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Journal:	BMJ Open		
Manuscript ID:	bmjopen-2014-006086		
Article Type:	Research		
Date Submitted by the Author:	09-Jul-2014		
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<b>Primary Subject Heading</b> :	Health services research		
Secondary Subject Heading:	Health policy		
Keywords:	2: Quality Measures, Patient Perceptions, Value		



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# Patients Perceived Value of Pharmacy Quality Measures: A Mixed Methods Study

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**Background:** The reporting of provider performance information to the public is noted to improve the quality of care received by patients. With the emergence of quality measurement in pharmacy and an increased interest in quality reporting in pharmacies, the use of pharmacy quality measures by patients will influence the way pharmacists provide care. Research to examine patient perceptions of the importance and usefulness of quality reports, especially during the process of provider selection, is essential to assure a responsive and accountable system of care.

**Aim:** To describe patients' perceived value and use of quality measures in evaluating and choosing community pharmacies.

**Methods**: The study design was qualitative combined with the use of surveys. Semi-structured focus groups were conducted in a private meeting space. Adults who filled prescription medications in community pharmacies for a chronic illness assessed the value of Pharmacy Quality Alliance's quality measures in evaluating and choosing a pharmacy. During the focus groups, participants completed questionnaires rating their perceived value of quality measures in evaluating a pharmacy (1 being low and 5 being high) or choosing a pharmacy (yes/no).

**Results**: While comments indicated all measures were important, medication safety measures were valued more highly than others (e.g. Drug-Drug Interactions). Rating of quality measure utility in evaluating a pharmacy ranged from 4.88 ("Drug-Drug Interactions") to 4.0 ("Absence of Controller Therapy for Persons with Asthma"). Patients' hesitated to use quality information to choose their pharmacy (depending on participant's location) but might consider if moving to a new area or having had a negative pharmacy experience. Use of select quality measures to choose a pharmacy ranged from 97.1% of participants using "Drug-Drug Interactions" (Medication Safety measure) to 55.9% using "Absence of Controller Therapy for Asthma".

Conclusions: Patients valued quality measures in evaluating a community pharmacy with medication safety measures valued highest and more likely to be used to select pharmacies. Quality measures would not typically cause a switch in pharmacy but may influence selection in certain situations.

Keywords: Patient Perceptions, Quality Measures, Community Pharmacy, Value

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# Article Summary

The study describes patients' perceived value and use of quality measures in evaluating and choosing community pharmacies. Patients who self-reported taking prescription medications for a chronic illness and filled their prescriptions in pharmacies participated in semi-structured focus groups that assessed the value of community pharmacy quality measures in evaluating and choosing a pharmacy. During the focus groups, participants completed questionnaires rating their perceived value of quality measures in evaluating a pharmacy. Study results showed that while all measures were important to participants, some measures were valued more highly than others (e.g. "Helping Patients Get Needed Medication," "Use of High Risk Medication in the Elderly," "Drug-Drug Interactions"). Patients' hesitated to use quality information to choose their pharmacy (depending on participant's location) but may consider if moving to a new area. Use of select quality measures to choose a pharmacy ranged from 97.1% of participants using "Drug-Drug Interactions" to 55.9% using "Absence of Controller Therapy for Asthma". Patients valued pharmacy quality measures in evaluating a community pharmacy with medication safety measures valued highest. In addition, medication safety measures were more likely to be used to select pharmacies. Quality measures would not typically cause a switch in pharmacy but may influence selection on relocation.

#### Strengths of the study

- This is the first study to consider patient perceptions of the value of pharmacy quality measures before pharmacy performance measures can be utilized by patients.
- This is the only study to examine whether patients perceive pharmacy quality measures that may be seen in public reports as valuable or useful in their health provider selection.

 No one has considered if there are variations of importance among pharmacy quality measures. This study is significant in improving the quality of healthcare provided by providers as the pharmacy profession moves towards developing publicly available reports intended to enhance the quality of care received by patients.

### Limitations of the study

- Small sample size.
- Predominantly white sample population which limits the ability to generalize the study findings to other racial/ethnic groups.

