
Measures and Predictors of Medicare Knowledge: A Review of the Literature

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As the Medicare Program evolves, adding new insurance options like regional preferred provider organizations (PPOs) and prescription drug benefits, beneficiaries have an even greater need to understand the program. However, past research suggests that many beneficiaries have limited understanding of Medicare and related health insurance options. While improvements in beneficiary understanding of Medicare may be feasible, driven by new and varied efforts to provide the Medicare population with educational opportunities, is there evidence of factors that predict knowledge limitations? This article seeks to address this question by a thorough review of the literature on the measures and factors that influence beneficiary knowledge.

INTRODUCTION

As the Medicare Program evolves, adding new insurance options like regional preferred provider organizations (PPOs) and prescription drug benefits, beneficiaries have an even greater need to understand the program in order to take advantage of a wider range of options. However, past research suggests that many beneficiaries have limited understanding of Medicare and related health insurance options. Research from as early as the mid-1980s on Medicare beneficiaries' understanding of key insurance concepts found significant gaps in knowledge (Cafferata, 1984; McCall, Rice, and Sangl, 1986). More

recent research suggests some modest improvements in Medicare beneficiary knowledge and understanding of the program that have been linked to education efforts on the part of CMS (Goldstein et al., 2001; McCormack et al., 2001b; Research Triangle Institute, 2001).

The Medicare Program, through CMS, has engaged in a wide range of activities to improve the health insurance information for beneficiaries. Coordinated through the National Medicare Education Program (NMEP) the goals of this information campaign are to educate and assist beneficiaries to make informed decisions regarding their health insurance benefits and options (Goldstein et al., 2001). NMEP activities include the design, refinement, and distribution of the *Medicare & You* handbook, a CMS-sponsored Web site (www.medicare.gov) providing basic and comparative information on health insurance options and quality of care measures, and the Medicare beneficiary hotline (1-800-MEDICARE). NMEP activities are nationwide and also include extensive and continued evaluation and testing of beneficiary education and informational interventions (Abt Associates, 2001a, b, c).

Despite these Medicare sponsored activities, deficits in knowledge of Medicare may persist. For example, related to the latest changes in Medicare through the addition of a prescription drug benefit, a recent survey of Medicare beneficiaries (conducted in February 2006) found that 61 percent of aged Medicare beneficiaries reported their understanding of the Medicare prescription drug benefit

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as either “not too well,” or “not well at all” (Avorn, 2006). Because of the complexity of the Medicare prescription drug benefit, and the critical need to improve beneficiary understanding their new options, recent NMEP efforts have focused on supporting beneficiaries as they consider a wide range of new Medicare prescription drug insurance options.

As research continues to highlight potential gaps in Medicare beneficiaries’ knowledge of key program concepts and available options, particularly in an era in which the program continues to evolve, a key question emerges: Are there limitations to beneficiaries’ ability to understand Medicare? While some improvements in beneficiary knowledge of Medicare may be feasible, driven by new and varied efforts to provide the Medicare population with educational opportunities, is there evidence of factors that predict knowledge limitations?

In this article, we review the current literature on Medicare beneficiary knowledge and understanding of health insurance and choice concepts, data that suggest where limits on beneficiary knowledge and understanding lie, and the subgroups most likely to face these limitations. We present information on the factors that are associated with understanding of Medicare and the evidence of specific topics or concepts that appear consistently to elude Medicare beneficiaries.

BENEFICIARY KNOWLEDGE AND HOW IT’S MEASURED

When referring to Medicare beneficiary knowledge, the research we examine in this article generally means an understanding of Medicare sufficient to navigate and effectively operate in the program. Knowledge is not dichotomous; most Medicare beneficiaries have an under-

standing of at least some concepts related to Medicare. In general, few policymakers expect the Medicare beneficiaries to understand all the complex payment and other policies that are necessary to administer the Medicare Program. The question is, however, do beneficiaries know enough to actually use the program effectively. For example, do beneficiaries know what their options are, and do they feel able to make informed choices?

