

Original Research

Pharmacists' perceptions of advancing public health priorities through medication therapy management

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ABSTRACT*

Background: Public health priorities can be addressed by pharmacists through channels such as medication therapy management (MTM) to optimize patient and population outcomes. However, no studies have specifically assessed pharmacists' perceptions of addressing public health priorities through MTM.

Objective: The objective of this study was to assess pharmacists' opinions regarding the feasibility and appropriateness of addressing seven areas of public health priority through MTM services to impact public health in direct patient care settings.

Methods: An anonymous 37-question electronic survey was conducted to evaluate Ohio pharmacists' opinions of advancing seven public health priorities identified from Healthy People 2020 (family planning, preconception care, smoking cessation, immunizations, nutrition/biometric wellness assessments, point-of-care testing, fall prevention) through MTM activities; to identify potential barriers; and to collect demographic information. The cross-sectional survey was sent to a random sample of 500 pharmacists registered with the Ohio State Board of Pharmacy.

Results: Seventy-six pharmacists responded to the survey, resulting in a 16% response rate. On average, it took respondents 5-10 minutes to complete the survey. The majority of respondents thought that each of the seven public health priorities were "important" or "very important" to patient health; the most commonly identified areas included smoking cessation, immunizations, and fall prevention (97.5%). When asked to indicate which of the seven areas they thought they could potentially have a role to provide services through MTM, on average pharmacists picked 4 of the priority areas. Only 6.6% indicated there was no role for pharmacists to provide MTM services for any of the listed categories. Staffing, time, and reimbursement represented the most commonly perceived barriers for pharmacists in providing MTM services. Fifty-seven percent indicated an interest in learning more about MTM, with 98% of responders selecting continuing education as the preferred source.

Conclusion: The majority of pharmacists indicated they could make an impact on public health priorities through MTM services.

Keywords: Medication Therapy Management; Pharmaceutical Services; Public Health Practice; Health Knowledge, Attitudes, Practice; Attitude of Health Personnel; Pharmacists; United States

INTRODUCTION

Pharmacists are often under-utilized resources in primary and secondary disease prevention programs. However, there is growing recognition that pharmacists should be more involved in public health activities that fall within their scope and expertise due to their accessible nature and frequent patient interactions.¹ Healthy People 2020 identifies more than 1,200 public health objectives for the United States (U.S.), each targeted for specific improvements to be achieved by the year 2020. These objectives focus on reducing or eliminating illness, disability, and premature death; eliminating health disparities; improving access to quality health care; and strengthening public health services.² Pharmacists offer a unique service for patients as they are often the most widely accessible source of healthcare for individuals. For example, 93% of Americans live within five miles of a community pharmacy, offering convenient access to care across most of the country.^{3,4} Thus pharmacists' accessibility and knowledge make them invaluable healthcare resources when it comes to addressing public health objectives from Healthy People 2020 that fit within their scope of practice, training, and expertise.

One example of an established framework that pharmacists could utilize to impact public health priorities is medication therapy management (MTM). MTM broadly encompasses a range of health care services provided by pharmacists that optimize patient outcomes. MTM includes but is not limited to assessing and evaluating drug use and side effects, improving adherence, and managing disease states for all patients, regardless of total medication use or health status.⁵ The Centers for Medicare and Medicaid Services define two elements of MTM (comprehensive medication review, or CMR, and targeted medication review, or TMR) as required services for Medicare Part D MTM programs.⁶ Additionally, other third-party payers, such as some state managed Medicaid programs, reimburse pharmacists for providing CMR and TMR through MTM.^{7,8} Therefore, MTM may provide an opportunity to generate sustainable revenue, providing a mechanism for pharmacists to continually meet the needs of the public and impact population health outcomes.

There continues to be a strong interest among pharmacists, especially in the U.S., for new ideas for MTM services, thereby expanding clinical practice and generating revenue. However, few surveys have been performed to ask pharmacists to

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identify emerging MTM opportunities, and none have examined pharmacists' interests in possible MTM expansion to specifically address public health objectives as published in Healthy People 2020. The objective of this study was to assess pharmacists' opinions regarding the feasibility and appropriateness of addressing seven areas of public health priorities through MTM services to impact public health outcomes in direct patient care settings.

