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## Identifying medication-related needs of HIV patients: foundation for community pharmacist-based services

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### Abstract

**Background:** Patients living with HIV/AIDS have complex medication regimens. Pharmacists within community pharmacy settings can have a role managing patients living with HIV/AIDS. Patients' perspectives surrounding implementation about community pharmacist-based services is needed as limited information is available. **Objective:** To identify medication-related needs of HIV-infected patients who receive prescriptions from a community pharmacy. To determine patient perspectives and knowledge of community pharmacist-based services. **Methods:** A qualitative research study involving in-depth, semi-structured interviews with patients was conducted. Inclusion criteria included: HIV positive men and women at least 18 years of age who receive care at a HIV clinic, currently take medication(s) and use a community pharmacy for all prescription fills. Patients were recruited from one urban and one rural health center. Patients answered questions about their perceptions and knowledge about the role and value of pharmacy services and completed a demographic survey. The recordings of the interviews were transcribed verbatim and were analyzed using principles of Grounded Theory. **Results:** Twenty-nine interviews were conducted: 15 participants from the urban site and 14 from the rural site. Five main themes emerged including: patients experience ongoing and varying medication-related needs; patients desire a pharmacist who is caring, knowledgeable and integrated with health care providers; patients expect ready access to drug therapy; patients value an individualized patient encounter, and patients need to be informed that a pharmacist-service exists. **Conclusion:** Patients with HIV value individualized and personal encounters with pharmacists at time intervals that are convenient for the patient. Patients felt that a one-on-one encounter with a pharmacist would be most valuable when initiating or modifying medication therapy. These patient perspectives can be useful for pharmacists and pharmacies interested in providing advanced care to patients with HIV.

### Introduction

The care of patients with HIV has evolved as advancements in antiretroviral therapy have enabled patients to live longer. While these antiretroviral (ARV) regimens are highly effective, patients may be at increased risk for side effects, drug interactions, and medication nonadherence. Health problems associated with ARV use including insulin resistance or dyslipidemia can be problematic. Untreated psychiatric illness and active substance abuse, which have been shown to accelerate viral resistance to antiretroviral therapy (ART) are also common.<sup>1,2,3</sup>

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Pharmacists in community pharmacy settings have demonstrated a positive impact through provision of medication therapy management for multiple chronic disease states and have been acknowledged for their evolving role in managing medication needs of patients.<sup>4,5,6</sup> Pharmacists should have a significant role as part of the health care team through collaborative relationships with providers by addressing patients' drug therapy problems and optimizing medication therapy within the patient-centered medical home and other innovative models demonstrating team-based care.<sup>7</sup> Traditionally, the role of pharmacists in HIV drug management has been recognized in inpatient and ambulatory clinic-based settings.<sup>2,8</sup> Pharmacists have demonstrated the ability to work with patients to improve antiretroviral adherence, benefit clinical outcomes and reduce costs.<sup>9</sup> However, few research studies have explored

the medication-related needs of patients with HIV in the community and how those needs could be met by a pharmacist.

Pharmacists are ideally positioned to assist patients with comprehensive medication management (CMM). Patients with HIV can benefit from pharmacist-delivered patient care as pharmacists work with patients to develop therapy goals, address potential barriers to adherence, and provide education and support for patients on ART.<sup>10,11</sup> If implemented effectively, pharmacists caring for patients living with HIV may help lessen disparities in antiretroviral use and utilization of HIV services by underserved populations.<sup>12,13</sup>

In urban areas, overburdened HIV clinics may have limited resources to conduct and maintain retention and adherence activities.<sup>14</sup> In rural settings, patients often travel long distances to receive HIV care at academic medical centers in urban areas, a barrier that has been identified repeatedly as an obstacle to adherence and retention to HIV care.<sup>14</sup> As a means to provide consistent access to HIV care services, CMM provided for patients with HIV at their local community pharmacy could lead to improved adherence and reliable care as community pharmacies provide easily accessible locations.<sup>15,16,17</sup>