Much of the recent research examining beneficiaries’ demonstrated knowledge of key Medicare and health insurance topics is based on surveys that assess their knowledge using objective measures. Some of these surveys also ask beneficiaries to indicate their self-perceived level of Medicare knowledge. Often, these two types of knowledge—objective and subjective—are used to validate each other. We include studies that examine both types of data in this review. A few of the studies use multiple-item indices that reflect different components of Medicare knowledge; most focus on current Medicare-related issues. Most studies cited in this review of the literature have limitations primarily because they are cross-sectional in nature and are therefore, unable to draw causation (between exposure to information and knowledge). Therefore, findings must be interpreted with this in mind. Studies that use a randomized design and/or are based on nationally representative data are most compelling. Future studies should seek to use rigorous experimental study designs that provide longitudinal data.

FACTORS AFFECTING MEDICARE-RELATED KNOWLEDGE

Limitations in Medicare Program understanding among beneficiaries vary among demographic conditions and other factors. The literature suggests that the level of

understanding regarding the Medicare Program varies based on education, income, age, sex, and type of insurance. Beyond these factors, an individual's level of interest in health insurance issues—sometimes described as readiness—is also related to understanding of the Medicare Program. Other factors that may influence beneficiary knowledge include low rates of literacy.

Education

Level of education is one of the population factors most consistently associated with Medicare knowledge and understanding. Most early studies found that higher levels of education are associated with increased health insurance knowledge (Cafferata, 1984; Lambert, 1980; Marquis, 1983; McCall, Rice, and Sangl, 1986). More recent studies which focus on Medicare beneficiaries have supported the earlier findings (Research Triangle Institute, 2001; McCormack et al., 2001b; McCormack et al., 2002; Hibbard et al., 1998; Cunningham, Denk, and Sinclair, 2001). McCormack et al. (2002) tested the effects of consumer information materials on beneficiary knowledge of their health insurance options using a random sample of beneficiaries in the 10-county Kansas City metropolitan statistical area. In this study, beneficiaries were randomly assigned to either a no information control group or one of three treatment groups who received different sets of interventions including the 1999 pilot version of the *Medicare & You* handbook, a *Medicare & You* trifold brochure, or both providing quality of care ratings based on Consumer Assessment of Health Plans Study (CAHPS®) data. Study participants were surveyed by telephone with a response rate of 62 percent. Beneficiary education levels were positively and significantly associated with knowledge among both experienced Medicare beneficiaries

and those who had just become eligible to enroll in the program. These findings were further supported by a national study a year later.

Income

Increasing income levels is another factor found to be associated with increases in beneficiary knowledge of Medicare across several studies (Lambert, 1980; Marquis, 1983; McCall, Rice, and Sangl, 1986; Hibbard et al., 1998; McCormack et al., 2002). Hibbard et al. (1998) used a cross-sectional survey design to assess beneficiaries' knowledge about managed care. They completed telephone surveys with 1,673 beneficiaries age 65 or over in five geographic regions and obtained a response rate of 61 percent. Fifty percent of the sample was enrolled in traditional Medicare and the other 50 percent in a Medicare risk health maintenance organization (HMO). Knowledge was scored based on a 22-item scale of objective content questions, designed specifically to assess whether respondents could distinguish the characteristics of HMO plans from those of Medicare fee-for-service (FFS). In their study, education was the factor that correlated the highest with knowledge, with the effect of income second.

Age

Age is consistently associated with knowledge and understanding of health insurance concepts. Most studies examining the relationship between beneficiary age and knowledge found that increased knowledge was associated with younger beneficiaries (Cafferata, 1984; Lambert, 1980; Marquis, 1983; McCall, Rice, and Sangl, 1986; McCormack et al., 2001b; McCormack et al., 2002; McCormack and Uhrig, 2003). The inverse relationship

between age and knowledge may relate, in part, to the similarly negative relationship between increased age and cognitive functioning, suggesting that level of cognitive function may be as (or more) important than age (Bann et al., 2004; Craik and Jennings, 1992).

Sex

Another factor frequently associated with understanding of the Medicare Program is sex. Some studies have shown that being male is associated with higher levels of objective Medicare Program knowledge (Hibbard et al., 1998; Lambert, 1980). This association was found in the Kansas City *Medicare & You* handbook evaluation (McCormack et al., 2002), but not in the national evaluation (Research Triangle Institute, 2001). The relationship between knowledge and sex may be related to traditional roles of males and females found in the current cohort of Medicare beneficiaries. Among current Medicare aged beneficiaries, males tend to be more likely to make family decisions about financial issues.

