REGULATORY

ORIGINAL RESEARCH

Development of a Medicare Beneficiary Comprehension Test: Assessing Medicare Part D Beneficiaries’ Comprehension of Their Benefits

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Background: Medicare Part D, the senior prescription drug benefit plan, was introduced through the Medicare Modernization Act of 2003. Medicare beneficiaries receive information about plan options through multiple sources, and it is often assumed by consumer health plans and healthcare providers that beneficiaries can understand and compare plan information. Medicare beneficiaries are older, may have cognitive problems, and may not have a true understanding of managed care. They are more likely than younger persons to have inadequate health literacy, thereby demonstrating significant gaps in knowledge and information about healthcare.

Objective: To develop a Medicare Beneficiary Comprehension Test (MBCT) to evaluate Medicare beneficiaries’ understanding of Part D plan concepts, as presented in the 2008 Medicare & You handbook.

Methods: A 10-question MBCT was developed using a case-vignette approach that required beneficiaries to read portions of the Medicare & You handbook and answer Part D–related questions associated with healthcare decision-making. The test was divided into 2 sections: (I) insurance concepts and (II) utilization management/appeals and grievances to cover standard terminology, as well as newer utilization management and appeals and grievances procedures that are unique to Part D. The test was administered to 100 beneficiaries at 2 sites—a university geriatrics clinic and a private retirement facility. Beneficiaries were tested for cognition and health literacy before being administered the test.

Results: The mean score on the MBCT was 3.5 of a maximum of 5, with no statistical difference found between both sites. Ten faculty members and 4 graduate students assessed the content validity of the instrument using a 4-point Likert rating rubric. The construct validity of the instrument was assessed using a principal components analysis with varimax rotation. The principal components analysis yielded 4 factors that were labeled as “Plan D concepts,” “managed care/utilization management,” “cost-sharing,” and “plan comparisons.” The factor analysis indicated that the test is multidimensional and did measure the construct.

Conclusions: Medicare beneficiaries’ understanding of Part D may play a key role in the management of their drug use and health and the associated outcomes. The MBCT and its pending revisions can be administered to beneficiaries with differing health outcomes. Medicare beneficiaries are often faced with several pieces of information involving a complex array of choices amidst bewildering plan options. It is crucial that beneficiaries and/or their family members involved in the decision-making process understand the plan benefits to truly make an informed decision. As the number of Medicare beneficiaries increases over the coming years with the baby boomers, it becomes even more imperative that the elderly have improved access to treatments that can achieve desirable outcomes. Measuring comprehension by Medicare beneficiaries may be an initial step toward understanding more complex issues, such as treatment adherence, decision-making, and, ultimately, trends in healthcare utilization and outcomes.
In the United States, the elderly population is growing. More than 1 of 8 Americans (34.5 million adults) are aged ≥65 years, and most are facing chronic degenerative diseases and disabilities.1 By 2030, older adults are projected to outnumber those aged <18 years.1 Approximately 75% of the elderly have at least 1 chronic illness, whereas approximately 50% have at least 2 chronic illnesses.2 Medicare currently covers 49 million people.3 These numbers are projected to double to 70 million people by the year 2030.4

The Medicare expenditures were estimated to reach $536 billion in 2012, causing alarm to the mounting federal deficit debates.5 With the new healthcare reform act, the Medicare program faces several budget cuts, with fiscal expansion, thereby politically threatening its long-term viability. Given that numerous beneficiaries are living longer and therefore their utilization of healthcare services is increasing, their Medicare expenses are growing concurrently. This may indeed become problematic, and it needs to be addressed by the current, as well as future, administrations.

It is becoming increasingly important in the context of health policy to ensure that elderly Americans understand their healthcare options so that they can make informed choices. Changes in the policy sphere with the introduction of Medicare Part D, increasing options to finance healthcare, and the economic downturn all interact with each other, and Medicare beneficiaries face significant challenges in assimilating unfamiliar, complex volumes of information.

A primary objective of Healthy People 2020, the nation’s health promotion and disease prevention agenda, is to improve the quality of life and longevity of adults with chronic diseases. Nearly all chronic diseases, including hypertension, stroke, asthma, diabetes, and coronary artery disease, require medication management among the elderly. Supplemental drug coverage and drug utilization in Medicare beneficiaries are national concerns, given their multiple considerations, as well as their critical role in improving health status.