Ten HIV/AIDS specialty pharmacies in California providing HIV medication therapy management (MTM) services have been studied.<sup>18</sup> Medical claims of HIV-infected patients in pilot pharmacies offering HIV MTM services were compared to medical claims of HIV-infected patients in other Medi-Cal pharmacies that did not offer MTM services. Clinically appropriate ART regimens and improved medication adherence for patients living with HIV/AIDS who received MTM were observed and sustained over a three-year time period.<sup>19,20</sup> Provision of HIV MTM services resulted in greater drug-related expenditures than expected but were associated with lower costs for hospital admissions and emergency room visits. Overall costs associated with patient care were lowered suggesting the potential sustainability of HIV MTM services. Other studies have also demonstrated that patients who receive care at HIV-focused community pharmacies had improvements in medication adherence and persistence with ART.<sup>21,22</sup>

While other research suggests how pharmacists can be involved in supporting ART adherence<sup>23</sup>, perceived medication-related needs and viewpoints about community pharmacist-based medication management services have not been explored from a patient perspective in this population. This study is intended to provide a valuable addition to

current knowledge in order to guide the implementation of future interventions and development of programs that are aligned with the needs of this patient population.<sup>24</sup>

### Objectives

The study objectives included: (1) Identify perceived medication-related needs of HIV-infected patients from urban and rural settings who receive prescriptions from a community pharmacy; (2) Explore patients' perceived role of a pharmacist and value of CMM; and (3) Describe HIV-infected patients' preferences for participation in CMM.

### Methods

#### Setting

This study was conducted in collaboration with two health centers that deliver HIV care in one urban and one rural clinic in Pennsylvania (PA). The urban clinic is located in Pittsburgh, PA, and serves approximately 1200 patients in a calendar year. A clinical pharmacist provides patient care services at this site on a full-time basis. The rural clinic is located in Johnstown, PA and provides services to approximately 70 patients in a calendar year. This site was structured to provide clinical pharmacist services for approximately 3 hours per month to patients at the time of study conduction.

#### Participant Recruitment

The patients included HIV positive men and women at least 18 years of age who currently take prescription medication(s) and use a community pharmacy for all prescription fills. The clinics do not provide medications to patients. Flyers advertising the study were distributed at each location. Employees at the urban and rural clinic identified participants assisted with participant identification using study inclusion criteria and referred them to the study investigator for follow-up.

#### Data Collection

Individual, semi-structured interviews were conducted over a three-month period. All interviews were conducted by the principal investigator (Y.K) in a private room and continued until model saturation (when new data fails to elucidate original or unknown information) occurred.<sup>25</sup> As outlined, interview questions (Table 1) were designed for the study. The principal investigator did not present personal views during data collection. An interview guide was used to provide consistency among interviews and probing questions were asked as needed when the interviewer needed more clarity of participants' answers.

All participants were offered a \$15 gift card for their participation, and reimbursement was provided for parking and/or bus fares. Upon completion of the interview,

participants were asked to complete a demographic survey to collect the following data: age, sex, race/ethnicity, number of medications taken, pharmacy used to obtain medications, type of insurance, and number of years diagnosed with HIV, and confirmation of living in an urban or rural setting. Institutional Review Board approval was received from the University of Pittsburgh and the Conemaugh Health System before data collection occurred.

#### Data Analysis

The dialogue from the interviews was audio recorded and transcribed verbatim. The principles of Grounded Theory were used to identify emerging themes from the interviews.<sup>24</sup> The purpose of grounded theory is to use emerging data to generate a theory, which provides increased understanding of a particular phenomenon and of the relationships between concepts that arise from the data. In grounded theory, data collection, coding and analysis occur immediately, concurrently, and throughout the conduct of the study. Interview transcripts were read and coded independently by two investigators (Y.K., E.B.). The investigators met to discuss potential codes and emergent themes that were apparent from the data. The investigators documented thoughts and ideas about the data and those opinions were presented to a senior investigative panel (M.M., N.C., J.P.) to improve the trustworthiness of the data. A codebook was developed and ATLAS.ti qualitative data management software was used to label passages of text using the codebook. The transcripts were reviewed for any gaps, inconsistencies or new interpretation in analysis through the method of triangulation by the senior investigative panel. The coded text was grouped into categories to identify major themes and then the research team met to discuss the content of the coded interviews to collectively agree on themes. This served as a quality check in order to improve the trustworthiness of the data.<sup>26</sup> Survey data was summarized using descriptive statistics.