Insurance Type

Aside from basic sociodemographic factors, type of insurance has emerged as another important predictor of Medicare Program knowledge. Hibbard et al. (1998) showed significantly lower levels of program knowledge among Medicare managed care enrollees relative to their FFS counterparts, after controlling for education and income. Hibbard and colleagues reported that many enrollees in Medicare managed care plans appear to lack information—such as basic information on the use of provider networks, plan costs, and their rights to appeal care decisions—about the insurance options in which they have enrolled.

McCormack and Uhrig (2003) specifically tested the effects of insurance type on beneficiary knowledge. They found that beneficiaries enrolled in Medicare managed care or a non-employer group-sponsored supplemental insurance plan were, overall, more knowledgeable about Medicare than those enrolled in only original or FFS Medicare. However, beneficiaries tended to be more knowledgeable about issues that related to the type of insurance in which they were actually enrolled (relative to other options that are available to them, but which are not their current choice). This suggests that beneficiaries either gather their knowledge through use of their particular insurance or through the selection process. However, it also suggests that lack of knowledge of other available, and potentially more appealing options, may result in beneficiaries making health plan decisions that may not be fully informed, and may not allow them to take full advantage of the Medicare Program.

Measures of Interest

Many of the studies previously noted also considered self-reported interest in health insurance and insurance choices as a factor affecting beneficiary knowledge. According to this theory, Medicare beneficiaries who describe themselves as interested in making a change in insurance would be expected to exhibit higher levels of understanding of the Medicare Program. Hibbard and colleagues (1998) found that beneficiaries stated interest in finding out about Medicare options was a statistically significant predictor of their ability to pass a series of screening objective knowledge questions regarding Medicare managed care. They also found that interest in knowing about health plan options was a positive factor in predicting an overall knowledge index score. A study based on a survey of

beneficiaries in selected communities with relatively high rates of Medicare managed care found that individuals reporting new financial difficulties were 44 percent more likely to look for Medicare information than those who did not experience any new financial difficulties (Ketchum, Bearing Point, and Westat, 2003).

Aside from direct self-reporting, an alternative measure of interest could be the number of sources of information that a Medicare beneficiary reports using when learning about the program and making health insurance choices. Therefore, beneficiaries who are interested in learning about insurance issues are more likely to seek out and gain knowledge. A number of studies have shown an association between the use of multiple sources of information about Medicare and level of knowledge. McCormack and colleagues (2002), in their study of beneficiaries who received the *Medicare & You* 1999 handbook, controlled for other sources of Medicare information through the use of a continuous variable that counted these other possible related sources (including summary materials, marketing materials, media reports, and information from friends). Exposure to Medicare related information (other than the Handbook) was strongly associated with higher levels of objective Medicare knowledge. They also reported that for every additional source of information not associated with the handbook, beneficiaries scored between 2 and 3 percentage points higher (out of a scale of 100) on the study's knowledge index. Additional studies have also supported this general finding (Hibbard et al., 1998; Abt Associates, 2001b; Ketchum, BearingPoint, and Westat, 2003).

Certain sources of Medicare-related information appear to be more important than others. McCormack et al. (2001a) found that insurance companies, agents, or

health plans were, according to Medicare beneficiaries, the most informative sources of Medicare Program information, followed by radio/television and mail or telephone sources. These findings are generally consistent with research suggesting that television is a frequently used source of information for Medicare beneficiaries (Brown et al., 2000). Hibbard et al. (1998) found HMO and media advertisements, family and friends, and their experiences in the health plan to be the leading information sources used by beneficiaries. Even though there is an interest shown by older adults in using the Internet as a source of information, only a small portion of older adults actually use it for communication and information gathering (Morrell, 2002).