Medicare Part D

From its origin Medicare did not cover prescription drugs for its enrollees (except while hospitalized), but that changed with the Medicare Modernization Act (MMA) of 2003. The Medicare Part D prescription drug benefit is a newer outpatient plan that was rolled out on January 1, 2006. With the Balanced Budget Act of 1997 and the MMA, Medicare has been directed away from its traditional fee-for-service structure to a managed care financing model.

Part D provides an array of prescription drug benefits to most beneficiaries, and it has met the expectation to improve access to medications for millions of elderly Americans. Elderly state Medicaid recipients now receive their prescription medications through Part D.

CMS Communications to Medicare Beneficiaries

In 1999, the Centers for Medicare & Medicaid Services (CMS), formerly known as the Health Care Financing Administration, initiated a National Medicare Education Program to inform and to educate beneficiaries about Medicare+Choice, and to provide them with general and comparative information about their health insurance options.1 “The specific objectives of this campaign were to

KEY POINTS

➤ Beneficiaries’ understanding of Medicare Part D can play a key role in the management of their drug use and the associated outcomes, but many beneficiaries have cognitive problems or language barriers that hinder comprehension of healthcare concepts.

➤ A new Medicare Beneficiary Comprehension Test (MBCT) was developed to evaluate beneficiaries’ understanding of Part D’s concepts outlined in the 2008 Medicare & You handbook.

➤ The MBCT is a 10-question test, which requires beneficiaries to read parts of the handbook and answer questions regarding Part D concepts and utilization.

➤ This study demonstrates the validity of the MBCT as an original instrument to shed light on Medicare beneficiaries’ comprehension of Part D benefits.

➤ The mean score on Section I of the test, which addresses cost-sharing, was 3.28 (of a possible 8) for the geriatrics clinic and 3.08 for the retirement community cohorts.

➤ The mean scores in Section II, which measures comprehension of managed care concepts, were 0.76 at both sites; a mean of 0.76 indicates that most beneficiaries did not understand these concepts from the Medicare & You handbook.

➤ The scores on the MBCT were significantly different by sex and by levels of education, indicating it may be beneficial to tailor reading materials to specific populations as opposed to a standardized handbook.

➤ Measuring comprehension by Medicare beneficiaries may be a step toward understanding treatment adherence, decision-making, and trends in healthcare utilization and outcomes.

➤ Policymakers should approach cautiously the introduction of new market mechanisms to control utilization and costs to the Medicare program.
Development of a Medicare Beneficiary Comprehension Test

ensure that beneficiaries have access to accurate and reliable information, are aware of different health plan choices available to them, understand the consequences of choosing different plans, and are able to use the information provided to them when making decisions.7,6

CMS would like Medicare beneficiaries to view the Medicare program and its private-sector partners as trusted and reliable sources of information.7,8 CMS developed a consumer handbook (Medicare & You) to explain health plan options and to inform Medicare beneficiaries. The education campaign also provided a toll-free telephone helpline; an Internet information database; support and training; enhanced beneficiary counseling services; and state-, as well as community-based, outreach efforts (Table 1).6,8 Several newer concepts were introduced in Part D, including the donut hole, formulary management, step-therapy, quantity limits, copayments, coinsurances, and deductibles. Many elderly beneficiaries may not be familiar with these concepts and therefore unable to make properly informed decisions.9

Measuring Medicare Beneficiaries’ Understanding of Their Benefits

Assessing reading materials typically involves measuring comprehension. Relatively few studies have examined the usefulness of the Medicare & You handbook and other materials in informing and educating beneficiaries adequately. Another study that analyzed data available from the Medicare Current Beneficiary Survey to evaluate the effectiveness of the Medicare educational campaign showed that awareness and knowledge of Medicare programs by beneficiaries was related to their level of education.7 Furthermore, among beneficiaries with access to the Internet, only a small percentage visited the Medicare website to seek further information.6

Some studies have addressed Medicare beneficiaries’ knowledge levels after reading the Medicare & You handbook and/or using other CMS educational tools.15,17,14 Few multivariate studies specifically address the factors that are associated with knowledge of health insurance among Medicare beneficiaries.15,20 Some studies found higher education to be significantly associated with greater health insurance knowledge.15,20

