare HMOs
And Demographic, Health, and Health Plan Characteristics on Knowledge Measures
(Disabled Sample)

	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>Medicare Understandability Question</u>					
Stage of Change	.04	.09	3.11	.09	.08
Medicaid Eligibility	.06	.07	2.15	.06	.06
$R^2 = .01$ Adjusted $R^2 = .01$ Constant = .62 $R = .11$ $F(2,1090) = 6.57^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>Global Know-All-Need-to-Know Question</u>					
Stage of Change	.21	.19	5.32	.22	.20
Highest Grade Completed	.06	.16	4.33	.19	.16
Years In Study	.10	.09	2.55	.08	.09
$R^2 = .08$ Adjusted $R^2 = .08$ Constant = 1.55 $R = .28$ $F(3,716) = 20.70^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>3-Item Quiz</u>					
Stage of Change	.11	.13	3.45	.17	.13
Age	.01	.13	3.58	.13	.13
Highest Grade Completed	.06	.19	5.23	.19	.19
Health Status	-.07	-.08	-2.22	-.08	-.08
$R^2 = .08$ Adjusted $R^2 = .08$ Constant = .16 $R = .29$ $F(4,707) = 15.71^*$					

* $p < .01$

Continued on Next Page

Table 24, Continued
Multiple Regressions of Stage of Change for Learning about Medicare HMOs
And Demographic, Health, and Health Plan Characteristics on Knowledge Measures
(Disabled Sample)

	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>4-Item Quiz</u>					
Stage of Change	.19	.18	6.11	.20	.18
Gender	-.19	-.08	-2.70	-.08	-.08
Age	.01	.11	3.81	.15	.11
Marital Status	.17	.07	2.30	.12	.07
Income	.21	.07	2.20	.11	.07
$R^2 = .08$ Adjusted $R^2 = .07$ Constant = 1.04 $R = .27$ $F(5,1111) = 17.98^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>8-Item Quiz</u>					
Stage of Change	.36	.17	4.44	.22	.16
Highest Grade Completed	.12	.15	4.13	.18	.15
HMO Enrollment in Last Year	.84	.11	2.96	.15	.11
$R^2 = .08$ Adjusted $R^2 = .08$ Constant = 1.71 $R = .28$ $F(3,717) = 20.95^*$					

* $p < .01$

Table 25
Multiple Regressions of Stage of Change for Reviewing Different Health Plan Options
And Demographic, Health, and Health Plan Characteristics on Knowledge Measures
(Aged Sample)

	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>Global Know-All-Need-to-Know Question</u>					
Stage of Change	.06	.06	5.28	.11	.06
Confidence	.06	.12	10.27	.18	.12
Gender	.07	.03	2.58	.06	.03
Race	.19	.05	4.32	.12	.05
Marital Status	.08	.03	2.62	.10	.03
Income	.07	.03	2.40	.12	.03
Highest Grade Completed	.06	.17	13.91	.25	.16
Health Status	.06	.05	4.43	.13	.05
Memory Loss	-.23	-.05	-4.62	-.10	-.05
HMO Enrollment in Last Year	.11	.04	2.89	.02	.03
Additional Insurance	.15	.06	4.36	.11	.05
Years In Study	.06	.06	5.02	.05	.06
$R^2 = .11$					
Adjusted $R^2 = .11$ Constant = 1.40					
$R = .33$					
$F(12,7286) = 73.24^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>3-Item Quiz</u>					
Stage of Change	.08	.10	8.90	.16	.10
Confidence	.04	.11	9.42	.18	.11
Age	-.01	-.08	-6.98	-.13	-.08
Race	.27	.09	7.91	.16	.09
Marital Status	.13	.07	5.78	.15	.07
Income	.07	.03	2.87	.13	.03
Highest Grade Completed	.03	.12	10.30	.23	.12
Language	.19	.03	2.78	.09	.03
Memory Loss	-.08	-.02	-2.07	-.08	-.02
HMO Enrollment in Last Year	.14	.06	4.86	.02	.06
Additional Insurance	.22	.11	7.87	.14	.09
Years In Study	.02	.03	2.41	.02	.03
$R^2 = .13$					
Adjusted $R^2 = .13$ Constant = 1.29					
$R = .36$					
$F(12,7286) = 88.38^*$					

