

RESEARCH ARTICLES

Pharmacy Students' Knowledge of the Medicare Drug Benefit and Intention to Provide Medicare Medication Therapy Management Services

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Objectives. To examine PharmD students' knowledge about Medicare Part D and their attitudes toward and intention to provide Medicare medication therapy management services (MTMS).

Methods. Fourth-professional year students were given a self-administered survey instrument that assessed: (1) knowledge about Medicare Part D; (2) attitudes, perceived behavioral control, subjective norms, and intention to provide Medicare MTMS; and (3) demographic and experience information.

Results. Ninety-five students responded for a response rate of 94%. Students showed good basic knowledge about Medicare Part D, with a mean score of 94%. Almost 60% of students agreed that they intended to provide Medicare MTMS, but agreement dropped to 37% when they were asked if they were willing to take initiative to provide MTMS.

Conclusions. The lack of willingness to take initiative to provide Medicare MTMS suggests that colleges and schools of pharmacy must strengthen efforts to encourage students to take on the role of service provider.

Keywords: Medicare Part D, medication therapy management, assessment, theory of planned behavior

INTRODUCTION

The implementation of Medicare Part D and its accompanying Medication Therapy Management Program has the potential to profoundly affect pharmacy practice. The pharmacy profession has been trying to shift towards provision of patient-oriented services and the Medicare Medication Therapy Management Program provides opportunities in this area. Training of pharmacy students is an important part of this process. The most recent Accreditation Council for Pharmacy Education (ACPE) Accreditation Standards reflect the growing importance of training pharmacy students to provide patient-centered care and medication therapy management.¹ Training PharmD students in MTM should encourage the movement of the profession toward provision of MTMS and other patient-oriented services as they enter the profession. Thus, it is important to examine PharmD students' attitudes and intention to provide Medicare MTMS.

The Medicare Prescription Drug, Improvement, and Modernization Act of 2003 added a voluntary drug benefit to Medicare and this drug benefit was implemented in January 2006. As part of this drug benefit, Medicare Part D prescription drug plans are required to have an MTM program for targeted beneficiaries, specifically, those with multiple chronic illnesses and high expected prescription drug costs (\$4,000 in 2006). The Pharmacist Provider Coalition has defined MTM as "a distinct service or group of services that optimize therapeutic outcomes for individual patients" and they list specific requirements for MTM programs.² Under the final rules governing the Medicare drug benefit, MTM programs must assure appropriate use of medications to maximize therapeutic outcomes and reduce the risk of adverse events including adverse drug reactions, but the prescription drug plans (PDPs) are allowed considerable flexibility in designing their MTM programs.³ Many PDPs are relying primarily on in-house staff members or mailed educational pamphlets to provide MTMS, but there are some opportunities for community pharmacists to participate in MTM programs.⁴ If pharmacists are proactive, these opportunities may increase over time.

The Theory of Planned Behavior provided the theoretical framework for this study.⁵ This theory has been widely used in studies examining health behaviors⁶ and

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in research on pharmacists' intentions to provide patient-oriented services.⁷⁻⁹ It states that behavior is a function of a person's intention to provide the behavior, which in turn is a function of attitude toward the behavior, social normative perceptions (also called subjective norms), and perceived behavioral control.^{6,10} Attitudes are defined as an individual's positive or negative feeling related to the behavior. Subjective norms are individuals' perceptions of what other people important to them think about performing the behavior. Perceived behavioral control over the behavior is defined as individuals' perceptions of the difficulty of actually doing the behavior. Perceived behavioral control,^{7,8} subjective norms,⁷⁻⁹ and attitudes⁷⁻⁹ have all been significant predictors of intention to provide patient-oriented services in past research.