A study using the Health Insurance Experiment showed that higher knowledge was significantly associated with being offered a choice of health plans, longer term of enrollment in a plan, and the use of physician services.20 This study also reported that knowledge was adversely affected by plan complexity. Higher levels of knowledge were attributed to a younger age-group,20 whereas another study also reported the role of race (being white) as a factor that is associated with higher knowledge of health insurance plans.16

Table 1 Components of the National Medicare Education Program

<table>
<thead>
<tr>
<th>Component</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beneficiary mailings</td>
<td>Included the Medicare &amp; You handbook, mailed by the Centers for Medicare &amp; Medicaid Services in October 2005</td>
</tr>
<tr>
<td>Toll-free telephone helpline</td>
<td>(1-800-Medicare)</td>
</tr>
<tr>
<td>Website portal</td>
<td>(<a href="http://www.medicare.gov">www.medicare.gov</a>)</td>
</tr>
<tr>
<td>Alliances</td>
<td>with national and local organizations</td>
</tr>
<tr>
<td>National train-the-trainer program</td>
<td></td>
</tr>
<tr>
<td>State- and community-based special information campaigns</td>
<td></td>
</tr>
<tr>
<td>Enhanced beneficiary counseling from State Health Insurance Assistance programs</td>
<td></td>
</tr>
<tr>
<td>Targeted and comprehensive assessment of outreach efforts</td>
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</table>

A study of 1600 Medicare beneficiaries suggested that their health insurance knowledge was clearly inadequate.14 The researchers reported that 47% of the respondents viewed the task of choosing a Part D plan, and a large majority did not understand the differences between traditional fee-for-service and managed care delivery systems.15 Researchers have reported modest gains in beneficiary knowledge after reading the Medicare & You handbook.13 However, such gains in knowledge may mean relatively little if the beneficiaries themselves are unable to retain such information.

In 2006, the US Government Accountability Office (GAO) analyzed 6 of 70 CMS Part D documents indicating that reading levels for the analyzed passages ranged from seventh grade to postcollege.10 Approximately 40% of seniors read at or below the fifth-grade level, suggesting a significant scope for improvement.10 Findings from the GAO’s 2008 study indicate that CMS’s model annual notice of change did not communicate drug plan changes effectively to beneficiaries.12 The GAO further stated in its report that the language contained in the mailings was at a reading level that is too high for many beneficiaries and that it contained irrelevant information.12 It was also discovered that 30% of the Medicare & You 2008 handbook was written at grade levels higher than grade 12.9 Since 2008, there has been much need for improvement in CMS communications with Medicare beneficiaries.

The design of appropriate writing materials for elderly populations is particularly important in light of evidence that some older individuals face challenges in reading and retaining written information.10,11 Studies have found that, based on reading materials, individuals aged ≥65 years were less proficient than younger adults in locating information in documents and making health-related decisions.15,17 A 2003 national survey on adult literacy found
that 27% of Medicare beneficiaries were unable to understand information in short, simple texts.\(^2\)

**Comprehension**

“Comprehension refers to the ability to go beyond words.”\(^2\) In the healthcare paradigm, comprehension would take on a different meaning and significance. Readers of healthcare materials are often consumers or patients in the healthcare system. Therefore, comprehension of healthcare materials would involve analyzing and applying concepts. For example, giving informed consent depends on a person’s ability to understand the basic concepts of research design, to estimate personal risk, and to assess suitability for commitment to the procedure or clinical trial.

Part D beneficiaries have varying levels of income, age, education, mobility, cognitive competence, access to help from family members, and so on. Some beneficiaries may be eligible for subsidies for their prescriptions based on their income levels. Several low-income subsidies options are available to Medicare beneficiaries; however, the onus is on the beneficiary to seek information and to access any available assistance, which may not be an easy task for the average elderly person. Low literacy and low health literacy are prevalent in the Medicare population, and healthcare materials designed to inform these beneficiaries are written at higher levels, thereby adding to the complexity and confusion surrounding the Part D plan. It remains unknown whether beneficiaries truly comprehend the benefit design to make their best decisions regarding Part D enrollment. Measuring comprehension may perhaps be the first step toward understanding enrollment behavior with this particular population.