While there appears to be a positive relationship between the number of sources of information sought and knowledge levels, McCormack and colleagues (2001a) found that more detailed information does not necessarily translate into increased knowledge (Uhrig et al., 2004). In their pilot study version of the *Medicare & You* handbook, they found that the longer, more comprehensive and detailed handbook was not perceived by beneficiaries as more useful than the abbreviated trifold brochure. Also, the relative length and complexity of the materials had little effect on differences in knowledge. Beneficiaries who received and reviewed the trifold brochure exhibited about the same level of Medicare knowledge as those who received and reviewed either the full handbook, or the handbook and comparative quality booklet. While beneficiaries who received the longer, more detailed information did spend more time reviewing the information, it does not appear to improve knowledge, leading researchers to suggest that information overload may be a factor when providing too much detail. Berkman et al. (2002) supports this key finding: shorter,

more summarized versions of materials such as the Medicare trifold brochure are as effective at communicating key messages as the longer, more detailed *Medicare & You* handbook.

Some research has suggested that knowledge gained depends on a person's stage of readiness to engage in making an informed insurance choice—those who seek out information are more likely to be more motivated and therefore, more knowledgeable. In Prochaska's Transtheoretical Model of behavioral change (Levesque et al., 2001) individuals can be placed into information readiness categories, ranging from precontemplation (generally reflecting a position of disinterest) to action (reflecting a level of interest and readiness to consider options over a year or less), ending in maintenance (reflecting individuals who have been reviewing options for more than 1 year).

In their long-term study, Medicare beneficiaries were placed in these readiness categories based on their responses to certain survey questions. They found that while 44 percent of Medicare beneficiaries could be described as in the action stage of readiness to learn about the Medicare Program, only 28 percent could be described in the same action stage of readiness to learn about Medicare HMOs. Only 10 percent of beneficiaries were in the action stage of readiness to review different health plan options and 60 percent were classified as being in the lowest stage or pre-contemplation stage. The authors theorized that beneficiaries placed in the later (maintenance and action) phases of readiness were more likely to seek out information and would therefore, be more knowledgeable. The study results supported this hypothesis. They found that, compared with beneficiaries in the previous stages of readiness, beneficiaries in the later phases scored significantly higher on five mea-

asures of Medicare knowledge and were more likely to seek out or find information on Medicare benefits and options. The authors have recently developed educational interventions based on the stage of change model and are conducting small-scale experiments to examine their effect on a variety of outcomes including knowledge (Levesque et al., 2002a,b).

Data from the 2000 Medicare Current Beneficiary Survey (MCBS) indicated that only about 22 percent of respondents reported that they tried to get information about Medicare (www.cms.hhs.gov). Recent research by Bann and colleagues (2004) found that beneficiaries with characteristics associated with low levels of knowledge such as low education and female, are more likely to seek help in making insurance decisions. Thus, the majority of Medicare beneficiaries may not be highly interested in actively learning about or seeking information about Medicare and are therefore, less likely to possess higher levels of objective knowledge about the program.

Literacy

Another factor that may limit beneficiary understanding of Medicare and health insurance among older adults is low levels of literacy. The National Adult Literacy Study demonstrated a higher prevalence of poor literacy skills among the elderly (Kirsch et al., 2002) and this finding was borne out in the health care setting. As reported in a study by Gazmararian et al. (1999), 44 percent of individuals age 65 or over scored in the lowest reading level, indicating that they could not perform basic reading tasks. Clearly, this low level of literacy impedes beneficiaries' ability to function in a health insurance environment that relies heavily on written text to convey information. Gazmararian and colleagues

conducted a survey among elderly patients enrolled in four managed care plans, and found that 34 percent of English speaking respondents and 54 percent of Spanish speaking respondents had marginal or inadequate levels of health literacy. Low literacy among the elderly may reflect a cohort effect associated with lower levels of education among this group.

DIFFERENCES IN BENEFICIARY PROGRAM KNOWLEDGE

In addition to demographic and other factors that predict lower levels of knowledge and understanding of Medicare, the literature provides insight regarding topical areas within Medicare that appear to be more difficult for Medicare beneficiaries to understand consistently. These areas include acronyms and terminology, basic Medicare Program coverage and benefits, and Medicare managed care concepts. Health insurance options relatively new to the program; such as PPO may also be difficult for beneficiaries to understand. In the following sections we examine the literature regarding beneficiary limitations in the understanding of these complex Medicare concepts relying primarily on studies that use objective measures of knowledge.