* $p < .01$

Continued on Next Page

Table 25, Continued
Multiple Regressions of Stage of Change for Reviewing Different Health Plan Options
And Demographic, Health, and Health Plan Characteristics on Knowledge Measures
(Aged Sample)

	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>8-Item Quiz</u>					
Stage of Change	.40	.19	17.65	.26	.20
Confidence	.16	.15	14.06	.26	.16
Sex	.12	.02	2.22	.07	.03
Age	-.03	-.09	-7.99	-.16	-.09
Race	.60	.08	7.54	.16	.09
Marital Status	.16	.03	2.86	.15	.03
Income	.12	.02	2.10	.13	.02
Highest Grade Completed	.10	.15	12.83	.28	.15
Health Status	.11	.05	4.68	.16	.05
Memory Loss	-.25	-.03	-2.79	-.10	-.03
HMO Enrollment in Last Year	.98	.18	13.98	.17	.16
Additional Insurance	.32	.06	4.65	.05	.05
Medicaid Eligibility	-.33	-.04	-3.01	-.19	-.04
Years In Study	.09	.04	4.11	.00	.05
$R^2 = .22$					
Adjusted $R^2 = .22$		Constant = 2.99			
$R = .47$					
$F(14,7284) = 146.55^*$					

* $p < .01$

Continued on Next Page

Table 26
Multiple Regressions of Stage of Change for Reviewing Different Health Plan Options
And Demographic, Health, and Health Plan Characteristics on Knowledge Measures
(Disabled Sample)

	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>How Much Respondents Think They Know About Medicare</u>					
Stage of Change	.09	.08	2.88	.13	.08
Confidence	.09	.18	6.53	.21	.18
Highest Grade Completed	.06	.16	5.71	.19	.16
Years In Study	.10	.09	3.44	.08	.10
$R^2 = .09$					
Adjusted $R^2 = .08$ Constant = 1.59					
$R = .30$					
$F(4,1219) = 28.96^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>3-Item Quiz</u>					
Stage of Change	.06	.06	2.22	.12	.06
Confidence	.05	.13	4.68	.18	.13
Age	.01	.12	4.23	.13	.12
Highest Grade Completed	.06	.19	6.55	.19	.19
Health Status	-.07	-.08	-2.79	-.08	-.08
HMO Enrollment in Last Year	.20	.07	2.33	.10	.07
$R^2 = .10$					
Adjusted $R^2 = .09$ Constant = .20					
$R = .31$					
$F(6,1185) = 20.61^*$					
	<i>B</i>	β	<i>t</i>	<i>r</i>	<i>partial r</i>
<u>8-Item Quiz</u>					
Stage of Change	.47	.20	7.42	.25	.21
Confidence	.22	.21	7.74	.27	.22
Race	.36	.07	2.46	.09	.07
Income	.58	.09	3.40	.12	.10
Highest Grade Completed	.08	.11	3.89	.18	.11
HMO Enrollment in Last Year	.97	.13	4.77	.15	.14
$R^2 = .16$					
Adjusted $R^2 = .16$ Constant = 1.13					
$R = .40$					
$F(6,1201) = 38.48^*$					

* $p < .01$

Figures

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Figure 1.
 Proxy Staging Algorithm Assessing Readiness to Learn about the Medicare Program