#### Results

##### Participant demographics

Twenty-nine interviews were conducted: 15 patients from the urban site and 14 from the rural site. Generally, there was an equal division of men and women among the patients interviewed. The urban population was predominantly African American while the rural population was balanced. The average age of patients was approximately 50 years in both groups. On average, patients were diagnosed with HIV 14 years ago and were taking approximately nine medications. Patients visited a variety of pharmacy settings for their medications, and all patients had prescription drug benefits through Medicare, Medicaid, or were dual-eligible for both programs. (Table 2)

#### Themes

Thematic analysis of the interview transcripts identified five common themes. Similar findings were identified at both the rural and urban sites.

##### Theme 1: Patients experience ongoing medication-related needs

Patients in both geographic areas expressed that they have ongoing problems related to their medication (e.g. medication adherence, cost, access, drug interactions, adverse effects). Patients identified that they want help when starting or changing a medication and want to be able to choose when they need help and when they speak with a pharmacist. Patients also expressed that speaking with a pharmacist when first diagnosed with HIV would be an optimal time for patients to receive medication counseling from a pharmacist.

##### Medication-related needs

- Adverse effects: "They put me on Wellbutrin. And they'll never get me to take it again because it ruined the ability to taste anything." (Urban)
- Adherence: "I'm on a lot of medications, and it's hard for me to sometimes to keep track of them all." (Urban)
- Drug Interactions: "I am allergic to a few things. I'd want the pharmacist to make sure that my HIV medication won't interact with the meds I'm already on for depression and everything else." (Rural)

##### Interaction with pharmacist

- "I'm not sure if I would benefit [from pharmacy services], but I think that it may be good for people who are newly-diagnosed. They may not know as much about drug interactions and what over-the-counter products they can take and which ones they can't." (Rural)
- Another patient stated "It would have been nice if somebody would have the time in the beginning to kind of explain all this to me. The first time I took Atripla®, I woke up at 2:00 in the morning throwing up...I started doing the research on my own." (Urban)

##### Theme 2: Patients desire a pharmacist who is caring, integrated and knowledgeable

Caring: Patients expressed wanting to speak with a pharmacist who is willing to develop a personal relationship with the patient and cares for them as an individual. Patients also feel that confidentiality should be a key component for every aspect of care.

- “I like the pharmacist because he takes time with me. I feel comfortable with him. He knows me personally. And I like that. Why wouldn’t you want that, someone to recognize you? Not just recognize you because you’re making them money with the pills. They know you personally, and I love that.” (Rural)
- “Now it’s [HIV] more open, but there is still a stigma attached to it. And even though, it’s not as urgent as it was, people still know that there’s no cure. You just live a little longer. So I think it’s important that people’s confidentiality be protected.” (Urban)
- “I was standing in line and the people at the pharmacy, I guess they must have said, “She’s the one with HIV,” cause they was all looking like this, trying to see my face, see who I was.” (Urban)

Integrated: Patients also value a pharmacist who serves as a liaison between the patient and their doctor and is therefore able to acquire access to medical information as needed for the patient.

- “The formularies change from time to time. So I’ll go in and find out suddenly something isn’t covered. In that event, it’s been relatively a routine thing where I say, “Okay I’m not going to pay that, so I’m not going to take the drugs. Please check with my pharmacist.” And my pharmacist, will check with the doctor and they’ll come up with a substitute.” (Urban)
- “I’d rather be able to go to a place or be able to talk to a pharmacist or a pharmacy that knows my health, knows my medications, and is concerned about my well-being and making sure that any new meds that get added on doesn’t interfere with the other meds, especially the HIV meds.” (Rural)

Knowledgeable: Patients value interactions with pharmacists who can apply their knowledge specific to antiretroviral therapy to the individual.

- “I look to the pharmacist as the expert...they’ve always been very accommodating with any question or concerns I’ve had.” (Rural)
- “To meet with somebody who specializes in it, to talk to them about, I would feel more comfortable.” (Urban)
- “They could tell me more about what the medicine is for, why I’m taking it, and the side effects I should have – if I have any, what they would be, and if, you know, I had any questions for them, they would be able to answer them for me.” (Rural)

### *Theme 3: Patient expect ready access to drug therapy*

Patients expect a pharmacist to help them gain access to medications by coordinating with their physician to acquire a prescription. Pharmacists need to ensure that medications, especially their antiretroviral therapy, are in stock and available to patients when they need them.

