

Evaluation of Student Pharmacists' Perceptions of Skills and Attitudes to Provide Medication Therapy Management Services

Jody L. Lounsbery, Pharm.D., Assistant Professor, Department of Pharmaceutical Care and Health Systems, College of Pharmacy, University of Minnesota, Minneapolis, MN (At time of study Dr. Lounsbery was Ambulatory Care Resident, School of Pharmacy, University of Maryland, Baltimore, MD)

Charmaine D. Rochester, Pharm.D., CDE, BCPS, Assistant Professor, Department of Pharmacy Practice and Science, Director, Postgraduate (PGY2) Pharmacy Residency in Ambulatory Care, School of Pharmacy, University of Maryland, Baltimore, MD

Deborah A. Sturpe, Pharm.D., BCPS, Assistant Professor, Department of Pharmacy Practice and Science, School of Pharmacy, University of Maryland, Baltimore, MD

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Abstract

Objectives: The objectives of this study were to (1) evaluate student pharmacists' perceptions of skills and attitudes toward providing medication therapy management (MTM) services, (2) assess the association between prior direct patient care experiences and perceptions of skills and attitudes, and (3) determine what effect an introductory pharmacy practice experience (IPPE) has on student pharmacists' perceptions of skills and attitudes.

Methods: A survey was distributed to student pharmacists in October 2007 and April 2008. Only students enrolled in the IPPE were surveyed at both times, in October and again in April. A Likert-type scale was used to assess responses to competencies to provide MTM, intentions to provide MTM, and attitudes towards implementing MTM. Descriptive statistics were used to describe demographics. Chi-square, Wilcoxon rank sum, and McNemar's were utilized for inferential statistical analysis.

Results: Over 89% of student pharmacists perceive providing MTM is important in moving the profession forward. Regardless of year in school and amount of direct patient care experiences, only 27.6% perceive an ability to obtain compensation for providing MTM services. Five competencies, including the ability to perform a comprehensive medication review; select or modify medication therapy; formulate a medication treatment plan; provide resources designed to enhance patient adherence, and critically evaluate medical literature and practice evidence-based medicine, showed significant differences as a reflection of the IPPE course.

Conclusions: Additional experiential experiences focused on providing MTM services may be beneficial in shaping perceptions of student pharmacists' abilities and attitudes regarding these services.

Key Words: medication therapy management, direct patient care, student education, pharmaceutical care, pharmacy education

Introduction

The Medicare Prescription Drug Improvement and Modernization Act of 2003 was enacted to create a Medicare Part D prescription drug benefit for senior citizens. The law also included a provision for a medication therapy management program. In July 2004, a group of 11 national pharmacy organizations approved a consensus definition and program criteria for medication therapy management services. Medication therapy management (MTM) was defined as “a distinct service or group of services that optimize therapeutic outcomes for individual patients.”¹ MTM includes a wide range of professional services and responsibilities that can be independent of or with the dispensing of a medication product.¹ This development provided pharmacists with an opportunity to provide cognitive services and potentially receive compensation for providing patient care. The creation of MTM services represents a shift from a product-based to a service-based compensation model.

Key features of a medication therapy management service have been published to assist pharmacists in implementing these services.^{2,3} The core components include a pharmacist-directed medication therapy review, an intervention and/or referral by the pharmacist, documentation, and follow-up visits. The patient receives a medication therapy review, a personal medication record, and a medication action plan.² MTM programs should have a patient-centered approach and involve collaboration with physicians and other health care providers. The programs should have appropriate documentation systems, measures for quality assurance, and facilitate continuity of care.³ The services provided are distinct from dispensing and should be optimally delivered as appointment-based care with face-to-face interactions in a private area.²