Therefore, the present study aimed to develop a comprehension test specifically for Medicare Part D beneficiaries (ie, the Medicare Beneficiary Comprehension Test [MBCT]) based on the Medicare & You handbook. The MBCT was tested with 100 seniors at 2 distinct locations, a senior retirement center and a university-based geriatrics clinic, to improve generalizability of the findings.

**Study Methods**

**Instrument Development**

The MBCT was developed specifically for this study to assess the comprehension of key concepts under the Medicare Part D plan as presented in the Medicare & You handbook. Because this test does not measure or assess Part D knowledge, beneficiaries were provided with the required information from the handbook (2008 English version) before being tested. Questions were developed based on the reading passages. Respondents were asked questions about their familiarity with and the perceived usefulness of the handbook in making their own Part D plan decisions.

The test was developed using a case-vignette approach. Case vignettes are often used in the health professions as a teaching tool. For the MBCT, a case study was developed using a fictional elderly beneficiary (Mary Poppins) who has a few questions about Medicare Part D. The questions are meant to help her enroll and utilize a Part D plan to make an informed decision. The test questions are listed in Table 2.

The test was divided into 2 parts. Section I includes standard insurance concepts, to help Mary Poppins select a plan, and Section II includes Part D concepts (CMS- and managed care–specific), to help her procure the necessary prescriptions.

The standard insurance concepts include questions on deductibles, premiums, copayments, and coinsurance. The managed care concepts include questions on utilization management techniques, such as formulary restrictions, prior authorizations, quantity limits, and the appeals and exceptions process under Part D. At the end of Section I, beneficiaries were told that Mary Poppins decided to enroll in a particular plan and had a prescription for a medication for hypertension. They were then asked for their input in helping Mary procure her prescription in the following section.

Questions 7a and 7b address the concept of formularies. Beneficiaries were asked to read passages in the handbook and to respond to the question. Questions 8 and 9 address the concepts of prior authorization and quantity limits, both of which are utilization management techniques often used by managed care health plans. Beneficiaries were asked to read relevant passages and to respond to these questions.

It is important to note that Medicare Part D’s reliance on market mechanisms differs from previous Medicare operational assumptions instilled in its inception in 1965, which did not rely on the healthcare market so stringently. All of the questions were written and developed to simulate real-life situations that a beneficiary may encounter in selecting and signing up for a Part D plan. Sentence structure and wording were carefully developed to include lower grade level readability (tested using the Windows-based Flesch-Kincaid Grade Level reading program). The average grade level readability of the MBCT was determined to be grade 5 (Flesch-Kincaid readability).

**Exclusion Criteria**

This study excluded beneficiaries who were visually impaired, blind, or who had severe vision problems that could not be corrected by the use of eyeglasses or contact lenses. This study also excluded individuals who were very ill (ie, hospitalized) and participants who did not
Table 2: Medicare Beneficiary Comprehension Test