Acronyms and Basic Terminology

Research to date has shown that Medicare beneficiaries sometimes have difficulty understanding the basic terminology used by policymakers to describe the various insurance options under Medicare. In some cases, beneficiaries may develop their own terminology to describe aspects of the Medicare Program, which are then obviously inconsistent with the available materials and educational resources. This is an important limitation because confusion about terms and labels used for dif-

ferent options under the program signals difficulties in differentiating between products.

As Medicare has evolved over the past 25 years to include options—such as managed care and medical savings accounts (MSA)—and supplements (Medigap) beyond the traditional FFS program, policymakers have used various terms to apply to those program options. By the late 1990s, and largely as a result of the Balanced Budget Act of 1997, Medicare Program options continued to expand. Options grew to include a number of new products, including MSAs, as well as new managed care options such as private FFS plans, provider sponsored organizations (PSOs), PPOs, and point-of-service plans (POSs). Collectively, Medicare managed care options became known officially as Medicare+Choice (M+C) options, or M+C; by 2006, the M+C was replaced with Medicare Advantage. Although the actual availability of many of these M+C options was initially limited, Medicare policymakers needed a way to distinguish between these expanded options and the Medicare FFS program. Therefore, at different times, Medicare used the terms traditional Medicare and original Medicare to refer to the FFS program.

Beneficiaries seem to have a difficult time understanding and distinguishing between many of these terms. Fyock (2001) studied these Medicare labeling choices through a series of Medicare beneficiary focus groups. This research found that many beneficiaries were confused by the phrase original Medicare plan. Instead, beneficiaries use the general term Medicare to identify the FFS part of the program (though no beneficiaries actually used the term FFS). In addition, these researchers found that beneficiaries use the term HMOs, and rarely referred to these options using the broader term managed care. Beneficiary

participants in the study often considered enrollment in HMOs associated with leaving the Medicare Program. Finally, focus group participants used the term supplemental insurance rather than Medigap.

Recent case studies (Greenwald et al., 2004) of the implementation of the Medicare PPO demonstrations included queries of all 17 PPO sponsors on how they have marketed these new PPO options to beneficiaries, and their perceptions of whether beneficiaries understand the PPO term and plan features. Greenwald et al. (2004) reported that, except in a few very well developed managed care markets, most PPO sponsors were marketing these new plans under trade names—like Golden Choice—and had chosen not to use the term PPO. Plan sponsored marketing research and experience found that beneficiaries had little or no understanding of the term PPO. Furthermore, the many PPO sponsors expressed a general reluctance to use any acronyms or labels in marketing to Medicare beneficiaries since their experience was that these terms were not at all understood. In fact, a number of the PPO demonstration plan sponsors described major efforts to educate beneficiaries about the general concepts of managed care, and how PPO plans were different. However, defining acronyms and terms like PPO were rarely envisioned as a realistic part of that educational process.

Basic Coverage and Benefits

Aside from having difficulty understanding the basic terminology used in the Medicare Program, there is evidence that Medicare beneficiaries also lack important knowledge of program benefits and limitations. For example, in the national evaluation of the 2001 *Medicare & You* handbook (Research Triangle Institute, 2001), only 52 percent of respondents who

received informational materials correctly identified pneumonia shots as a Medicare benefit. Similarly, only 20 percent of this same group knew that neither Medicare managed care nor original Medicare would cover a 6-month nursing home stay. Just 14 percent of respondents knew of expanded coverage for preventive health care services under all Medicare options. Given that beneficiaries correctly answered an average of 10 (or 45 percent) of the 22 questions on the knowledge index, the authors concluded that overall knowledge about Medicare health insurance options was fairly low.

Similar gaps in knowledge about basic Medicare Program benefits and structure were also reported by Ketchum, BearingPoint, and Westat (2003). In this study, these researchers found that about 36 percent of survey respondents across six U.S. community sites studied reported knowing that Medicare now pays for colon cancer screening (an increase from slightly over 30 percent reported in the same study in 2000 and 2001). Only 45 percent of male survey respondents (2002 and 2003) reported having heard or received information about prostate cancer screening. However, a higher proportion of female survey respondents were aware of Medicare coverage for mammograms (approximately 63 percent).