The American Association of Colleges of Pharmacy, under the Center for Advancement of Pharmaceutical Education (CAPE), developed Educational Outcomes in order to facilitate the incorporation of pharmaceutical care delivery into the curricula of colleges and schools of pharmacy.⁴ The CAPE Educational Outcomes for pharmaceutical care focus on interprofessional delivery of patient-centered care.⁴ In addition to using evidence-based principles, the patient-centered care should address other issues that may affect desired therapeutic outcomes.⁴ The Accreditation Council for Pharmacy Education (ACPE) adopted standards and guidelines for doctor of pharmacy professional programs. These standards also support the competencies outlined in the CAPE Educational Outcomes. In addition, the ACPE guidelines emphasize the need for students to possess the necessary skills to practice patient care independently upon graduation. The guidelines charge colleges and schools of pharmacy with the task of ensuring students' abilities to successfully implement and manage patient-centered care.⁵

The University of Maryland School of Pharmacy offers 2 introductory pharmacy practice experience (IPPE) courses designed to engage students in the process of providing MTM services, one within the second-professional year and the other within the third-professional year. The course for second-year student pharmacists involves building a pharmacist-patient relationship, collecting a medical history from the patient, developing a problem list, and focusing on interventions related to health maintenance and psychosocial issues. The course for third-year student pharmacists involves identifying and assessing medical and medication-related problems, developing and implementing recommendations, and refining communication skills.

As the emphasis of pharmacy practice shifts towards patient care, and the opportunities for pharmacists to provide direct patient care expand with the provision of MTM, student pharmacists need to be prepared to provide these services. Evaluation of student pharmacists' perceptions of their ability to provide MTM services and assessing their attitude towards implementing these services could be critical to the curricula of colleges and schools of pharmacy, student pharmacists' development into practitioners, as well as for the further expansion of medication therapy management services.

The objectives of this study were to (1) evaluate student pharmacists' perceptions of their skills and attitudes toward providing MTM services, (2) assess the association between prior direct patient care

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experiences and perceptions of skills and attitudes, and (3) determine what effect an IPPE has on student pharmacists' perceptions of skills and attitudes.

Methods

A survey instrument was developed to collect the data necessary to meet the stated objectives. The survey was pilot tested on ten pharmacy residents to ensure readability, relevance of questions, and time required for completion. Based on this feedback, the survey was refined before distribution to the study participants. The duration for completing the survey was approximately 5-10 minutes. The survey was offered to all of the 518 candidates enrolled in the doctor of pharmacy program at the University of Maryland School of Pharmacy. The survey (see Appendix A) consisted of 24 questions covering competencies to provide MTM services, intention to provide MTM services, and attitude towards implementing MTM services. Extensive literature reviews on student perceptions, MTM, pharmaceutical care, and direct patient care services were performed in the development of the competencies.¹⁻⁹ Student pharmacists' responses were assessed on a 5-point Likert scale, with the scale ranging from strongly agree (1), agree (2), neither agree nor disagree (3), disagree (4), to strongly disagree (5). Demographics, hours of direct patient care experience, and hours performing traditional pharmacy practice activities were also collected. Definitions of MTM services and direct patient care were provided.^{1,10} Examples of traditional pharmacy practice activities were also provided and included order fulfillment, dispensing, brief patient counseling, compounding, and making intravenous admixtures.

The survey was delivered via an Internet-based survey instrument (Survey Monkey) in October 2007, before the patient care activities in the IPPE started, and repeated in April 2008, when the majority of the patient care activities for the IPPE were completed. Only second- and third-year students enrolled in the IPPE received the identical survey at both times. First-year students were surveyed only in October in an aim to collect perceptions at the beginning of pharmacy school. Fourth-year students were surveyed only in April in an aim to collect perceptions as student pharmacists finish school. With each survey, student pharmacists were sent an email announcement and a link to the survey. Reminders were sent to non-responders after four and ten days, with data collection concluding two weeks after initial distribution.