#### BACKGROUND

It has been proposed that the public reporting of provider quality of care can increase the quality of healthcare including the accountability and transparency of care delivered to patients. [1-2] While research on the influence of quality of care information on patients' healthcare provider choice has yielded mixed results, [3] it is clear that patients want quality-of-care information and are concerned about choosing a high quality provider. [4-10]

For some time patients have been using quality measures to examine healthcare in a variety of settings. [11-12] The possibility of publicly reported pharmacy quality information emerged with the development of measures by a United States consensus-based non-profit organization called the Pharmacy Quality Alliance (PQA).[13] The mission of PQA is to improve healthcare quality and patient safety through a process of measuring pharmacy and pharmacist performance and reporting this information in a meaningful way to patients, pharmacists, employers, health insurance plans and other healthcare decision makers. The intent is for them to use this information to make informed choices and improve outcomes. [13-14] The PQA quality performance measures used in this study include adherence measures: proportion of days covered; medication safety measures: diabetes medication dosing, use of high risk medications in the elderly and drug-drug interactions; and appropriateness measures: suboptimal treatment of hypertension in patients with diabetes and medication therapy for persons with asthma. [13] However, certain issues such as patient perceptions of the value of quality measures need to be considered if pharmacy performance measures are to be utilized successfully by patients.

Testing patients' perception of the importance and usefulness of public reports has been found to be essential in assuring a responsive and accountable system of care. [4] However, a

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major area of research not currently investigated is whether patients perceive pharmacy quality measures that may be seen in public reports as valuable or useful. It is important to understand patients' views on publicly reported quality measures in selecting health providers, especially if the intent of the measures is to encourage selection of high quality providers.

Hibbard et al, 2002 proposed a theoretical consumer choice model that represents the process involved in the utilization of comparative quality information to select health providers. According to this model, patients must trust the quality information and view it as useful to them before it can be used in their decision making. [15] In addition, using quality information to choose providers has been noted to increase if the patient is not satisfied with their current provider or if the patient is forced to change their present provider due to a new insurance policy or new disease condition. [16-18] In a Taiwan study, a majority of survey respondents would change their physician if they performed badly in a quality report. [8] Also, restricted health provider access is identified as a factor that might influence the use and perceived value of quality information. [3]While tremendous work has been done to identity patients' possible use of quality information in physician and health plan decision-making, no one has considered the usefulness of quality measures to choose or switch pharmacies. Therefore, it is important to investigate whether pharmacy-based quality measures are useful to patients when choosing a community pharmacy.

Hibbard and Jewett, 1997 showed that there are variations in the importance of different quality indicators. [19] For example, patient ratings of providers and quality measures examining preventive care have been shown to be useful to patients in their selection of providers compared to measures of adverse event occurrence. [5] No one has considered if there are similar variations in importance among pharmacy-based quality measures. This is significant as the pharmacy

profession moves towards developing publicly available reports intended to enhance the quality of care received by patients.

This study examined the usefulness of pharmacy quality measures in a patient's evaluation of a community pharmacy. Based on our previous pilot study, one important factor influencing the utility of these measures is the relevance of the measures in a patient's pharmacy choice. [20] In this present study, we further examine the potential utilization of quality measures in evaluating, choosing and switching a community pharmacy. We assess the potential use of pharmacy report cards by patients with self-reported chronic illnesses and describe whether patients who have a high probability of using pharmacies might utilize quality measures when deciding which pharmacy to use. It was hypothesized that each specific quality measure would be valued differently and certain pharmacy quality measures would influence the community pharmacy choice of individuals with chronic illnesses.

The objectives of the study were to:

1. Describe patients' use of pharmacy quality measures in evaluating, choosing, and switching a community pharmacy.

2. Examine patients' perceived value of specific pharmacy quality measures.

#### METHODS

#### **Design and Sample**

Semi-structured focus groups were conducted among adult men and women who could speak and understand English, self-reported a chronic illness diagnosed by their health provider, used a community pharmacy to fill their prescriptions and currently took a prescription medication. A questionnaire was also administered during the focus group. Sampling was by convenience and participants were recruited from a rural and urban area in a Mid-Western state. Recruitment was

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carried out in community pharmacies, a senior center, and a public library using newsletters, flyers, radio announcements and word of mouth. The Institutional Review Board of the investigator's university approved the study.