With the increased pharmacy curriculum focus on providing patient-oriented services, defined here as professional services provided by pharmacists that go above and beyond dispensing-associated tasks, it is expected that each cohort of students entering the profession will move the profession toward greater provision of patient-oriented services. This makes pharmacy students an important population for which to assess attitudes and intention to provide patient-oriented services. However, a search of the literature revealed limited research in this area. Two studies reported that pharmacy students had generally positive attitudes about pharmaceutical care, but neither study examined intent to provide pharmaceutical care.^{11,12} One previous study examined pharmacy students' behavioral intent and attitudes toward a specific service, tobacco cessation counseling, and found that about half of the students intended to advise their patients to stop using tobacco.¹³

The gap in the literature on pharmacy students' attitudes and intention to provide patient-oriented services is particularly critical to fill given the potential for pharmacists to provide MTM under the Medicare drug benefit.

The need for assessment of pharmacy student performance also is becoming more important,¹ and this study measured student knowledge about Medicare part D. The objectives of this study were to examine: (1) PharmD students' knowledge about Medicare Part D as well as the sources of their knowledge and (2) their attitudes and intention to provide Medicare MTMS.

METHODS

The study had a cross-sectional descriptive design and was approved by the University of Iowa Institutional Review Board. The population was PharmD students at the University of Iowa (UI) College of Pharmacy in their final year of the 4-year program. The sample was all students in attendance at a mandatory Assessment Day in November 2005.

Information about the Medicare drug benefit is covered in various places in the College's curriculum. Prior to the survey, students received 1 lecture on the Medicare drug benefit in the required *Core Principles of Pharmaceutical Socioeconomics* course taken in the first semester of their third-professional year. Students also had the option of taking a course on insurance and reimbursement in pharmacy in which the Medicare drug benefit was covered in much greater detail. This course was a "selective," where students choose 2 out of 5 course options related to pharmaceutical socioeconomics. The insurance selective is taken in the second semester of the third-professional year. Other classes and advanced pharmacy practice experiences (APPEs) also may have provided some information about parts of the benefit. For example, an elective class on pharmacist service development mentioned the Medicare MTMS as a possible opportunity and there was some coverage in the required *Pharmacy Practice Laboratory* course. The timing of information provision and events related to the Medicare drug benefit is shown in Table 1.

Table 1. Timing of Events Concerning the Medicare Drug Benefit in Relation to a Study of Pharmacy Students Knowledge and Attitudes

Date	Event
December 2003	Medicare Prescription Drug, Improvement, and Modernization Act of 2003 signed into law.
August 2004	Proposed rules for the Medicare drug benefit published.
Fall 2004	Study cohort begins third year in pharmacy school and receives one lecture on Medicare drug benefit in required course.
January 2005	Final rules on Medicare drug benefit published.
Spring 2005	Study cohort has the option of taking the insurance selective with more extensive coverage of the Medicare drug benefit.
May 2005	Study cohort enters fourth year in pharmacy school and begins APPEs.
Fall 2005	Medicare drug plan contracts are signed and marketing of plans begins.
November 2005	Study cohort completes survey instrument.
January 2006	Medicare Part D begins.

A 3-page survey instrument was developed to measure: (1) the students' basic level of knowledge about the Medicare drug benefit, (2) their attitudes toward the MTMS component of the Medicare drug benefit and intentions to provide MTM, and (3) demographic and experience information. Knowledge about the drug benefit was assessed using 7 true/false items (Table 2). The items were intended to assess a basic level of knowledge about the benefit and all of the items covered information that was presented in the required *Pharmaceutical Socioeconomics* core course during fall 2004. This limited the content of the knowledge items to information about the drug benefit that was known at that time from the language of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003.

Items for the second section were developed based on the theory of planned behavior. Items covered the constructs of attitude toward MTM (3 items), perceived behavioral control for providing Medicare MTM (4 items), subjective norms for providing Medicare MTM (3 items), and intention to provide Medicare MTM (3 items). Medicare MTM was not defined on the survey instrument because definitions of MTM vary and the students likely heard different definitions of it during their classes and APPEs. MTM was not defined in the required course taken by the study cohort of students because the final rules on the drug benefit had not been published and the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 did not clearly define MTM. Leaving it undefined on the survey instrument also allowed students to answer based on their perceptions of MTM rather than restricting them to one definition. Most of the items were adapted from a previous survey on Iowa pharmacists' intention to provide MTM,⁷ but a few new items specific to pharmacy students were generated by the researchers. The final section contained items on gender, career plans, whether they took the insurance selective, where they

heard about the Medicare drug benefit, and what care-based pharmacy programs they had participated in so far in their APPEs. The students had completed 5 out of their 9 APPEs at the time they completed the survey instrument.