Statistical analysis was performed using SAS version 9.1 (SAS Institute, Gary, NC). The *a priori* level of significance for all statistical computations was $p < 0.05$. Survey instruments were coded so that responses for those in the IPPE could be matched. Descriptive statistics (means, standard deviations, and percentages) were used to report demographics, amount of traditional pharmacy practice activities, and amount of direct patient care pharmacy practice activities. Comparisons between competencies to provide MTM services and year in school as well as the amount of experience performing direct patient care were assessed by chi-square tests. Those agreeing with the competency statements (strongly agree and agree) were compared to those who neither agree or disagree, disagree, and strongly disagree. Due to the lack of a normal distribution, these data were also assessed with a nonparametric test (Wilcoxon rank sum) to confirm the significant results. The paired categorical variables were compared using McNemar's test.

The study was submitted to the University of Maryland Institutional Review Board and approved as expedited research.

Results

The October survey was completed by 130 (32.3%) of the 402 first-, second-, and third-year student pharmacists. The April survey was completed by 113 (31.7%) of the 357 second-, third-, and fourth-year student pharmacists. Thus, total respondents for both surveys were 243 student pharmacists. Second- and third-year student pharmacists responding to both surveys were 33. Demographic characteristics of total respondents (October and April surveys) are reported in Table 1. Respondents were primarily female (66.3%) and in their second (31.3%) or third year (41.2%) of pharmacy school. Respondents

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primarily had 1000 hours of more of traditional pharmacy practice activities (33.3%) and less than 20 hours of direct patient care pharmacy practice activities (47.7%).

Table 1: Demographics

Variable	Total (n = 243)
Mean age (SD), years	26.4 (7.6)
Sex, n (%)	
Male	82 (33.7)
Female	161 (66.3)
Year in pharmacy school, n (%)	
First	37 (15.2)
Second	76 (31.3)
Third	100 (41.2)
Fourth	30 (12.3)
Amount of traditional pharmacy practice activities, n (%)	
None to minimal (less than 20 hours)	26 (10.7)
Some (20-100 hours)	40 (16.5)
Fair amount (100-500 hours)	52 (21.4)
Quite a bit (500-1000 hours)	44 (18.1)
A lot (1000 hours or more)	81 (33.3)
Amount of direct patient care pharmacy practice activities, n (%)	
None to minimal (less than 20 hours)	116 (47.7)
Some (20-100 hours)	74 (30.5)
Fair amount (100-500 hours)	37 (15.2)
Quite a bit (500-1000 hours)	13 (5.3)
A lot (1000 hours or more)	3 (1.2)

Table 2 describes the perceptions of skills and attitudes to provide MTM services of each of the four years of student pharmacists from both the October and April surveys. The p value depicts a statistically significant variability between the groups. The majority of the student pharmacists agree that providing MTM is an important step in moving the profession of pharmacy forward (89.7%) and agree with confidence in their ability to empathize with patients (88.9%). In contrast, student pharmacists had the lowest percentage of agreement with their ability to obtain compensation for services provided (27.6%) and receiving adequate training to provide MTM services (29.2%). For the majority of the statements, the percent agreement increased as student pharmacists progressed through the doctor of pharmacy program.

Table 3 describes the perceptions of skills and attitudes to provide MTM services of student pharmacists based of their amount of direct patient care pharmacy practice activities. The p value depicts a statistically significant variability between the groups. For the majority of the competencies, those with 500 or more hours of direct patient care experiences had a higher percentage of agreement, followed by those with a fair amount, some, and none to minimal.

Table 4 describes the October and April survey responses of second- and third- year student pharmacists and their perceptions of skills and attitudes to provide MTM services. These student pharmacists participated in an IPPE in which they engage in MTM activities. Despite the small number of respondents, 5 of the competencies showed a significant difference in perceptions in confidence from the onset of the course to the end of the IPPE. Those included abilities to perform a medication review, select or modify therapy, formulate a medication treatment plan, provide resources designed to enhance patient adherence, and confidence in therapeutic knowledge.