Quality of Care Measures

Another topic area that has been studied by researchers is beneficiary understanding of quality of care measures and other comparative health plan ratings. In recent years, Medicare policymakers have developed a number of methods to provide comparative health plan and provider performance information to beneficiaries. The health care community believes that to encourage competition among health plans

based on quality of care—including customer satisfaction along with clinical performance measures—consumers require understandable and reliable comparative information. Dissemination of comparative quality performance information has been expanded beyond managed care to include data on nursing homes, end stage renal disease facilities, home health care, and hospitals and is available on the Medicare Program’s Web site. Because of these policy initiatives, a number of research studies have been conducted to determine how well Medicare beneficiaries understand these measures and to determine whether they influence decisionmaking. Findings have shown mixed results regarding beneficiary understanding of quality concepts.

Jewitt and Hibbard (1996) found, among a general population, that many quality of care indicators are not well understood and are often interpreted in unintended ways. Short and colleagues (2002) found that 76 percent of Medicare beneficiaries who reviewed a CAHPS® report found it easy to understand. However, the ability of these kinds of quality reports to prompt a beneficiary to consider alternative health insurances was less clear, since one desired policy effect was aimed at improving competitiveness among health plans. Uhrig and Short (2002) conducted a laboratory experiment to determine whether quality information including CAHPS® and health plan employer data and information set measures affected Medicare beneficiaries’ choice of health plan under ideal conditions. Beneficiaries were randomly assigned to either receive quality of care information (the treatment group) or not (the control group). Providing quality information did not significantly influence the choice between original FFS Medicare and a managed care plan, even when information suggested that the managed care plans were high quality.

Moreover, other research suggested that some beneficiaries may have had some difficulty understanding quality of care measures. McCormack (1996) conducted a series of case study interviews with 24 organizations that provided consumer health care purchasing information to the public (including Medicare beneficiaries). These researchers gathered feedback that suggested that some individuals needed further explanations regarding how to interpret various quality performance charts and graphs. Interpretation of some indicators, for example, seemed to be driven by a lack of understanding of what the indicators mean (for example, confusion over whether a high rating was good or bad). Based on these case studies, McCormack and colleagues concluded that many beneficiaries were unfamiliar with health plan performance measures, and because of this, future information of this type should be kept simple.

Self-Reported Levels of Knowledge

Almost one-half of Medicare beneficiaries reported that it was either very hard or somewhat hard to understand health insurance options for people with Medicare. Low levels of Medicare beneficiary self-reported knowledge had a high correlation with lower levels of objective program knowledge (Research Triangle Institute, 2001). A recent study by Bann, Berkman, and Kuo (2004), using data from the MCBS, found that a substantial percentage of beneficiaries reported that they knew only a little or almost none of what they needed to know about the Medicare Program. From this research, it appears that beneficiaries are fairly accurate in their self-assessments of what they know, and don’t know, about Medicare (Bann et al., 2003).

CONCLUSIONS AND POLICY IMPLICATIONS

As the Medicare Program continues to expand health insurance and benefit options available to people with Medicare, their ability to comprehend these changes will be called into question. The purpose of this literature review was to consider demographic conditions and other factors that may suggest limitations of beneficiary's ability to understand such a complex program. Unfortunately, the population subgroups with the greatest Medicare knowledge gaps—low education, low income, female, and age 75 or over—reflect the majority of the current beneficiary cohort.

Aside from the limiting relationship associated with certain demographic factors, another theme that emerged from this review is that Medicare beneficiaries lack knowledge about a number of specific Medicare topics, particularly the newer concepts such as Medicare managed care options. The majority of Medicare beneficiaries are enrolled in original Medicare (FFS); and in general may know less about options that serve as alternatives to this current choice. Even when beneficiaries are aware of managed care alternative options, knowledge of key concepts related to managed care appears to remain elusive. This raises implications for policymakers as the Medicare Program continues to expand and diversify, offering new options that are based on managed care and other private plans such as prescription drug coverage and regional PPOs.