The survey instrument and an informed consent document were distributed during Assessment Day and students were given 15 minutes to complete it. Students were informed that they were not required to participate in the anonymous survey.

Survey data were coded and entered into an *Excel* spreadsheet. All analysis was done using SPSS version 11.5 (SPSS Inc, Chicago, Ill). Means and standard deviations were calculated for all items and a summated knowledge score was created by adding scores from the 7 knowledge items about Medicare Part D. A *t* test was used to compare mean knowledge scores between students who had taken the insurance selective and those who had not. Cronbach's alpha was used to determine the reliability of each of the theory of planned behavior subscales. Based on the reliability results, a summated score was then calculated for the intent to provide MTM subscale. Bivariate correlations were calculated between the intent scale and the other 3 subscales (attitude, subjective norm, and perceived behavioral control), as well as between the intent scale and the demographic and experience variables. Pearson correlations were calculated when the variables were continuous; otherwise, Spearman correlations were calculated.

RESULTS

Completed survey instruments were received from 95 of the 101 fourth-professional year students in attendance at the Assessment Day, a response rate of 94%. Sixty-eight percent of the respondents were female. The most often reported career plans were working in a chain pharmacy (54%) and pursuing a residency (26%). Few of the respondents planned to pursue employment at an

Table 2. Pharmacy Students' Knowledge of Basic Medicare Part D Drug Benefit Information

Item	Percent Correct (N = 95)
All Medicare beneficiaries will be automatically enrolled in the new Medicare drug benefit.	91
Under the new Medicare drug benefit, Medicare beneficiaries will get their drug coverage through private plans rather than the federal government.	96
Medicare beneficiaries will have more than one drug plan to choose from.	99
People who are in both Medicare and Medicaid (dual eligibles) will have their drug coverage switched from Medicaid to Medicare once the new plan begins.	88
Formularies will not be used in the new Medicare drug benefit.	96
All beneficiaries who enroll in the new Medicare drug benefit will pay the same premium.	95
Medicare beneficiaries who currently do not have prescription drug "credible coverage" will have to pay a late enrollment fee if they don't sign up for the new drug benefit during the initial enrollment period.	97

independent pharmacy (3%), a clinic pharmacy (6%), or an inpatient pharmacy (3%). Sixty-two percent of respondents reported they had taken the *Insurance and Reimbursement in Pharmacy* selective.

Students showed good basic knowledge about the Medicare drug benefit as indicated by a mean score on the 7 knowledge items of 6.6 ± 0.7 (range 4 to 7). The percentages of students answering each item correctly are listed in Table 2. The most frequently missed item (12% of students) assessed the respondents' knowledge about dually eligible Medicaid recipients having their drug coverage switched from Medicaid to Medicare. The only other items missed by 5% or more of students were the item on automatic enrollment (10% incorrect) and the item on variation of premiums (5% incorrect). Students who reported taking the insurance selective had significantly higher mean knowledge scores ($p = 0.026$).

The most frequent places students reported hearing about the Medicare drug benefit were a college of pharmacy class (79%) and APPEs (76%). Students also heard about the drug benefit from pharmacy journals (48%), lay newspapers/magazines (45%), and pharmacy associations (42%). The most frequently specified "other" sources were at work, from the Centers for Medicare and Medicaid Services web site, and from family members.

Mean scores on the intent and attitude items ranged from 3.0 to 4.3 (Table 3). The strongest agreement expressed by the students was with the statement that pharmacist participation in providing Medicare MTMS was an important step in moving the profession forward (93% agreed or strongly agreed). There also was widespread agreement that participation in the Medicare Medication Therapy Management Program would allow them to provide a higher level of care to their patients (92%). In contrast, students expressed relatively neutral views about the profitability of providing Medicare MTMS.