Table 2: Percent Agreement^a with Perceptions of Skills and Attitudes to Provide MTM Services (October and April Surveys)

Statement	First-Year (n = 37) Agreement, n (%)	Second-Year (n = 76) Agreement, n (%)	Third-Year (n =100) Agreement, n (%)	Fourth-Year (n = 30) Agreement, n (%)	p value ^b	Total (n =243) Agreement, n (%)
Abilities						
Perform a comprehensive medication review	8 (21.6)	36 (47.4)	72 (72.0)	28 (93.3)	<0.0001	144 (59.3)
Formulate a medication treatment plan	5 (13.5)	11 (14.5)	62 (62.0)	27 (90.0)	<0.0001	105 (43.2)
Establish and build patient-clinician relationships	30 (81.1)	62 (81.6)	88 (88.0)	27 (90.0)	0.003	207 (85.2)
Empathize with patients	36 (97.3)	59 (77.6)	92 (92.0)	29 (96.7)	0.004	216 (88.9)
Communicate essential information to the patient's health care providers	25 (67.6)	43 (56.6)	83 (83.0)	28 (93.3)	<0.0001	179 (73.7)
Obtain compensation for services provided	6 (16.2)	12 (15.8)	39 (39.0)	10 (33.3)	0.0002	67 (27.6)
Provide MTM services	5 (13.5)	16 (21.1)	55 (55.0)	24 (80.0)	<0.0001	100 (41.2)
Knowledge						
Received adequate training to provide MTM services	3 (8.1)	6 (7.9)	41 (41.0)	21 (70.0)	<0.0001	71 (29.2)

^aincludes strongly agree and agree

^bWilcoxon rank sum

Discussion

Results of this study suggest that for the majority of competencies regarding student pharmacists' perceptions of abilities, knowledge, intentions, and beliefs related to providing MTM services, student pharmacists at the University of Maryland School of Pharmacy have confidence in those abilities. Student pharmacists at the school have an average age of 24 years and are approximately 69% female, which closely mirrors the demographics of respondents.

As would be anticipated, first-year student pharmacists tended to have a higher agreement with their confidence in patient issues, such as ability to empathize with patients, than with the competencies related to process, such as performing a medication review and formulating a treatment plan. Surprisingly, the first-year students had a higher than expected level of agreement with a number of the statements related to their abilities. Over 67% of first-year students agreed with their ability to communicate essential information to the patient's health care providers and over 81% percent agreed with their ability to establish and build patient-clinician relationships. However, it remains unclear from where this confidence stems. They perceive they have the ability to build relationships with patients and providers. It is unclear what factors allow for that level of confidence. These percents may be higher than one would anticipate for a first-year student pharmacist, assuming he or she enters with minimal

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patient care experience. Perhaps previous education was a factor. At the University of Maryland School of Pharmacy, 75% of student pharmacists entered with a bachelor's degree. In the future, determining and evaluating education background as an influence may be beneficial to understanding their perceptions.

Table 3: Percent Agreement^a with Perceptions of Skills and Attitudes to Provide MTM Services and Amount of Experience Performing Direct Patient Care Pharmacy Practice Activities (October and April Surveys)

Statement	None to Minimal <20 hours (n = 116) Agreement, n (%)	Some 20-100 hours (n = 74) Agreement, n (%)	Fair Amount 100-500 hours (n = 37) Agreement, n (%)	Quite a Bit 500+ hours (n = 16) Agreement, n (%)	<i>p</i> value ^b
Abilities					
Obtain compensation for services provided	18 (15.5)	26 (35.1)	17 (46.0)	6 (37.5)	<0.0001
Provide MTM services	28 (24.1)	36 (48.7)	23 (62.2)	13 (81.3)	<0.0001
Knowledge					
Received adequate training to provide MTM services	17 (14.7)	26 (35.1)	20 (54.1)	8 (50.0)	<0.0001
Intentions					
Look for a position where I can provide MTM services	54 (46.6)	36 (48.7)	26 (70.3)	10 (62.5)	0.003
Seek further training on providing MTM services	78 (67.2)	50 (67.6)	27 (73.0)	11 (68.8)	0.380
Beliefs					
Feasible to implement MTM in the community setting	84 (72.4)	59 (79.7)	31 (83.8)	13 (81.3)	0.063
Providing MTM is an important step in moving the profession of pharmacy forward	102 (87.9)	68 (91.9)	33 (89.2)	15 (93.8)	0.225