- “They’re very convenient here. They’ll call me and let me know if my prescription’s ready on my phone.” (Urban)
- “I think [the pharmacist’s] responsibilities are to work with the patient to find the drugs in the most accessible way and the most affordable way.” (Urban)
- “Every times that I go there, they get either my HIV meds or my heart meds. They always have them. I have never had a problem with [my pharmacy] having none of my meds, especially the HIV meds. The HIV meds were always there and I never had a problem.” (Rural)

### *Theme 4: Patients value an individualized patient encounter*

Patients want to sit down with a pharmacist who understands their needs and who is able to apply individualized drug knowledge to their potential drug therapy problems. Availability for follow-up was also suggested when interacting with a pharmacist.

- “Just a session to sit down with somebody such as yourself in an office like this and sit down and say, this is the medication you’re taking, this is what it’s for, this is how many times a day, and this is what it’s going to actually do.” (Urban)
- “I think [this service] is an excellent one...you hear horror stories of people going to pharmacies and either picking up the wrong med or they might be prescribed something that interacts with other meds. It’s nice when you do have a pharmacy that does care about you and the medication you’re on.” (Rural)

### *Theme 5: Patients need to be informed that the service exists if available in community pharmacies or HIV clinic settings.*

While six patients had interacted with a pharmacist in the clinic, not all patients were aware that a pharmacist was available or knew what to expect from a pharmacist. Overall, patients expressed that they felt it was important to have an increased awareness that these patient care services exist. Patients stated that they prefer to find out about these services through a group or organizational memberships, peers, doctor or health care center. Patient statements included the following:

- “I would want them to announce it through my support group case manager.” (Rural)
- “I would want to have an intervention with the doctors to let them know, then the doctor could tell the patient.” (Urban)

### Discussion

Prior to conducting this study, differences were expected in the needs and perspectives of patients in urban and rural settings based on the results of previous studies.<sup>27-30</sup>

Previous data has demonstrated that HIV-infected patients in urban settings were more likely to have appointments with providers and use highly active antiretroviral therapy compared to patients in rural settings.<sup>27</sup> Other data illustrated that 73.6% of HIV-infected patients living in rural areas received their HIV care in urban settings.<sup>28</sup> This study suggests that patients’ opinions at both sites were similar and that patients generally want the same kinds of relationships and services from their pharmacist regardless of their setting. These attitudes are not specific to patients living with HIV as patients with other chronic diseases have identified skilled communication and a personal relationship with a pharmacist as valuable attributes.<sup>31,32</sup>

Patients indicated that they want to interact with a pharmacist who is caring, knowledgeable and willing to develop a personal relationship with them. Patients also value when pharmacists involved in their care approach them when initially diagnosed and check in periodically to find out how they are doing. Pharmacists should anticipate patients’ needs related to medications through automatic refill reminders or by contacting patients to determine if they need to refill their medication. A pharmacist who serves as a liaison between the patient and their doctor and assists with obtaining antiretroviral therapy is important to this group of patients. While this phenomenon is not unique to HIV, what makes this study distinct is that patients are asking for a relationship with a pharmacist who understands their ART, side effects and drug interactions associated with the therapy and ultimately respects the relationship and protects patient confidentiality.

Confidentiality was also expressed as a key component of patient care, which is consistent with other publications that have examined stigma associated with HIV.<sup>33,34</sup> Some patients expressed their continual struggle when dealing with stigma associated with HIV and were concerned that their information would not remain confidential if the patient encounter did not occur in a private setting. Patient confidentiality should be a central component of this service,

and everyone involved in the care of this group of patients should be respectful of this need.

This study demonstrates that over half of patients were not aware of existing pharmacist services within the HIV clinic or what a pharmacist could provide in these settings. Patients should be made aware of pharmacist services that are available to help them. Further, by establishing relationships with other health care practitioners and support groups, pharmacists can increase awareness of what they are able to offer in these settings.

While three-fourths of participants affirmed their interest in a one-on-one meeting with a pharmacist to discuss their medications in depth, patients expressed value in speaking with a pharmacist who had HIV training or knowledge specific to HIV pharmacotherapy. Existing opportunities are provided by organizations for pharmacists to gain focused knowledge about HIV pharmacotherapy.<sup>35-38</sup> Community pharmacists could also establish mentoring relationships with HIV-trained pharmacists in clinics through the coordination of a statewide pharmacy network.