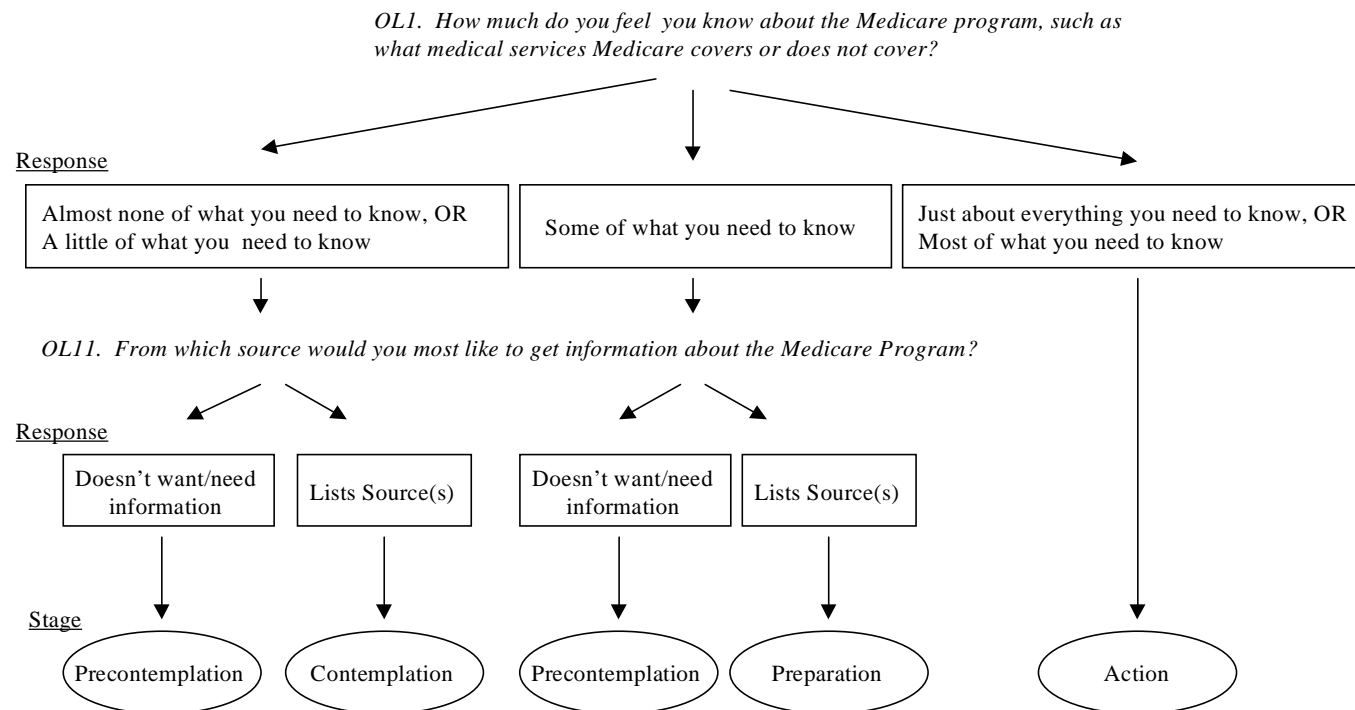
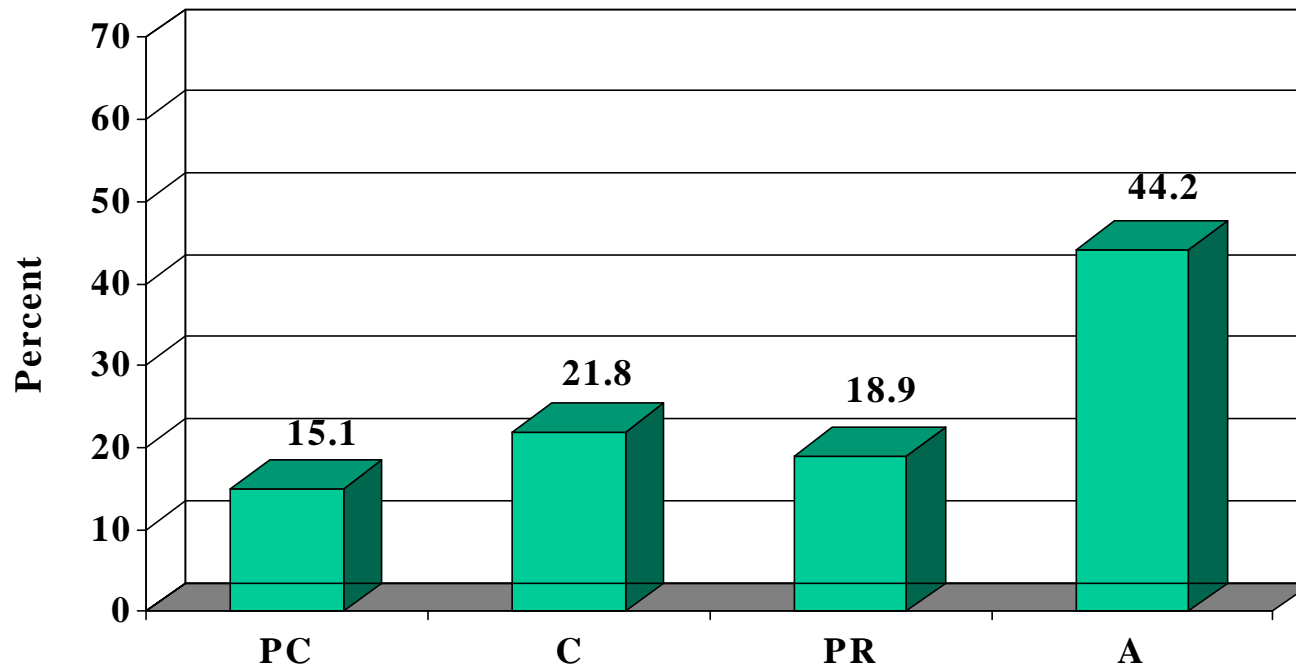