^aIncludes strongly agree and agree

^bWilcoxon rank sum

A higher percentage of student pharmacists, regardless of year in school or amount of direct patient care, agree with the intention to seek further training on providing MTM services compared to the intention to look for a position where they can provide MTM services. As such, there appears to be a divergence in the level of commitment to provide MTM service and the interest in obtaining more training related to MTM.

Regardless of year in pharmacy school and amount of direct patient care, student pharmacists agree that it is feasible to implement MTM in the community setting and that providing MTM is an important step in moving the profession of pharmacy forward. These are important points to acknowledge as student pharmacists' perceptions help shape the profession and further expand MTM services as they become future leaders within the profession.

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Table 4: Percent Agreement^a with Perceptions of Skills and Attitudes to Provide MTM Services October and April Surveys

Statement	Total (n=33)		
	October survey Agreement, n (%)	April survey Agreement, n (%)	Change Agreement, n (%)
Perform a comprehensive medication review	15 (45.5)	23 (69.7)	8 (24.2) ^b
Select or modify medication therapy	6 (18.2)	14 (42.4)	8 (24.2) ^b
Formulate a medication treatment plan	7 (21.2)	14 (42.4)	7 (21.2) ^b
Provide resources designed to enhance patient adherence	26 (78.8)	30 (90.9)	4 (12.1) ^b
Critically evaluate medical literature and practice evidence-based medicine	20 (60.6)	23 (69.7)	3 (9.1) ^b

^aincludes strongly agree and agree

^b $p < 0.05$ (McNemar's test)

The percent agreement of student pharmacists' perceptions with their ability to obtain compensation for services provided was low. This is not surprising as compensation continues to be a presumed barrier to providing MTM services.^{11,12} In addition, the percent agreement with receiving adequate training to provide MTM services was also low. This becomes particularly interesting when compared to the percent agreement with the ability to provide MTM services. Student pharmacists, regardless of year in pharmacy school and amount of direct patient care, agreed at a higher percent with their ability to provide MTM services. At a much lower percent, student pharmacists agreed with the training they received to provide these MTM services that they have confidence in providing. It is unclear what factors allow for that deviation in levels of confidence. Further investigation into previous education and practice experiences may be beneficial in understanding their perceptions.

The IPPE did make an impact on student pharmacists' perceptions on a few of the competency statements. As part of the course, student pharmacists performed a medication review with a patient, assessed the patient's social and environmental issues, identified problems, and made recommendations. As would be anticipated, the significant changes included performing a medication review and formulating a medication treatment plan. Student pharmacists in the IPPE also noted changes in their ability to provide resources designed to enhance patient adherence in addition to increases in their confidence in therapeutic knowledge. Perhaps if the sample for comparative data would have been larger, more of their perceptions would have had a significant change in relation to the IPPE experiences. At the request of the University of Maryland Institutional Review Board, survey responses were anonymous. As such, student pharmacists' perceptions of competency could not be tied to their actual performance in the IPPE.

Limitations

This study has limitations that should be considered when interpreting the results. This is a small sample from one school of pharmacy in Maryland and may not represent perceptions of student pharmacists from other colleges and schools of pharmacy. However, the demographics of the sample are representative of the student pharmacists at the University of Maryland. Overall, there was a low response rate and the response rate was not equal between the years in school, with the first- and fourth- years having a lower response. However, regardless of the lack of normal distribution, the results were statistically significant. Student pharmacists at the University of Maryland are often inundated with surveys to evaluate courses and provide feedback for the school, which may have led to respondent fatigue. Perhaps if the survey had been on paper distributed in a required course instead of electronically distributed, the response rate would have been higher. The addition of an incentive could have also increased participation.