Further, pharmacists in community pharmacy settings should develop processes for identifying patients who may benefit from HIV medication management programs and conduct initial and ongoing follow-up check-ins with patients to create a continuum of care. This will enable pharmacists to establish ongoing relationships with patients - relationships that are individualized to meet patients’ needs and mitigate and identify drug therapy problems. The results reinforce that patients value a relationship with a knowledgeable pharmacist that they can access at their convenience. Pharmacists must take strides to be informed about HIV disease and treatment of other comorbidities in patients living with HIV by engaging in training programs and with pharmacists who have expertise in HIV care.

Pharmacists working in the community should outreach to pharmacists working in HIV clinic settings to develop collaborative relationships. Ultimately, this will enable pharmacists to become care managers especially for patients traveling a long distance to receive HIV care. The authors’ believe that outreach to state pharmacy organizations, public health agencies, and support groups can also help to bring awareness about these services. Pharmacists should anticipate additional opportunities to provide MTM due to the anticipated expansion of MTM services through the Patient Protection and Affordable Care Act.<sup>39</sup>

### Limitations

One limitation to this study is patients' opinions and perspectives may not be generalizable to other HIV populations as patients were recruited from two clinics in Pennsylvania. Individuals who were interviewed may be more likely to participate in HIV medication management services or recommend the service to other individuals who they believe would benefit. These patients volunteered to be interviewed and thus may be taking a more active role in their healthcare.<sup>40</sup> All interviews were conducted by a pharmacist, which may have influenced responses as participants may have tried to please the interviewer.<sup>41</sup> This was minimized as the interviewer was trained to assure participant privacy and reaffirm that participants did not provide answers to please the interviewer.

### Conclusion

This study suggests that patients with HIV are interested in individualized meetings with a pharmacist that are held at time intervals convenient for the patient and may be most useful when starting or modifying drug therapy. Patients value working with a pharmacist who is integrated with their health care providers and knowledge about their drug therapy. Further, confidentiality should be a key aspect of any interaction. These results may guide the implementation or enhancement of community pharmacist-based services for patients in urban and rural settings. Ultimately, these services can help to improve medication adherence, minimize drug therapy problems, and improve retention in care.

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**Table 1: Interview Guide**

## Medication-related needs

- Tell me about the medications that you take.
- What kind of problems have you experienced with your medications now or in the past?

## Perceptions of the role of the pharmacist in their care

- How does your pharmacist in the community take care of you?
- How does the pharmacist in the ambulatory care clinic provide care for you?
- Does the role of the ambulatory care pharmacist differ from that of your community pharmacist?  
IF: YES< HOW SO

## Perceived value of pharmacist services

- What expectations would you have from a private one-on-one encounter with your community pharmacist?
- What would you want to talk about during that meeting?
- Are you concerned about confidentiality? If yes/no, tell me why you think that.

## Preference for implementation of pharmacist-based services

- How would you want to find out about this service in a community pharmacy?

<b>Table 2. Participant demographics in urban and rural settings</b>		
	<b>Urban (n = 15)</b>	<b>Rural (n =14)</b>
<b>Sex</b>		
Male	9 (60%)	9 (64%)
Female	6 (40%)	5 (36%)
<b>Race/Ethnicity</b>		
African American	11 (73%)	5 (36%)
Caucasian	4 (27%)	8 (57%)
Latino/Hispanic	0 (0%)	1 (7%)
<b>Age (yrs) (mean ± SD)</b>	51 ± 8	50 ± 11
<b>Highest education level completed</b>		
Middle school	1	2
Some high school	1	2
High school diploma/GED	6	3
Some college	3	3
Associate degree	2	3
Bachelor degree	1	0
Graduate/Professional degree	1	1
<b>Number of years from diagnosis (mean ± SD)</b>	14.2 ± 8.0	13.9 ± 6.5
<b>Number of medications (mean ± SD)</b>	9.7 ± 5.4	8.1 ± 5.1
<b>Primary pharmacy used (may have selected more than one)</b>		
Chain	4	8
Independent	1	6
Outpatient hospital pharmacy	11	0
Mail Order	3	0
<b>Current health insurance status</b>		
Medicare	2 (13.3%)	1 (7.1%)
Medicaid	10 (66.7%)	8 (57.2%)
Dual-eligible (Medicare & Medicaid)	3 (20.0%)	5 (35.7%)
Private insurance	0 (0.0%)	0 (0.0%)