Figure 2.
Stage of Readiness to Learn about the Medicare Program



PC= Precontemplation; C= Contemplation; PR= Preparation; A= Action

Figure 3:
Stage of Readiness to Learn about Medicare HMOs

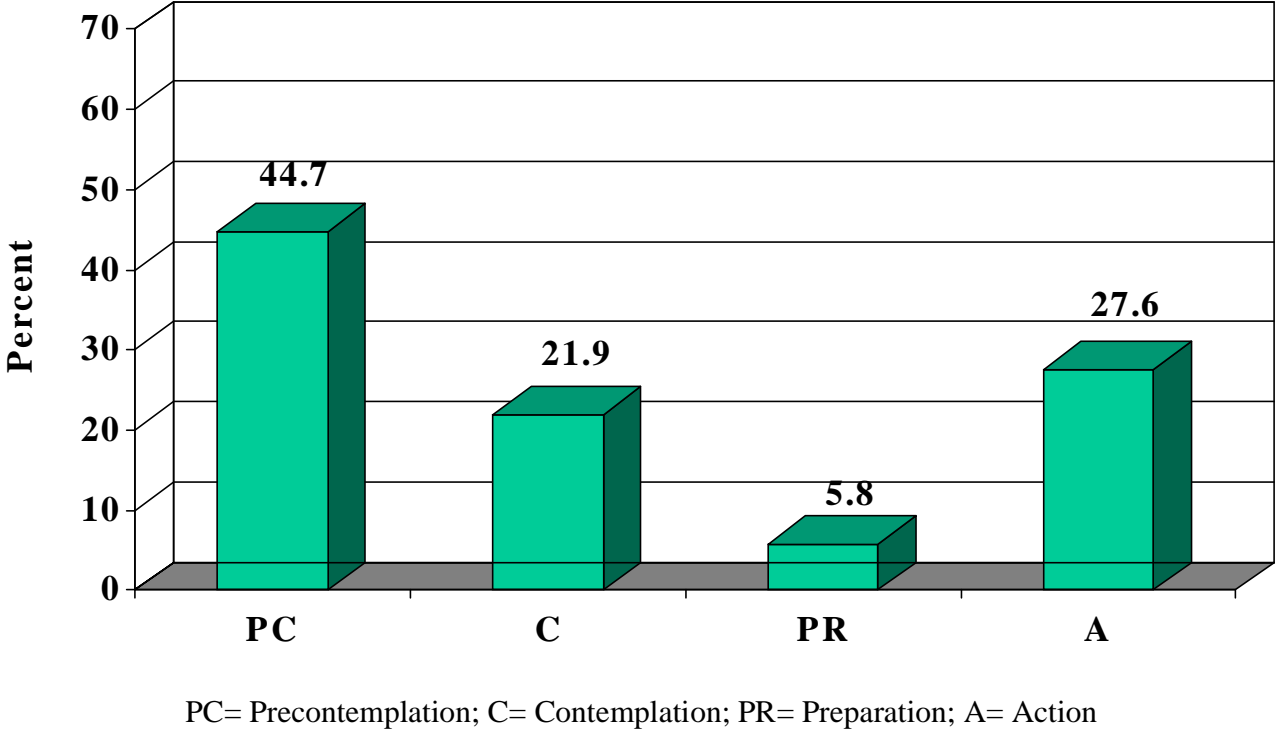
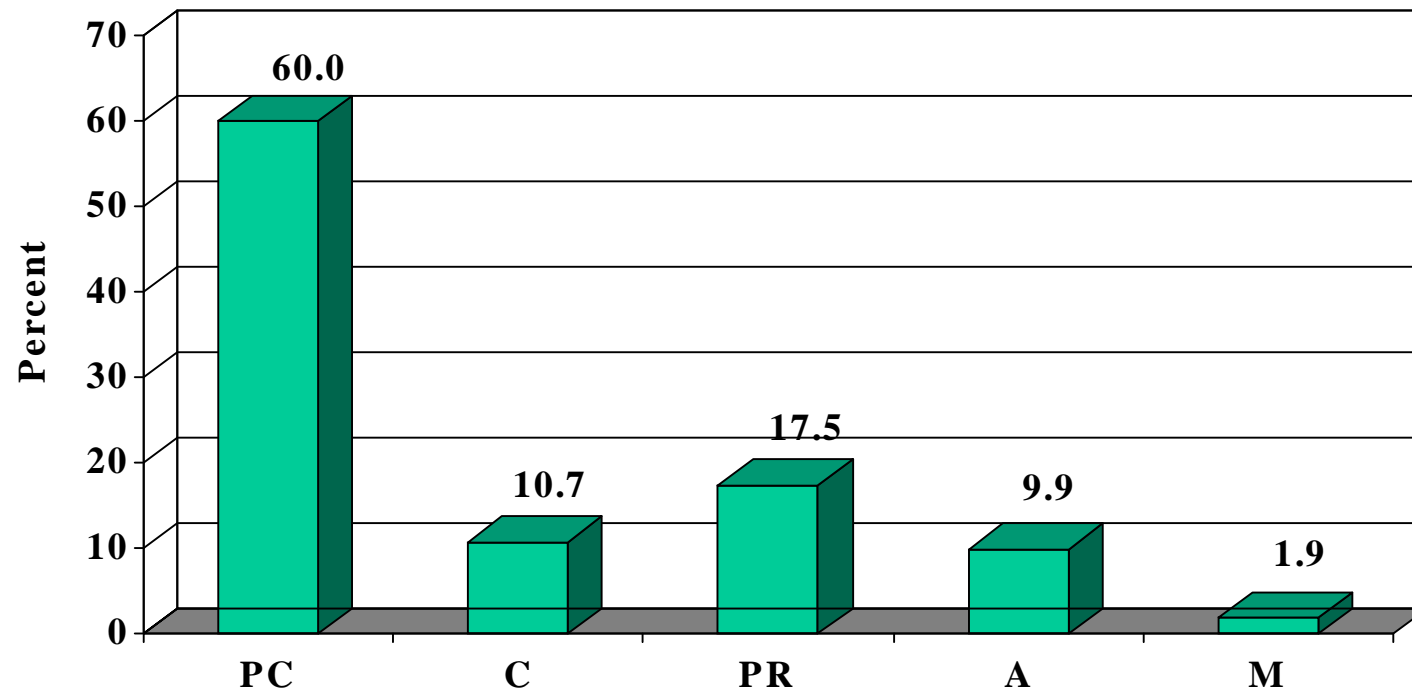


Figure 4.
Stage of Readiness to Review Different Health Plan Options



PC= Precontemplation; C= Contemplation; PR= Preparation; A= Action; M= Maintenance

Figure 5:
 Patterns of Stage Progression and Regression Tested Using Latent Transition Analysis