METHODS

Areas of public health priority were identified from Healthy People 2020 objectives and included family planning, preconception care, smoking cessation, immunizations, nutrition and biometric wellness assessments, and fall prevention. In addition, questions focused on point-of-care (POC) testing were included in the survey as it is a means to accomplish some of the Healthy People 2020 objectives in topic areas such as HIV, hepatitis C, and diabetes.² These seven topic areas were identified as they contained objectives that pharmacists could potentially impact through their scope of practice, training, and expertise.

A 37-question cross-sectional survey was developed to assess pharmacists' opinions regarding opportunities for expansion of practice through MTM in each of the seven topic areas. A brief definition was provided for each topic area to ensure standardized terminology and understanding among survey respondents. Four-point Likert scale questions were used through the survey to assess pharmacists' opinions in each of the seven areas. The Likert scale questions were adapted from a previous study about health promotion beliefs of pharmacists.⁹ "Very involved", "involved", "not involved", or "uncertain" was used to measure to what extent respondents think pharmacists should be involved in counseling a patient on each topic area. "Very successful", "successful", "not successful", or "uncertain" was used to assess to what extent respondents think pharmacists could be successful in helping patients on each topic area. "Very important", "important", "unimportant", or "uncertain" was used to measure opinions on the importance of each topic area for patient health. Barriers preventing current implementation of these services were assessed through multiple choice and free text responses. Pharmacists were also asked to identify which topic areas they would need more education on in order to provide MTM services. Demographic information regarding the respondent's gender, education, years in practice, practice site and location, and employment status was collected via multiple-choice questions.

A list was obtained from the Ohio State Board of Pharmacy of all pharmacists registered with the state of Ohio, their contact information, and their practice site. The list contained 18,723 names and included individuals who were registered with Ohio but not necessarily practicing in Ohio. A random sample of 500 pharmacists was selected using a random number generator and the following criteria. Inclusion criteria were as follows: registered

Characteristic	n (%)*
Gender	
Male	41 (53.9)
Female	35 (46.1)
Education**	
Bachelor of Science degree in pharmacy	56 (73.7)
Doctor of Pharmacy	25 (32.9)
Years in practice as registered pharmacist	
4 years or less	0 (0)
5-9 years	5 (6.6)
10-19 years	24 (31.6)
20-29 years	15 (19.7)
30 years or more	32 (42.1)
Pharmacy practice site	
Community [Independent (n=10), Chain (n=13), Mass merchandiser (n=3), Grocery (n=6), Other (n=1)]	33 (43.4)
Ambulatory	4 (5.3)
Health-system	23 (30.3)
Other	16 (21.1)
Pharmacy location	
Rural	18 (23.7)
Suburban	31 (40.8)
Urban	27 (35.5)
Employment status	
Full-time	57 (75)
Part-time	11 (14.5)
Retired	8 (10.5)

* percentages may not equal 100 due to rounding
 ** value exceeds 76 as individuals could select >1 degree

pharmacist practicing in Ohio, primarily employed in a direct patient care setting, and active email address. "Direct patient care setting" included pharmacists who indicated to the Board that they worked in settings where clinical care is provided to patients, such as hospitals, clinics, or community pharmacies. Exclusion criteria were any pharmacist listed with incomplete information (such as missing information on practice location and practice site) or a missing email address.

Survey questions were entered into Qualtrics Labs Inc. (Provo, UT) for distribution. The survey was pilot-tested electronically for face validity and functionality by eight pharmacists familiar with MTM who were not part of the sample. The final order and wording of questions was revised based on feedback received through the pilot-testing. It was also confirmed that the survey software was fully functional. The final survey was distributed via email. Three follow-up emails were sent on variable days of the week and at different times in an attempt to contact pharmacists at their convenience. There was no incentive offered to the pharmacist to complete the survey. Anonymous responses were collected for four weeks from April 7, 2015 to May 5, 2015. Data were analyzed using IBM SPSS version 22 (Armonk, NY) and Microsoft Office Excel 2013 (Redmond, WA). The study was deemed exempt by the university institutional review board (IRB).