<table>
<thead>
<tr>
<th>SECTION I</th>
<th>Medicare Beneficiary Comprehension Testa</th>
</tr>
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</table>
| Mary Poppins retired from her sales position in January 2008. She wants to sign up for a Medicare Part D plan. She is extremely confused about Medicare Part D. Mary has a few questions for you. She needs your help to understand and sign up for a Medicare Part D plan. Please read the following passages so that you can correctly answer Mary’s questions (marked Medicare & You handbook reading passages to be provided to participant). Based upon the following information and the passage that you have just read, answer questions 1 and 2: Mary has a choice of 2 different drug plans: Plan X: $500 deductible Plan Y: $300 deductible 1. Who pays the deductible? a) Part D plan b) Mary Poppins c) Neither 2. Which plan would make Mary pay more (of her own money) before the plan starts to pay? a) Plan X b) Plan Y c) Both are equal Mary has a choice of 2 different drug plans: Plan X: $25 premium each month Plan Y: $30 premium each month 3. Which plan will make Mary pay more (of her own money) each month? a) Plan X b) Plan Y c) Both are equal Mary signs up for Plan X. Mary also signs up for a State Pharmacy Assistance Program (SPAP). The SPAP pays $10 toward her premium each month. How much premium does Mary pay each month? a) $10 b) $15 c) $20 d) $25 Plan X: 20% coinsurance for one (1)-month medication supply 5. Mary signs up for Plan X. Mary paid the deductible for Plan X. Her doctor prescribes one (1) medication for her. The medication costs $100 for one (1)-month supply. How much will Mary pay for one (1)-month medication supply? a) $10 b) $20 c) $30 d) $40 Plan X: $30 copay for one (1)-month medication supply 6. Mary signs up for Plan X. Mary paid the deductible for Plan X. Her doctor prescribes one (1) medication for her. Her medication costs $100 for one (1)-month supply. How much will Mary pay for one (1)-month medication supply? a) $10 b) $20 c) $30 d) $40 7. Mary signed up for Plan X. Mary goes to the pharmacy to get Drug BP. Plan X does not include Drug BP in its formulary. 7a. What is the first thing that Mary should do to get Drug BP? a) Ask the doctor to write a prescription for a similar drug b) Ask for a temporary 30-day supply c) Ask Plan X for an exception d) Do nothing 7b. What is the second thing that Mary should do to get Drug BP? a) Ask the doctor to write a prescription for a similar drug b) Ask for a temporary 30-day supply c) Ask Plan X for an exception d) Do nothing 8. Mary signed up for Plan X. Mary goes to the pharmacy to get Drug BP. Plan X requires prior authorization for Drug BP. The pharmacist informs Mary that Plan X denied the prior authorization for Drug BP. What should Mary do to get Drug BP? a) Ask the doctor to write a prescription for a similar drug b) Ask for a temporary 30-day supply c) Ask Plan X for an exception d) Do nothing 9. Mary is going on vacation to Timbuktu for six (6) weeks. She wants to carry a six (6)-week supply of Drug BP on vacation. Her Plan X has set a quantity limit on Drug X for 30 days. What should Mary do to get a six (6)-week supply of Drug BP? a) Ask the doctor to write a prescription for a similar drug b) Ask for a temporary 30-day supply c) Ask Plan X for an exception d) Do nothing

aThis test is still being finalized and revised. If you wish to use this test with your Medicare beneficiaries, please contact Dr Aruru via e-mail at maruru@roosevelt.edu for more information.
Section II addressed managed care and Part D concepts (eg, prior authorizations, quantity limits, and formularies in the context of filing for appeals and exceptions).

A total of 100 individuals were enrolled into the study—50 at a university-based geriatrics clinic and 50 at a retirement community in the Northwest suburbs of the Chicago area (Table 3).

Bivariate analyses were conducted using ordinal regression for each regressor. Responses obtained for all questions were recorded and are measured on an ordinal scale, with higher values indicating a better understanding of the reading material.

Table 4 shows the responses for the MBCT scores at both sites. The MBCT includes a total of 10 questions and therefore 10 possible points. Each question had only 1 correct response. In this sample, a minimum score of 0 and a maximum of 8 points could be achieved on both sections (Table 4). There was no significant difference between the scores (P > 0.05) at both sites.

**Validity of the Medicare Beneficiary Comprehension Test**

The primary objective of this study was to conceptualize and develop a Medicare Part D comprehension test for beneficiaries and to test it in a small sample to assess its validity in further research.

**Content validity.** The MBCT was first tested for content validity utilizing 6 pharmacy administration faculty members, 4 graduate students (pursuing master’s and doctorate degrees), and 4 pharmacy practice faculty members. Experts were provided with the MBCT and a 4-point Likert rating scale to rank questions from highly appropriate to highly inappropriate. Each question was rated based on 3 characteristics: relevance to the study population, question properties (ie, wording, grammar), and answer choices (ie, wording, length). Experts were also asked to provide feedback on the length, relevance to the study questions, and the ability of the elderly population to answer these questions. The final revised version was administered to 100 beneficiaries at 2 locations.

**Construct validity.** To ascertain that the questionnaire indeed measures the construct for which it was originally intended, a factor analysis was carried out to search for underlying themes.23 The factor analysis was carried out using PASW 17.0 to determine if a simple method for summing all of the items into a total Medicare Part D comprehension score was possible.