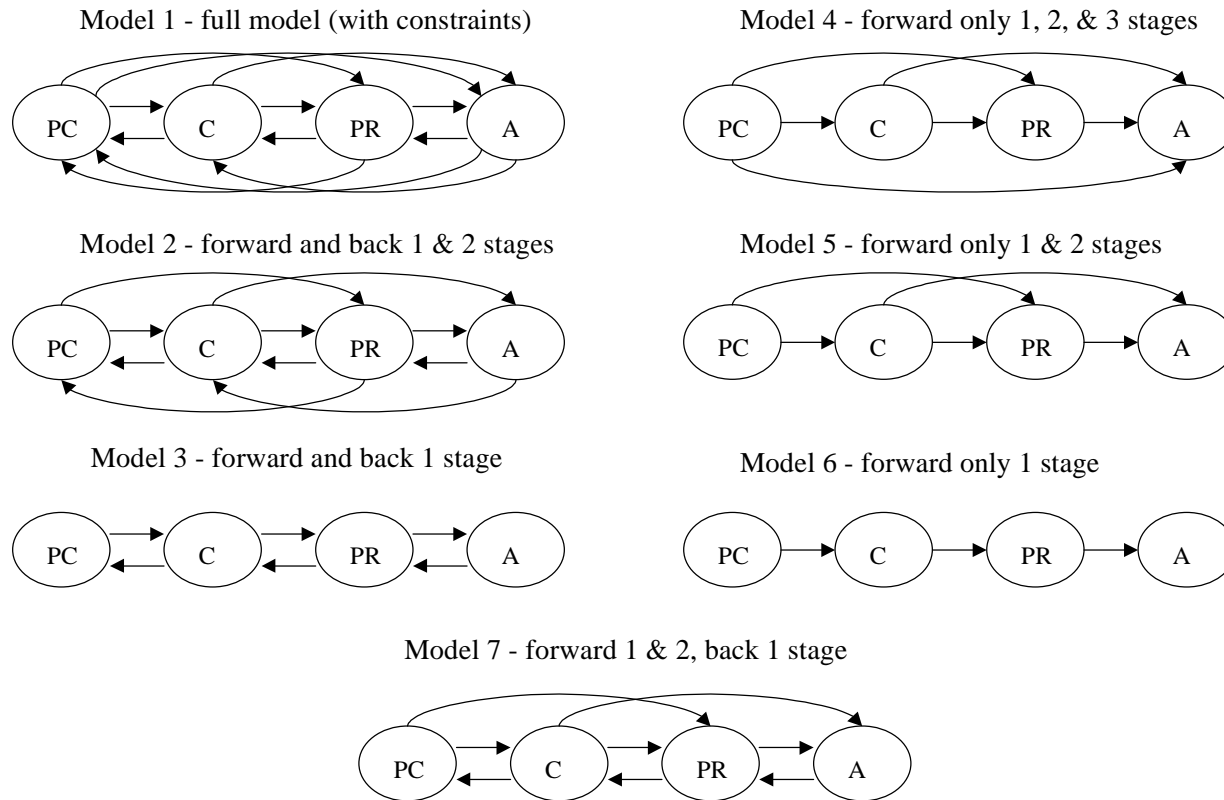
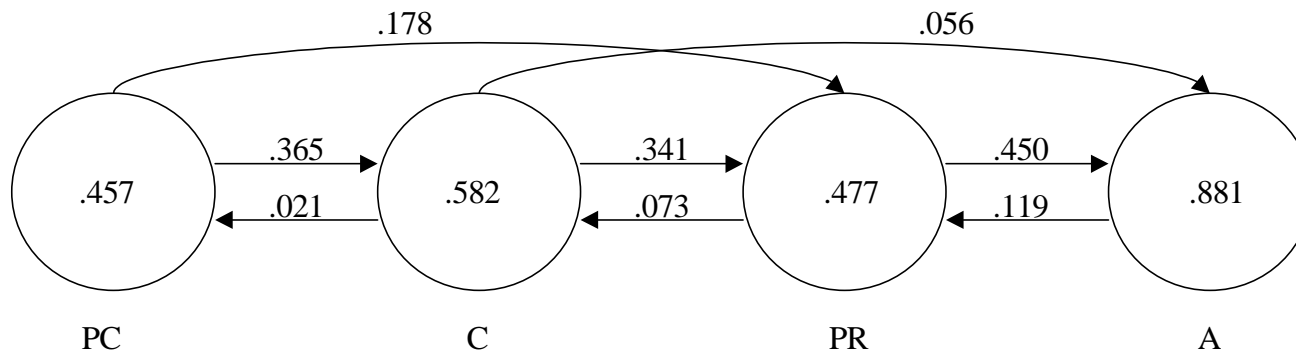


Figure 6:
Stage of Change for Learning about the Medicare Program: Progression
and Regression During a 20-Month Period



Goodness of Fit: $G^2(df=3, N=5602) = 9.96$