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The sample of those student pharmacists in the IPPE who responded to both the October and April surveys was also small. The results may be scrutinized due to the small sample, despite the statistically significant findings on 5 of the competencies.

There is also a potential for response bias. Student pharmacists with more interest in MTM services may be more likely to respond. Those with more interest may have more confidence in their perceptions of skills and attitudes towards MTM services. In turn, the student pharmacists' perceptions of their skills and attitudes, as well as the impact of the IPPE on those skills and attitudes, may be overestimated in this small sample.

Conclusions

Identifying student pharmacists' perceptions of their ability to provide MTM services is crucial as the emphasis of pharmacy practice shifts towards patient care. Results of this study show that student pharmacists perceive providing MTM is important in moving the profession forward. However, student pharmacists have doubts in their ability to obtain compensation for these services regardless of year in pharmacy school and amount of direct patient care experiences. An IPPE focusing on providing MTM services did impact perceptions of student pharmacists' abilities. Additional experiential experiences focused on providing MTM services may be beneficial in shaping perceptions of student pharmacists' abilities and attitudes regarding these services.

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Appendix A

Evaluation of Student Pharmacists' Perceptions of Skills and Attitudes to Provide MTM

1. Default Section

Dear student pharmacist,

This survey is being conducted to evaluate perceptions of student pharmacists' skills and attitudes regarding their ability to provide medication therapy management services.

This study is being conducted by Jody L. Lounsbury, Pharm.D., Charmaine D. Rochester, Pharm.D., CDE, CDM, BCPS, and Deborah Sturpe, Pharm.D., BCPS. You are being asked to participate in this study because you are a student enrolled in the Doctor of Pharmacy professional degree program at the University of Maryland.

The survey will take approximately 5-10 minutes to complete. There is no direct benefit from participation in this study. However, the information you provide may help the investigators better understand perceptions of students and further determine the educational needs of students.

Participation is completely voluntary and will not affect your status at this institution. No identifying information will be collected. All data will be kept in locked cabinets or on computers that are password protected. Responses will only be presented in aggregate. Participation can be withdrawn at any time by contacting the investigators or not completing the survey. Choosing to participate in this survey implies consent.

Second and third year students will be contacted again in the spring to complete the survey a second time.

If you have any questions or wish to receive results of the aggregated data, please contact Dr. Jody L. Lounsbury at 410-706-1458.

Thank you for participating in this survey.

2.

"Medication Therapy Management (MTM) is a distinct service or group of services that optimize therapeutic outcomes for individual patients. MTM services are independent of, but can occur in conjunction with, the provision of a medication product."

Definition taken from profession-wide consensus statement (J Am Pharm Assoc 2005;45:566-572).

Given the definition above, please answer the following reflecting specifically on **your** viewpoint and experience. For each of the following statements, please answer on the indicated scale.

Indicate how strongly you agree or disagree with the statement

	strongly agree	agree	neither agree nor disagree	disagree	strongly disagree
I am confident in my ability to obtain necessary assessments of the patient's health status (e.g. collect CC, HPI, PMH, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my ability to perform a comprehensive medication review	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my ability to select or modify medication therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my ability to monitor and evaluate the patient's response to therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my ability to identify, resolve, and prevent medication-related problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my ability to formulate a medication treatment plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3.

"Medication Therapy Management (MTM) is a distinct service or group of services that optimize therapeutic outcomes for individual patients. MTM services are independent of, but can occur in conjunction with, the provision of a medication product."

Definition taken from profession-wide consensus statement (J Am Pharm Assoc 2005;45:566-572).

Given the definition above, please answer the following reflecting specifically on **your** viewpoint and experience. For each of the following statements, please answer on the indicated scale.