**Factor analysis.** A principal components analysis with varimax rotation was run in PASW. The analysis yielded a total of 10 factors, of which 4 were retained (eigenvalue >1; Table 5). Four factors and variables loaded highly onto 1 factor. It is interesting to note that all 4 questions from Section II (managed care/utilization

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**Table 3** Demographics for Respondents of the Medicare Beneficiary Comprehension Test Study

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Patients, % (N = 100)</th>
<th>Mean MBCT scores</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, yrs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65-84</td>
<td>61</td>
<td>4.26</td>
<td>.666</td>
</tr>
<tr>
<td>≥85</td>
<td>32</td>
<td>3.27</td>
<td></td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>54</td>
<td>3.91</td>
<td>.52</td>
</tr>
<tr>
<td>African American</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>26</td>
<td>4.19</td>
<td>.396</td>
</tr>
<tr>
<td>Unmarried/separated/divorced/widowed</td>
<td>74</td>
<td>3.85</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>44</td>
<td>4.59</td>
<td>.001†</td>
</tr>
<tr>
<td>Female</td>
<td>56</td>
<td>3.43</td>
<td></td>
</tr>
<tr>
<td>Grade level education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>81</td>
<td>3.74</td>
<td>.03†</td>
</tr>
<tr>
<td>High school graduate</td>
<td>19</td>
<td>4.79</td>
<td></td>
</tr>
<tr>
<td>Seen handbook</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>80</td>
<td>4.03</td>
<td>.372</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>3.60</td>
<td></td>
</tr>
</tbody>
</table>

*The difference is significant (ie, P < 0.05). MBCT indicates Medicare Beneficiary Comprehension Test.

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**Table 4** Medicare Beneficiary Comprehension Test Mean Scores for Respondents

<table>
<thead>
<tr>
<th>Testing site</th>
<th>Section I mean MBCT score (SD)</th>
<th>Section II mean MBCT score (SD)</th>
<th>Total MBCT score, mean (SD)</th>
<th>MBCT score range, minimum-maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>University clinic</td>
<td>3.28 (1.6)</td>
<td>0.76 (1.2)</td>
<td>4.04 (1.8)</td>
<td>0-7</td>
</tr>
<tr>
<td>Retirement center</td>
<td>3.08 (1.6)</td>
<td>0.76 (1.1)</td>
<td>3.84 (2.0)</td>
<td>0-8</td>
</tr>
</tbody>
</table>

*The difference is not significant (ie, P > 0.05). MBCT indicates Medicare Beneficiary Comprehension Test; SD, standard deviation.

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wish to cooperate or who were unwilling to complete the study. Individuals who did not understand or speak English, or those who were not fluent in the English language, were excluded from the study. Eligibility was determined based on responses to a generic sociodemographic questionnaire.

**Study Results**

Data were analyzed using the PASW 17.0 statistical software. The MBCT was divided into 2 sections: Section I addressed standard insurance concepts (eg, premiums, copayments, coinsurance, and deductibles), and...
Development of a Medicare Beneficiary Comprehension Test

Discussion

The 4 questions (ie, questions 7a, 7b, 8, and 9) that loaded onto the first factor can be labeled as “Part D/managed care concepts.” Question 1 also loaded onto factor 1. This question asked beneficiaries about who pays the deductible, and it may be construed as a managed care/insurance concept. The 2 questions (questions 2 and 3) that loaded highly on factor 2 asked about which plan would make Mary pay more (of her own) money monthly, and that plan is labeled as “plan comparison.” Question 4 that loaded onto factor 4 asked the beneficiary to calculate a premium based on a subsidy, and is labeled as “understanding of low-income subsidies.” Questions 5 and 6 are related to copayments and coinsurance and are labeled as “cost-sharing.”

This analysis revealed that the MBCT is actually composed of 4 subscales: (1) plan comparison, (2) understanding of low-income subsidies, (3) cost-sharing, and (4) Part D/managed care concepts. This was the intent behind the development of the questionnaire and testing it. This analysis demonstrates that the MBCT successfully measures readers’ comprehension of Medicare Part D from the Medicare & You handbook; however, because this was an exploratory study, with only 100 participants, further research, with larger sample sizes, may be needed to gain better clarity on the factors and to improve the internal consistency of this study.

