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Original Research

# Factors influencing community pharmacists' likelihood to ask medication monitoring questions: A factorial survey

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## Abstract

**Background:** Community pharmacists are well positioned to identify and resolve medication related problems associated with chronic medication use during prescription dispensing, a process referred to as medication monitoring. Pharmacists need feedback about patient medication experiences to engage in effective monitoring, but the pharmacist's decision making process for when to ask questions to solicit this information from patients has not been established.

**Objectives:** Identify significant factors contributing to a community pharmacist's likelihood to ask medication monitoring questions at the time of refill.

**Methods:** A factorial survey approach was used to test the effect of several pharmacist, patient, environment, drug, and past interaction factors (the domains of the Health Collaboration Model) on a pharmacist's self-reported likelihood to ask non-adherence, side effect, and effectiveness monitoring questions for 5 randomly populated refill prescription dispensing vignettes. Surveys containing the vignettes, demographic items, and a new medication monitoring attitude measure were mailed to 599 community pharmacists. Hierarchical linear regression was used to test the independent effects of the vignette and pharmacist factors.

**Results:** There were 254 (42.4%) returned and usable surveys. The hierarchical linear regression models showed that adherence questioning was driven more by the vignette characteristics whereas side effect and effectiveness questioning were more driven by the pharmacist. Overall, warfarin and hydrocodone were seen as more question-worthy than fluoxetine or metoprolol. The number of additional persons waiting in the pharmacy decreased, and more days late increased the likelihood of asking the three monitoring questions. An exception was hydrocodone where early fills prompted question asking. For side effect and effectiveness questioning, being short-staffed and the prescription previously being filled more times decreased question asking likelihood.

**Discussion:** Factorial surveys are a useful approach to independently measuring the impact of respondent and contextual variables on pharmacist judgments. Reactions to the vignettes demonstrated that multiple factors go into a pharmacist's mental model when deciding to ask a question at the time of refill. The

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lateness of a refill prescription was a significant cue to question asking. Pharmacies can ensure late refill information is reaching pharmacists as a means to increase in medication monitoring. Pharmacies also can design work environments and workflows conducive to question asking and prompt pharmacists to address potentially under-discussed medications.

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## Introduction

Medications are the most commonly used therapy in managing chronic disease. While often effective, medications can be associated with problems which are difficult to anticipate and a profound effect on health in the U.S. An estimated 4.5 million ambulatory care visits<sup>1</sup> and 100 thousand deaths<sup>2</sup> are attributed to medication misadventures annually.

Historically, health care system improvements designed to support appropriate prescribing (e.g. condition-specific order sets) have received the most attention.<sup>3</sup> Recent evidence, however, suggests the majority of medication related problems are not the result of inappropriate prescribing, but rather from the patient experiencing an unfortunate side effect, not experiencing the intended benefit, or not adhering to the therapy.<sup>2,4–8</sup> Ongoing medication monitoring is required to identify and manage these types of problems. Tackling non-adherence alone has the potential to save the U.S. health care system \$290 billion annually through improved chronic disease management.<sup>9</sup>

Community pharmacists are well positioned to monitor the ongoing use of medications because patients present to community pharmacies to obtain 1.5 billion prescription refills annually.<sup>10</sup> Community pharmacists have demonstrated success in specialized medication monitoring services for conditions such as HIV<sup>11</sup> and dyslipidemia.<sup>12</sup> Most community pharmacists, however, are not engaged in specialty services, rather they spend the majority of their time in a dispensing role.<sup>13</sup> These pharmacists, at least partially responding to time and staffing constraints, gravitate toward evaluating the appropriateness of, and counseling on, new prescriptions more so than counseling on, and evaluating patient experiences with refill medications.<sup>13–17</sup> When dispensing pharmacists do engage in medication monitoring of refill prescriptions, it appears to be on an ad hoc, rather than a systematic basis.<sup>14,15,18–20</sup>

Pharmacists may be reacting to specific stimuli in deciding when to interact with a patient regarding

an ongoing refill of a maintenance medication. There is a need to identify what factors influence this process to better understand how pharmacists approach medication monitoring in the refill dispensing process so that interventions and education can be designed to support pharmacists in their monitoring efforts.

The Health Collaboration Model provides a suitable framework for examining medication monitoring.<sup>21</sup> This structure-process-outcome model, grounded in the patient centered communication literature, focuses on how patient, provider (pharmacist), drug, environment, and relationship factors contribute to quality medication monitoring. Patient centered medication monitoring involves engaging the patient by asking questions about medication experiences and preferences.<sup>15,16,22</sup> Ultimately, the model purports improved monitoring leads to better identification and resolution of medication related problems on route to improved patient outcomes.

The objective of this analysis was to identify significant factors contributing to a community pharmacist's likelihood to ask medication monitoring questions at the time of refill. To accomplish this objective, we used a factorial survey approach to test the influence of the following structural factors of the Health Collaboration Model (Fig. 1): pharmacist factors (gender, degree, position, hours worked, monitoring attitudes); patient factors (gender, age, refill days date); environmental factors (pharmacy type, busyness, general and situational staffing levels, external work attitudes); drug factors (medication, times the medication was previously filled); and past interaction (relationship), influences the likelihood of asking monitoring questions at the time of refill.

## Materials and methods

### *Factorial survey approach*

This analysis is part of a larger, sequential exploratory mixed methods<sup>23</sup> study of community pharmacist medication monitoring. This report details the use of a quasi-experimental

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