This review also revealed a relationship between level of interest in Medicare options and their level of knowledge. The more interested and ready a beneficiary is to consider these issues, the more knowledge they are likely to possess. However, studies have also found that the most ben-

eficiaries are not highly interested. This is most likely to be the case among those not actively engaged in the health insurance decisionmaking process. Therefore, it will be critical to inform beneficiaries and their decision helpers about the availability of the information in order to increase their level of interest and likelihood of using it when faced with a health insurance decision. Initial steps may need to be taken to heighten interest and awareness before levels of knowledge can be expected to increase. Additional research is needed to assess how message framing (i.e., either in a negative or positive frame) and tailoring may affect receptivity and impact.

Based on our review of the literature, which finds a number of factors that may limit beneficiaries' understanding of Medicare, it may be desirable to target Medicare information and education resources to certain subgroups of beneficiaries most in need (older females with lower education and income), and interested including beneficiaries contemplating change (e.g., Medicare beneficiaries without current prescription drug coverage, new beneficiaries, those whose health plans are no longer available to them due to involuntary disenrollment). Materials must be developed that conform to the relatively lower literacy levels of the current Medicare population. Attention could also be focused on the most critical topics that Medicare beneficiaries consistently struggle with (such as managed care concepts or new programmatic options). In addition, the information could focus on helping beneficiaries understand the type of insurance that they currently have, major new options related to their current choice (such as prescription drug coverage plans), and how to best navigating their Medicare Program.

REFERENCES

- Avorn, J.: Part D for Defective: The Medicare Drug-Benefit Chaos. *New England Journal of Medicine* 354(13):1339-1341, March 2006.
- Abt Associates, Inc.: *Medicare & You 2001 Handbook*. Final Report Assessment. August 3, 2001a.
- Abt Associates, Inc.: *Medicare Beneficiary Behavior and Information About the Medicare Program*. Final Report. August 20, 2001b.
- Abt Associates, Inc.: *Satisfaction with Information About Medicare*. Final Report. September 10, 2001c.
- Bann, C.M., Terrell, S. A., McCormack, L.A., et al.: Measuring Beneficiary Knowledge of the Medicare Program: A Psychometric Analysis. *Health Care Financing Review* 24(4):111-125, Summer 2003.
- Bann, C.M., Berkman, N.D., and Kuo, T.: Insurance Knowledge and Decision-Making Practices Among Medicare Beneficiaries and Their Caregivers. *Medical Care* 42(11):1091-1099, November 2004.
- Berkman, N.D., Bann, C.M., Kuo, T., et al.: *Analysis of Medicare Beneficiary Knowledge Using the Medicare Current Beneficiary Survey (MCBS): Phase 3.1*. Final Report. February 2003.
- Brown, H.R., Prisuta, J.B., and Campbell, A.: *Literacy of Older Adults in America: Results From the National Literacy Survey*. U.S. Department of Education, National Center for Education Statistics. Publication Number NCES-97-576. U.S. Government Printing Office, Washington, DC. 2000.
- Cafferata, C.: Knowledge of Their Health Insurance Coverage by the Elderly. *Medical Care* 22 (9):835-847, September 1984.
- Craik, F.I.M. and Jennings, J.M.: *Handbook on Aging and Cognition*. In Craik, F.I.M. Craik and Salthouse, T.A. (eds.). Lawrence Erlbaum Associates, Hillsdale NH. 1992.
- Cunningham, P.J., Denk, C., and Sinclair, M.: Do Consumers Know How Their Health Plan Works? *Health Affairs* 21(2):159-166, March/April 2001.
- Fyock, J., Koepke, C.P., Meitl, J., et al.: Beneficiary Decisionmaking: The Impact of Labeling Health Plan Choices. *Health Care Financing Review* 23(1):63-75, Fall 2001.
- Gazmararian, J.A., Baker, D.W., Williams, M.V., et al.: Health Literacy Among Medicare Enrollees In A Managed Care Organization. *Journal of the American Medical Association* 281(6):541-551, February 1999.
- Goldstein, E., Teichman, L., Crawley, B., et al.: Lessons Learned From the National Medicare & You Education Program. *Health Care Financing Review* 23(1):5-20, Fall 2001.
- Greenwald, L.M., Pope, G.C., Anderson, W., et al.: *Medicare Preferred Provider Organization (PPO) Case Study and Implementation Report*. Final Report. 2004.
- Hibbard, J.H., Jewitt, J.J., Englemann, S., et al.: Can Medicare Beneficiaries Make Informed Choices? *Health Affairs* 17(8):181-193. November/December 1998.
- Jewitt, J.J. and Hibbard, J.H.: Comprehension of Quality Care Indicators: Differences Among Privately Insured, Publicly Insured, and Uninsured. *Health Care Financing Review* 18(1):75-94, Fall 1996.
- Ketchum, BearingPoint, and Westat: *NMEP Case Study Assessment*. Final Report. 2003.
- Kirsch, I., Jungeblut, A., Jenkins, L., et al.: *Adult Literacy in America: A First Look at the Findings of the National Adult Literacy Survey*. (3rd Edition. Volume 201.) U.S. Department of Education. National Center for Education. Washington, DC. 2002.
- Lambert, Z.V.: Elderly Consumers' Knowledge Related to Medigap Protection Needs. *The Journal of Consumer Affairs* 14(2):434-451, Winter 1980.
- Levesque, D.A., Prochaska, J.O., Cummings, C.O., et al.: Assessing Medicare Beneficiaries' Readiness to Make Informed Health Plan Choices. *Health Care Financing Review* 23(1):87-104, Fall 2001.
- Levesque, D.A., Cummins, C.O., Prochaska, J.O., et al.: *Application of the Transtheoretical Model to Informed Choice in the Medicare Population*. Final Report. February 2002a.
- Levesque, D.A. and Cummins, C.O.: *Application of the Transtheoretical Model to Informed Choice in the Medicare Population. Development of TTM-Based Interventions to Increase Informed Choice Among New Enrollees*: Final Report. June 2002b.
- Marquis, S.: Consumer's Knowledge About Their Health Insurance Coverage. *Health Care Financing Review* 5(1):65-80, Fall 1983.
- McCall, N., Rice, T., and Sangl, J.: Consumer Knowledge of Medicare and Supplemental Health Insurance Benefits. *Health Services Research* 20(6):633-637, February 1986.
- McCormack, L.A., Garfinkel, S.A., Schnaier, J.A., et al.: Consumer Information Development and Use. *Health Care Financing Review* 18(1):15-29, Fall 1996.