Students generally agreed or strongly agreed that patients would approve of them providing Medicare MTMS (70%) but were much less likely to agree to strongly agree that physicians would approve of them providing Medicare MTMS (43%). Sixty-four percent agreed or strongly agreed that other pharmacy students or pharmacists they knew intended to provide Medicare MTMS.

The most positive response to a perceived behavioral control item was for having the knowledge and skills to provide Medicare MTMS, with 73% agreeing or strongly agreeing they had the knowledge and skills. In contrast, only 32% of students agreed or strongly agreed that it would be entirely up to them whether they provided Medicare MTMS; this item had the lowest mean score of all the items. Just over half of students agreed or strongly agreed that pharmacist would be the main professional providers

of Medicare MTMS and 58% agreed that pharmacist would have some role in deciding the specific provisions of Medicare MTMS.

Students showed some intent to provide Medicare MTMS, with 60% agreeing or strongly agreeing that they intended to provide MTM. Their level of agreement dropped slightly to 54% when asked whether they intended to look for a pharmacist position where they could provide MTM. Furthermore, only 37% agreed or strongly agreed when asked if they would take initiative to get approval to offer the Medicare Medication Therapy Management Program if their employer did not plan to offer MTMS.

The Cronbach alpha for the summated intent scale was 0.84, which is above the generally accepted standard of 0.70,¹⁴ so results are reported using summated intent variable. Cronbach alpha values for the other 3 scales were well under 0.70 so results are reported using the individual items. The summated intent score was significantly correlated with all 3 of the individual attitude items but with only 1 of the subjective norm items (other pharmacy students or pharmacists) and 1 of the perceived behavioral control items (have necessary knowledge and skills). Intent did not vary significantly by gender, participation in any of the pharmacist service programs during their completed APPEs, or career choice. When students who planned to work at a chain pharmacy were compared directly with students planning to do a residency, the difference was not significant ($p = 0.285$).

DISCUSSION

Fourth-professional year pharmacy students had a good basic level of knowledge about the Medicare drug benefit. Only 79% of students reported that they had heard about the drug benefit in a college of pharmacy class; an interesting finding because all students who participated in the survey had taken the *Pharmaceutical Socioeconomics* course in which 1 lecture about the Medicare drug benefit was provided. The students had either poor recall, were absent the day of the lecture, or chose to answer the item incorrectly. Even several students who said they took the insurance and reimbursement selective did not report that they had heard about the drug benefit in class. Since the selective had 4 hours of lecture plus a discussion on the drug benefit and was taken the semester immediately before the survey was administered, it is difficult to believe that these students did not recall hearing about the drug benefit in class. This indicates that student self-report may not be a good way to accurately assess topic coverage in the curriculum 6 or more months after completing a course.

Although the test of knowledge about the Medicare drug benefit was intended to measure basic information

Table 3. Responses to Theory of Planned Behavior Items Included in a Survey of Pharmacy Students' Knowledge of the Medicare Drug Benefit and Intention to Provide Medicare Medication Therapy Management Services