| Table 5 | Medicare Beneficiary Comprehension Test Factor Analysis |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| Test question   | Part D/managed care concepts | Plan comparison | Cost-sharing | Low-income subsidies |
| Q1. Deductible 1 | 0.711            |                 |               |                 |
| Q2. Deductible 2 | 0.697            |                 |               |                 |
| Q3. Premium 1   | 0.659            | 0.521           |               |                 |
| Q4. Premium 2   | 0.896            |                 |               |                 |
| Q5. Coinsurance | 0.819            |                 |               |                 |
| Q6. Copayment   | 0.827            |                 |               |                 |
| Q7a. Formulary  | 0.793            |                 |               |                 |
| Q7b. Formulary  | 0.392            | -0.698          |               |                 |
| Q8. Prior authorization | 0.724 | | | |
| Q9. Quantity limits | 0.820 | | | |

*Rotation converged in 6 iterations.

The beneficiaries’ understanding of their choices in Medicare Part D and the concepts involved in Part D (including newer terminology) may play a role in influencing their health and wellness. For example, if standard benefit beneficiaries did not truly comprehend the concept of the donut hole and picked a Part D plan with no coverage in the donut hole, they may be unable to pay the full price of their medications when they fall into the coverage gap, and they may also be unable to refill prescriptions enough to reach the catastrophic coverage.

Enrollment in Part D is a complex issue that requires the ability to access, read, comprehend, and act on the information that is given. It also involves complex tasks, such as comparing plans and calculating costs for each individual beneficiary. Enrolling into and maintaining a Part D plan also requires knowledge about health insurance in general, as well as the ability to find information and use it to compare various plan offerings that may be appropriate for the individual’s financial situation and pharmacotherapy regimen. It also involves the ability to file appeals and/or exceptions when necessary.

This study demonstrates that the MBCT is a valid instrument, and perhaps one of the first, to shed light on beneficiaries’ comprehension of the newer Medicare benefit. The mean score on Section I of the test that addressed cost-sharing (eg, premiums, copayments, coinsurance, deductibles) was 3.28 for the geriatrics clinic and 3.08 for the retirement community beneficiaries. Section II means were the same at both locations (0.76). This is an interesting finding, because Section II specifically asked questions about comprehension of managed care concepts (eg, formularies, quantity limits, step-therapy) and CMS’s appeals and grievances procedure.

A mean of 0.76 indicates that most beneficiaries did not understand these concepts from the Medicare & You handbook. Furthermore, it may be safe to say that beneficiaries may not have understood these concepts either because of their unfamiliarity with them or their inability to deal with them. This is alarming, because all managed care plans use utilization management, and at any given time beneficiaries may find themselves faced with a difficult situation that limits their access to their prescription medications.

Furthermore, the scores on the MBCT were significantly different by sex and by grade-level education, indicating that it may be useful to tailor reading materials to specific populations as opposed to a standardized handbook that may not be comprehensible to all.

Medicare beneficiaries are faced with a bewildering array of choices, some of which they may not truly understand. Beneficiaries must understand varied new managed care concepts to make informed decisions. This becomes especially important when beneficiaries have to seek and process such information by themselves, with-
out the help of an employer, friends, or relatives who may be able to help them make informed decisions. Only few studies have assessed elderly beneficiaries’ knowledge about Medicare,\(^9\) and even fewer evaluated comprehension of the newer Part D concepts.\(^9\) As more and more beneficiaries qualify for Part D annually, they will need to evaluate their choices and make better decisions in their best interests. Existing beneficiaries also need to reevaluate their plan choices to ensure optimal outcomes from their plans.

**Limitations**

A few limitations are recognized in this study. First, the study population was small (\(N = 100\)), with only the minimum number of participants enrolled by study completion.

In addition, the study populations were limited, using accessible populations from a public clinic and a private nursing home retirement community, and not a randomly obtained sample. These population characteristics preclude generalizations or inferences to nonsimilar populations. Another limitation is the variety of factors that may affect comprehension that were neither measured nor controlled for in the study design and analysis, including the possibility that participants might have procured Part D informational materials from outside sources not addressed in this study. Because of time and resource constraints, every identifiable confounding independent variable could not have been controlled.