McCormack, L.A., Garfinkel, S.A., Hibbard, J.H., et al.: Beneficiary Survey-Based Feedback on New Medicare Informational Materials. *Health Care Financing Review* 23(1):37–46, Fall 2001a.

McCormack, L.A., Anderson, W., Kuo, M., et al.: Measuring Beneficiary Knowledge in Two Randomized Experiments. *Health Care Financing Review* 23(1):47–62, Fall 2001b.

McCormack, L.A., Garfinkel, S.A., Hibbard, J.H., et al.: Health Insurance Knowledge Among Medicare Beneficiaries. *Health Services Research* 37(1):41–61, February 2002.

McCormack, L.A. and Uhrig, J.D.: How Does Beneficiary Knowledge of the Medicare Program Vary by Type of Insurance? *Medical Care* 41(8):972–978, August 2003.

Morrell, R.: *Aging and Health Information: 2002*. Internet address: www.gerotech.com/pubs.thm. (Accessed 2006.)

Research Triangle Institute: *National Evaluation of the Medicare & You Handbook*: Final Report. March 21, 2001.

Short, P.F., McCormack, L.A., Hibbard, J. H., et al.: Similarities and Differences in Choosing Health Plans. *Medical Care* 40(4):289–302, April 2002.

Uhrig, J.D. and Short, P.F.: Testing the Effect of Quality Reports on the Health Plan Choices of Medicare Beneficiaries. *Inquiry* 39(4):355-371, April 2002.

Uhrig, J.D., Harris-Kojetin, L., Bann, C., et al.: *Does Presentation of Comparative Health Plan Information or Medium Affect the Comprehension, Perceptions or Decision-Making of Older Consumers?* Poster Presented at the Academy Health Annual Meeting, 2004.

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