Construct	Survey Statement	Mean (SD)*	N[†]	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Attitude	Pharmacist participation in providing Medicare MTMS is an important step in moving the profession of pharmacy forward.	4.3 (0.6)	95	0	0	7.4	52.6	40.0
	Providing Medicare MTMS is not likely to be profitable for pharmacists. [‡]	3.2 (0.9)	95	3.2	20.2	36.2	37.2	3.2
	Participation in Medicare MTMS will allow me to provide a higher level of care to Medicare beneficiaries.	4.1 (0.5)	94	0	0	8.5	71.3	20.2
Subjective Norm	Patients would like to see pharmacists provide Medicare MTMS.	3.7 (0.6)	95	0	1.1	29.5	64.2	5.3
	Physicians will approve of pharmacists providing MTMS to Medicare beneficiaries.	3.2 (0.9)	95	3.2	18.9	34.7	40.0	3.2
	Other pharmacy students or pharmacists I know intend to provide MTMS to Medicare beneficiaries.	3.6 (0.7)	94	0	7.4	28.7	57.4	6.4
Perceived Behavioral Control	Pharmacists will have some role in deciding the specific provisions of the Medicare MTMS program.	3.5 (0.9)	95	0	17.9	24.2	52.6	5.3
	It will be entirely up to me whether or not to provide Medicare MTMS.	3.0 (1.0)	95	4.2	33.7	30.5	25.3	6.3
	Pharmacists will be the main professional providers of Medicare MTMS.	3.4 (1.0)	94	3.2	17.0	27.7	44.7	7.4
	I have the necessary knowledge and skills to provide MTMS to Medicare beneficiaries.	3.8 (0.8)	94	1.1	6.4	19.1	60.6	12.8
Intent	I intend to look for a pharmacist position where I will be able to provide MTMS.	3.6 (0.8)	94	1.1	6.4	38.3	44.7	9.6
	I intend to seek out further training on providing MTMS to Medicare beneficiaries.	3.4 (0.8)	95	2.1	13.7	30.5	47.4	6.3
	I intend to provide MTMS to Medicare beneficiaries.	3.6 (0.7)	94	0	5.3	35.1	52.1	7.4
	If my employer does not plan to offer Medicare MTMS, I will take the initiative to get approval to offer these services at my place of employment.	3.1 (0.9)	95	3.2	22.1	37.9	33.7	3.2

MTMS = medication therapy management services

*Coded as 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

[†]Total number of usable surveys returned = 95

[‡]The statement was reverse coded to account for negative phrasing

that was covered in the required class, students who reported taking the insurance selective scored significantly higher on the test. It is possible that the selective reinforced their knowledge, but students who took the selective also may have been more interested in the drug benefit and therefore more likely to pay attention to the material or seek out additional information on their own.

Students' level of intention to provide Medicare MTMS was somewhat discouraging. About 60% of students agreed or strongly agreed that they intended to provide Medicare MTMS, but only 7% expressed strong agreement. Given the known barriers that exist to providing pharmacy services, it likely will take a strong desire to provide MTMS to overcome these barriers. The much lower level of agreement with the item asking about intent when initiative was required reinforces this concern. A possible explanation for the low level of intent is that some students may have known they were going into practice sites where MTM was not likely to be provided. Also, many students had worked in pharmacies and may have been discouraged by what they saw in practice and just not prepared or motivated to try to overcome the obstacles they had seen. The lack of difference in intent between students who planned to do a residency and students who planned to work in a chain pharmacy was somewhat surprising, but many of the students with residency plans may have been planning hospital residencies rather than community pharmacy residencies and therefore did not see an opportunity to provide MTMS.

When student responses were compared to a recent study on Iowa pharmacists' attitudes, subjective norms, perceived behavioral control, and intent to provide Medicare MTMS,⁷ many similarities were found, as well as some striking differences. The pharmacists and students had identical mean scores on the items stating that pharmacist participation in providing Medicare MTMS is an important step in moving the profession forward (4.3) and the item stating that participation in the Medicare Medication Therapy Management Program would allow them to provide a higher level of care to Medicare beneficiaries (4.1). Both groups also had neutral views about the profitability of providing Medicare MTMS (3.2 for the students and 3.0 for the pharmacists).

The most striking differences were in the construct of subjective norms. The students showed somewhat less agreement than pharmacists that patients would like to see them provide MTM (3.7 for students and 4.0 for pharmacists) but showed much lower agreement with the statement that physicians would approve of them providing MTM (3.2 for students and 3.8 for pharmacists). However, students were more likely to agree that their peers intended to provide MTM (3.6 for students and 3.3 for

pharmacists). A possible explanation for this difference is that the student peer item included other pharmacy students and pharmacists they knew, while the pharmacist peer item included only pharmacists.