RESULTS

Twenty-five emails were undeliverable; therefore, 475 pharmacists were eligible to take the survey. A

Table 2. Number of respondents (n=76) who agreed that...

	Fall prevention	Family planning	Immunizations	Nutrition and biometric wellness assessment	Point-of-care testing	Preconception care	Smoking cessation
Topic area is 'important' or 'very important' to the health of an average adult	n=74 (97.4%)	n=67 (88.2%)	n=74 (97.4%)	n=69 (90.8%)	n=65 (85.5%)	n=61 (80.3%)	n=74 (97.4%)
Pharmacists should be 'involved' or 'very involved' in counseling patients on topic area	n=59 (77.6%)	n=40 (52.6%)	n=71 (93.4%)	n=47 (61.8%)	n=65 (85.5%)	n=43 (56.6%)	n=73 (96.1%)
Pharmacists could be 'successful' or 'very successful' in performing/ providing/ helping patients with topic area	n=40 (52.6%)	n=34 (44.7%)	n=65 (85.5%)	n=46 (60.5%)	n=58 (76.3%)	n=38 (50.0%)	n=58 (76.3%)
There is a role for pharmacists to provide MTM services in topic area	n=51 (67.1%)	n=33 (43.4%)	n=65 (85.5%)	n=46 (60.5%)	n=61 (80.3%)	n=36 (47.4%)	n=69 (90.8%)

total of 76 pharmacists completed the survey, yielding a 16% response rate. On average, the survey took 5-10 minutes to complete. Table 1 presents demographic information of respondents, including practice site, years in practice, and type of pharmacy degree earned. Twelve individuals reported additional education or training such as residencies, certifications, or other degrees.

Table 2 shows respondents' opinions regarding the importance of the seven areas of public health priority to patient health and the pharmacist's potential impact. The majority of respondents thought that each of the seven areas were "important" or "very important" to patient health; the most commonly identified areas included smoking cessation, immunizations, and fall prevention (97.5%). The lowest of the categories was preconception care, yet 61 (80.3%) of pharmacists saw this as "important" or "very important" to the health of an average adult. When asked to indicate which of the seven areas they thought they could potentially have a role to provide services through MTM, on average pharmacists picked 4 of the priority areas. Only 5 respondents (6.6%) indicated he or she did not think there is a role for pharmacists to provide MTM services for any of the listed categories. An analysis of the 5 respondents' education, years in practice, or practice site did not reveal a clear pattern.

Each of the seven topic areas had a decline in responses when comparing the number of pharmacists who indicated they should be involved in the area to the number of pharmacists who said they could be successful in the area. For each topic area, however, the number of pharmacists who indicated they thought pharmacists would "not" be

successful was less than the pharmacists who were "uncertain" (Table 3). The number varied for each area, with anywhere from two times to eight times as many pharmacists indicating they were "uncertain" about the ability for pharmacists to be successful compared to those who thought pharmacists would "not" be successful. For example, although 77.6% of responders believed pharmacists should be involved in counseling patients on fall prevention, 52.6% believed pharmacists could be successful in helping elderly patients with fall prevention with the remaining pharmacists "uncertain" (42.1%) or indicating they thought pharmacists would "not" be successful (5.3%). Percentages of respondents who thought pharmacists would not be successful in addressing each of the areas ranged from 5.3% (fall prevention, immunizations, and tobacco cessation) to 15.8% (nutrition).

Each pharmacist identified on average one topic area that he or she would need more information on in order to be able to provide MTM services (Table 4). Fifty pharmacists (65.8%) did not select any topic area as an area for which they would need more education. The two topics respondents most often selected as areas for which they would require more information were POC testing and nutrition and biometric wellness assessment, with 25 (32.9%) and 21 (27.6%) respective responses. Smoking cessation and fall prevention received the fewest selections with only 8 (10.5%) and 9 (11.8%) responses respectively. There was no pattern identified regarding pharmacists' perceptions of potential success (Table 3) and the need for additional information (Table 4).