**Conclusions**

The MBCT is perhaps one of the first instruments to shed light on Medicare beneficiaries’ comprehension of the Part D plan benefit. The mean score of 0.76 achieved in Section II indicates that most beneficiaries did not understand the managed care concepts from the Medicare & You handbook provided by CMS. As the number of Medicare beneficiaries increases over the coming years with the aging of the baby boomers, it becomes even more imperative that the elderly have improved access to their healthcare with treatments to achieve desirable health outcomes.

Measuring comprehension by Medicare beneficiaries may be an initial step toward understanding more complex issues, such as treatment adherence, decision-making, and, ultimately, trends in prescription drug utilization. Moreover, policymakers should approach the future introduction of market mechanisms to control utilization and costs to the Medicare program cautiously. Based on the research findings described in this article, the privatization of Medicare Part D appears to have complicated choices for beneficiaries, choices that were not considered by a CMS cognizance of varying health literacy levels among Part D participants.

Such disregard in policymaking can yield deleterious consequences in health outcomes and in the associated costs. Remedies to curtail the $536 billion in Medicare expenditures can be much better addressed than merely rolling back eligibility age, restricting benefits, and cutting provider reimbursements.

**Author Disclosure Statement**

Dr Aruru and Dr Salmon have reported no conflicts of interest.

**References**

Understanding the Options: An Essential Ingredient in Our Evolving Healthcare System

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**PATIENTS:** Do seniors understand their options when they enroll in Medicare? For that matter, how well do people of any age understand how their health insurance works? Consumer education—and more important, consumer comprehension about healthcare and health insurance—is critically important in an era of expanding choices.

Medicare has long offered alternatives to traditional Medicare through Medicare Advantage plans (and their precursors, which have been available since the mid-1980s) and, more recently, Medicare prescription drug plans under Part D. Initially, educational outreach to beneficiaries was limited to publications similar to Medicare & You, whose 2014 edition is 152 pages long. For most people, that is 151 pages too many. They need an immediate answer to their questions, without having to wade through other materials that address different issues. The long-standing challenge has been to find ways that cut through the murk of regulatory whys and wherefores without misleading beneficiaries.

The Centers for Medicare & Medicaid Services offers a plan finder at Medicare.gov that allows seniors to compare their alternatives, including traditional Medicare, Medicare Advantage plans, and stand-alone prescription drug plans. A search for plan alternatives serving Washington, DC, reveals that 11 comprehensive health plan choices (including traditional Medicare), 31 stand-alone drug plans, and 7 different categories of information about those alternatives are available. Even so, the plan finder leaves out some important information. The most serious omission: Medigap plan information is left out. Those plans are purchased separately by enrollees in traditional Medicare and are considered by many to be an integral part of their coverage.

In its attempt to provide reasonably complete information about plan alternatives, the plan finder produces information overload. Many people are likely to be overwhelmed by the cacophony of insurance terms and conditions. The plan finder provides data, but it does not help seniors understand what to make of those data.

**PAYERS/PROVIDERS:** What many of us know from the introduction of Medicare Part D is that seniors, even those who are comfortable with computerized searches, often need to talk their choices over with a trusted individual before they are comfortable committing to a particular plan. Call centers and more sophisticated interactive responses can help fill that need, but informed family members and friends in the community are more likely to be relied on to help decide which plan to select.

Are there too many plan choices, making it difficult for seniors to select the best option? Should we limit the number of plan options, or should we improve the way we communicate with beneficiaries and make a greater investment in effective just-in-time education?

New evidence from Medicare Part D suggests that better education and communication can pay off in improving the decisions made by seniors about their plan choices. A study of more than 71,000 enrollees in stand-alone drug plans found that seniors often did not select the lowest cost option when they first enrolled in 2006. However, even with less than 1 year of experience in Part D, 81% of these individuals were able to reduce their overspending by an average of $298. The greatest gains went to those who switched plans.

This demonstrates the importance of actual experience and the ability of seniors to learn from their mistakes in selecting health plans. It also shows that seniors are able to use information about plan choices if that information is provided in ways that can be understood by people who are not insurance experts.

The implications of this analysis extend well beyond the Medicare program. The Affordable Care Act created health insurance exchanges offering a choice of health plans to individuals who are not already covered by insurance. Large firms are increasingly moving to private exchanges to provide more plan choices for their employees. Better decisions by consumers will drive competition and will improve health system efficiency, and that depends in large measure on the way information about health plan options is presented.


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