Indicate how strongly you agree or disagree with the statement

	strongly agree	agree	neither agree nor disagree	disagree	strongly disagree
I am confident in my ability to provide education designed to enhance patient understanding of the appropriate use of his/her medications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my ability to provide resources designed to enhance patient adherence (e.g. reminder devices, dosing schedules, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my ability to identify and address issues that may impact patient-specific therapeutic outcomes (e.g. cultural diversity, health literacy, language barriers, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my ability to establish and build patient-clinician relationships	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my ability to empathize with patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4.

"Medication Therapy Management (MTM) is a distinct service or group of services that optimize therapeutic outcomes for individual patients. MTM services are independent of, but can occur in conjunction with, the provision of a medication product."

Definition taken from profession-wide consensus statement (J Am Pharm Assoc 2005;45:566-572).

Given the definition above, please answer the following reflecting specifically on **your** viewpoint and experience. For each of the following statements, please answer on the indicated scale.

Indicate how strongly you agree or disagree with the statement

	strongly agree	agree	neither agree nor disagree	disagree	strongly disagree
I am confident in my ability to communicate essential information to the patient's health care providers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my ability to appropriately document patient care activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my ability to obtain compensation for services provided	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my ability to provide MTM services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5.

"Medication Therapy Management (MTM) is a distinct service or group of services that optimize therapeutic outcomes for individual patients. MTM services are independent of, but can occur in conjunction with, the provision of a medication product."

Definition taken from profession-wide consensus statement (J Am Pharm Assoc 2005;45:566-572).

Given the definition above, please answer the following reflecting specifically on **your** viewpoint and experience. For each of the following statements, please answer on the indicated scale.

Indicate how strongly you agree or disagree with the statement

	strongly agree	agree	neither agree nor disagree	disagree	strongly disagree
I am confident in my ability to interpret and assess laboratory results	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my therapeutic knowledge (pharmacotherapy, pharmacology, pathophysiology, pharmacokinetics, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my clinical problem solving skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my ability to critically evaluate medical literature and practice evidence-based medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6.

“Medication Therapy Management (MTM) is a distinct service or group of services that optimize therapeutic outcomes for individual patients. MTM services are independent of, but can occur in conjunction with, the provision of a medication product.”

Definition taken from profession-wide consensus statement (J Am Pharm Assoc 2005;45:566-572).

Given the definition above, please answer the following reflecting specifically on **your** viewpoint and experience. For each of the following statements, please answer on the indicated scale.

Indicate how strongly you agree or disagree with the statement

	strongly agree	agree	neither agree nor disagree	disagree	strongly disagree
I have received adequate training to provide MTM services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to look for a position where I can provide MTM services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to seek further training on providing MTM services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe it is feasible to implement MTM in the community setting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe providing MTM is an important step in moving the profession of pharmacy forward	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7.

How much experience (through employment and school) do you have performing "traditional" pharmacy practice activities such as order fulfillment, dispensing, brief patient counseling, compounding, or making IV admixtures?

- None to Minimal (less than 20 hours)
- Some (20-100 hours)
- Fair Amount (100-500 hours)
- Quite a bit (500-1000 hours)
- A lot (1000 hours or more)

"Direct patient care involves the pharmacist's observation of the patient and contributions to the selection, modification, and monitoring of patient-specific drug therapy. This is often accomplished within an interprofessional team or through collaborative practice with another health care provider."

Definition taken from ACCP Position Statement (Pharmacotherapy 2006;26 (5):722-733).

Given the definition above, how much experience (through employment and school) do you have performing direct patient care pharmacy practice activities?

- None to Minimal (less than 20 hours)
- Some (20-100 hours)
- Fair Amount (100-500 hours)
- Quite a bit (500-1000 hours)
- A lot (1000 hours or more)

8.

What is your age? (in years)

What is your sex?

- Male
 Female

What is your year in pharmacy school?

- 1
 2
 3
 4

In order to create a unique username for you, please enter the first 4 letters of your high (or secondary) school followed by the numbers of your street address.

For example if you went to Southview High School and live at 4567 Elm Street, you should enter "sout4567" in the box.