Table 3. Number of respondents' (n=76) perceptions of potential success

	Fall prevention	Family planning	Immunizations	Nutrition and biometric wellness assessment	Point-of-care testing	Preconception care	Smoking cessation
Pharmacists could 'not [be] successful' in performing/ providing/ helping patients with topic area	n=4 (5.3%)	n=9 (11.8%)	n=4 (5.3%)	n=12 (15.8%)	n=7 (9.2%)	n=8 (10.5%)	n=3 (3.9%)
Pharmacists 'uncertain' whether they could be successful in performing/ providing/ helping patients with topic area	n=32 (42.1%)	n=33 (43.4%)	n=7 (9.2%)	n=18 (23.7%)	n=11 (14.5%)	n=30 (39.5%)	n=15 (19.7%)

Table 4. Number of respondents (n=76) indicating a need for more information in order to be able to provide MTM services

Topic	n (%)
Fall prevention	9 (11.8%)
Family planning	14 (18.4%)
Immunizations	14 (18.4%)
Nutrition and biometric wellness assessment	21 (27.6%)
Point-of-care testing	25 (32.9%)
Preconception care	16 (21.1%)
Smoking cessation	8 (10.5%)

Forty-three pharmacists (56.6%) indicated an interest in learning more about MTM. A follow-up question asked these pharmacists about ways they would like to obtain additional information. The majority (98%) selected continuing education (CE), followed by pharmacy conferences (55.8%), pharmacy journals (41.9%), and pharmacy associations (39.5%) as other potential means to receive this information. Two individuals indicated "other", with email and company-provided training as the suggested alternatives.

On average, respondents indicated 4 barriers preventing them from implementing MTM in the seven areas of public health priority. All pharmacists identified at least one barrier to implementing such services. The most common barriers identified as preventing MTM implementation were staffing constraints (78.9%), time constraints (77.6%), and lack of reimbursement (61.8%). Additional barriers included insufficient management support (49.7%) and the physical design of the pharmacy (42.1%).

Fisher's exact test was utilized to identify whether there were any differences in response to the survey questions based on the respondent's education, practice site, employment status, or pharmacy location. No statistically significant differences were found.

DISCUSSION

This study is the first to identify pharmacists' perceptions of opportunities for expansion of MTM to include Healthy People 2020 public health priorities. Pharmacists can help work toward the achievement of many of the objectives outlined in Healthy People.^{10,11} The American Public Health Association recognizes many aspects of public health that can benefit from pharmacists' clinical knowledge and invaluable accessibility in communities.¹ Similarly, the National Association of Chain Drugstores calls for pharmacists to have a greater role in the healthcare system, with more efficient and cost effective models for healthcare delivery augmented by their therapeutic expertise and training.⁴

Pharmacist interventions to deliver health and wellness services such as health risk assessments, preventative counseling, risk factor monitoring, and comprehensive disease state management as part of interdisciplinary teams are becoming more and more common as payments and partnerships emerge for these services.^{1,4,12-14} Pharmacists assuming such responsibilities have been shown to lower total costs and improve quality of care, particularly for patients with chronic conditions.¹⁴

With around 133 million people in the U.S. having at least one chronic condition, and pharmacists' proven impact in managing these conditions, pharmacists can play a key role in improving population health.⁴

One way in which pharmacists can achieve this is through increased provision of MTM. The focus of MTM services has most often been for patients with several co-morbid conditions, taking multiple or high-risk medications, and/or undergoing transitions of care.¹⁵ However, pharmacists are also developing innovative MTM services to aid patients with various health needs, such as traumatic brain injury, mental illness, bariatric surgery, smoking cessation, pharmacogenetics testing, preconception care, and fall prevention.¹⁵⁻²¹ Pilot studies have also recently demonstrated the feasibility of POC testing for HIV in community pharmacies.^{22,23}

There continues to be a strong interest among pharmacists for opportunities to expand MTM services to enhance clinical practice and generate reimbursement. It is crucial to know which areas pharmacists think are important and feasible to pursue. In order to fully capitalize on potential opportunities, the perceptions among pharmacists need to be better understood. Smoking cessation, immunizations, and fall prevention were most often identified by pharmacists as areas important for patient health, and these areas in addition to family planning were the areas pharmacists most often indicated they did not need more education in order to provide MTM. These four areas should be considered first for future development of MTM activities.