In the category of perceived behavioral control, students were more optimistic that pharmacists would have some role in deciding the specific provisions of MTM (3.5 for students and 3.2 for pharmacists) but less optimistic that pharmacists would be the main professional providers of MTM (3.4 for students and 3.6 for pharmacists). Students also had somewhat less agreement about it being entirely up to them whether Medicare MTMS will be provided at their pharmacy (3.0 for students and 3.2 for pharmacists). This likely is a result of having pharmacy managers in the pharmacist sample that may have more control over what services their pharmacies provide. The students and pharmacists had similar levels of agreement about having the necessary knowledge and skills to provide MTM. This was interesting since pharmacy school curriculums over time have become more focused on providing patient-oriented services. It is possible that pharmacists in practice had sought out additional training in this area or had learned from their practice experience.

Students had somewhat lower levels of agreement with the statement about intending to provide MTMS (3.6 for students and 3.9 for pharmacists), but the difference was even more dramatic when comparing levels of intent requiring more initiative. Pharmacists generally showed willingness to speak with store management about providing MTMS (3.8) and even some willingness to contact insurance companies to arrange for MTM to be provided at their pharmacies (3.4). However, students showed less agreement with the statement about planning to take the initiative in getting MTM provided at their pharmacy (3.1). Given that pharmacy educators hope to see new graduates advance the profession and presumably provide more patient-oriented services, this lack of willingness to take initiative is concerning but perhaps not surprising since new employees tend to have the least power in the workplace. The pharmacists' survey items assessed specific types of initiative, while the students' survey item was more global and this may have also contributed to the difference in initiative between the pharmacists and students.

If pharmacists moving into the profession are to further the provision of patient-oriented services, more work is necessary to encourage students to take on this role. Some students graduate from pharmacy school with a strong interest in providing patient-oriented services and these students need to be mentored and encouraged to overcome the barriers they likely will face in providing MTM and other patient-oriented services in their practice

sites. Mentoring programs run by either colleges of pharmacy or pharmacy associations that link motivated recent pharmacy graduates with practitioners who have successfully integrated MTMS into their practices might be a way of helping these individuals successfully translate their desire to perform MTM into practice.

There is a need to better prepare students to implement MTM while they are in school. Colleges of pharmacy have successfully changed their curriculums to teach the clinical skills necessary to provide MTM, but more work may need to be done to teach implementation skills. Some schools almost certainly have classes or experiential programs that teach students how to overcome barriers to providing MTM and these best practices for teaching implementation skills need to be shared. Similar to clinical skills training, repeated provision of MTM in a “real world” setting may be necessary to show students how to integrate MTM into a practice. Developing more experiential practice sites where providing MTMS is expected will be an important step. When admitting students, colleges and schools of pharmacy also may want to consider traits such as perseverance and willingness to take initiative that may be necessary for overcoming barriers to providing MTM.

Although the response rate for the survey was high, a limitation of the study is that some students may have been reluctant completers of the survey instrument and therefore did not spend much time thinking about the items. Furthermore, several questionnaires were administered to the students during Assessment Day, so respondent fatigue may have been a factor. Another limitation is that the low sample size and poor Cronbach alpha values for several of the subscales made it impossible to conduct a multivariate analysis of the effect of the dependent variables on intent. In future research, it would be interesting to examine how well the intent score predicted actual provision of MTM or other professional services and whether student intent changed over time.

CONCLUSIONS

Pharmacy students showed a basic level of knowledge about the Medicare drug benefit. They reported receiving their information about the drug benefit from a variety of sources, with College of Pharmacy classes and APPEs being the most frequently cited source. Sixty percent of students agreed or strongly agreed that they intended to provide Medicare MTMS, but that percentage dropped to only 37% if they were required to take initiative to provide the services. Intent was significantly related to all the attitude items. Intent to provide Medicare

MTMS was more related to attitude items than perceived behavioral control items or subjective norm items, and was not related to gender or career plans. The relatively low levels of intent to provide MTM and the fact that the students showed weaker intent to provide MTM than pharmacists did in a previous study suggest that colleges of pharmacy must strengthen their efforts to encourage students to take on the role of service provider and/or ensure that such individuals are admitted.

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