The Likert scale of the survey questions for this study was adapted from a study about health promotion beliefs of pharmacists in Indiana conducted in 2000.⁹ In both studies, more men (53.9% [current study] vs. 65.6% [Indiana study]) and more community pharmacists (43.4% [current study] vs. 76.5% [Indiana study]) responded to the survey. Distribution among urban, suburban, and rural practice sites was similar between the two studies. Ohio pharmacists in this survey responded similarly about the importance of smoking cessation and nutrition and wellness in promoting the health of an average adult as pharmacists from the Indiana study. However, in the current study there was more than a three-fold increase in the number of respondents who thought they should be involved in efforts focused on smoking cessation (96.1% [current study] vs. 28% [Indiana study]) or nutrition and wellness (61.8% [current study] vs. 11% [Indiana study]). Additionally, over seven times as many pharmacists in the current study thought they could be successful in helping patients with smoking cessation (76.3% [current study] vs. 10% [Indiana study]) or nutrition and wellness (60.5% [current study] vs. 5% [Indiana study]).⁹ This suggests attitudes of pharmacists are evolving and pharmacists are increasingly recognizing their potential roles to help improve public health outcomes.

Each of the seven public health priorities had a decline in responses when comparing the number

of pharmacists who indicated they should be involved in the area to the number of pharmacists who said they could be successful in the area. Many more pharmacists replied they were "uncertain" that they could be successful as compared to those who reported they thought they would "not" be successful, thus very few respondents actually thought pharmacists would not be successful. It is unclear what might influence this trend seen in all seven areas. However, addressing the barriers the pharmacists reported may aid in increasing pharmacists' perceptions of the ability to be successful. Barriers are common when trying to implement any new service, and pharmacy is no exception. The most commonly identified barriers indicated by pharmacists in this survey were staffing constraints, time constraints, and lack of reimbursement. These barriers were consistent with other studies of pharmacists' opinions regarding barriers in provision of MTM.²⁴⁻²⁶ A survey of Ohio pharmacists' perceived barriers in providing non-dispensing services to underserved populations identified "environmental barriers", including physical location, time constraints, and a lack of employer support, as the most common barriers influencing pharmacists' involvement in providing these services.²⁴ In two other studies focused on pharmacists' opinions about immunization and smoking cessation, time constraints, lack of reimbursement, and inadequate staffing were listed as most common barriers to implementing these services in pharmacies.^{25,26} Additionally, pharmacists in the current study expressed an interest in learning more about these areas and provision of MTM services through CE or as part of professional conferences. If materials are developed or programs are delivered, this may also serve to increase the number of pharmacists who think they could be successful in these areas.

One limitation to this study is the response rate. Follow-up emails on varying days of the week as well as varying times of day attempted to correct for different schedules to facilitate completion. Although responses were received from over 70 pharmacists,

the data may not be generalizable to all Ohio pharmacists or to pharmacists in other states or countries. While the cover letter was designed to not disclose that the survey was assessing perceptions on public health priorities or MTM, another limitation may be response bias. Little is known about the non-responders, but the demographic profile of pharmacists did not significantly differ by gender between the survey respondents and the random sample ($p=0.17$).

CONCLUSIONS

Among a sample of Ohio pharmacists, the majority indicated that specific public health priorities were areas in which pharmacists could make an impact through MTM. Staffing concerns, time constraints, and a lack of reimbursement represent common barriers preventing pharmacists from offering these types of services. Since pharmacists responding to the survey acknowledged the importance of these areas and their potential success in providing these services, it is imperative that solutions to these barriers are developed. Pharmacists have great potential to advance public health priorities and improve patient and population outcomes through MTM in collaboration with other health care professionals.

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CONFLICT OF INTEREST

No conflicts of interest to disclose.

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