#### **Data Collection**

Focus groups lasting 60 to 90 minutes were used to examine participants' perceived value of the PQA quality measures. Participants' discussed their perceptions of the importance of each pharmacy quality measures and all quality measures together. Also, participants described their possible use of the quality measures to choose and switch their pharmacies. The focus group questions were open-ended, worded neutrally and developed by the research team with revisions and feedback from a PQA collaborator. The script used in this study was previously utilized in our pilot study but was modified to meet this study's objectives. [20]

Patient-friendly phrasings and definitions of the PQA pharmacy quality measures were presented to the study participants. This included:

#### Adherence Measures

1. Helping Patients Get Needed Medications (Pharmacy ensured that patients received the medicines for their chronic conditions and continued to receive them on a regular basis)

#### **Medication Safety Measures**

- 2. Diabetes Medication Dosing (Pharmacy ensured patients were not dispensed a dose higher than the recommended dose for diabetes medications)
- 3. Use of High-Risk Medications in the Elderly (Pharmacy ensured the elderly did not receive a Medication that can put them at high risk for developing a severe health problem)

4. Drug-Drug Interactions (Pharmacy ensured there were no patients who were dispensed two medications that can cause harm when taken together)

#### Appropriateness Measures

- 5. Suboptimal Treatment of Hypertension in Patients with Diabetes (In a pharmacy, people who have diabetes and high blood pressure were not getting the best medications to treat blood pressure in people with diabetes)
- 6. Absence of Controller Therapy for Persons with Asthma (In a pharmacy, patients with asthma were using many "rescue" inhalers to treat their asthma attacks when they occur but were not getting medications to prevent asthma attacks)

Audio recordings of the focus groups were done digitally and the investigator or research assistant moderated the sessions. Two focus groups were conducted in the rural area of a Mid-Western State (rural town of about 3000 people) and four focus groups were conducted in an urban area of the state (a population of about 150,000 people).

During the focus groups, participants were given questionnaires to complete. Using rankings, the questionnaire assessed participants' perceived value of each PQA quality measure in the evaluation of their community pharmacy, the possible use of each quality measure in choosing/switching their pharmacy and overall perceptions of the quality measures. Specifically, participants rated on a scale of 1 to 5 (1 being low and 5 being high) how much they valued each specific quality measure in evaluating a pharmacy. Also, using yes and no responses, participants indicated if they would use quality measures (including each specific quality measure) to choose a pharmacy; if they would switch to a higher quality pharmacy based on a lower quality rating in their current pharmacy; and if they would switch pharmacies based on lower ratings on specific

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quality measures in their current pharmacy. Participants' responses were collected anonymously and each participant received a \$20 gift card as compensation for participating in the study.

#### Data analysis

All focus group discussions were transcribed verbatim by a certified transcriber. Thematic analysis was used to examine whether quality measures would influence participants' pharmacy choice and their perceived value of pharmacy quality measures. Emergent themes related to quality measures variance among pharmacies before switching pharmacies were described. Using the transcribed notes and abstracted units of statements and sentences, themes and sub-themes were elicited. Transcripts were coded separately by the investigators and two research assistants and potential themes were collated based on the focus group questions. Other emergent themes from the focus groups were examined. Themes from each coder were compared to examine consistency of themes. Descriptive statistics examined the survey questions on value and use of quality measures. All survey questions were statistically analyzed using SPSS version 21.0.

#### RESULTS

Overall, there were 34 participants in this study (12 in the rural area and 22 in the urban area). Participants' demographic and clinical characteristics are reported elsewhere. [21]

Based on the study aims, three major themes were identified from the focus groups.

First, patients are hesitant to use quality information to choose/switch their pharmacies, but would consider the use of provider quality information if they were new to an area, had a previous negative pharmacy experience, and were aware of such performance information. Second, patients' perception on the use of quality information to switch pharmacies differed by the participants' place of residence (urban vs. rural). Third, patients thought all the pharmacy

quality measures were important in the evaluation of pharmacies but seemed to value certain measures more than others depending on whether they had the chronic condition identified in the quality measure. Additional themes were also described.

#### **Objective 1**

The objective was to describe patients' use of pharmacy quality measures in evaluating, choosing and switching a community pharmacy.

Though patients were likely to consider using quality measures, there was still some hesitation regarding how to utilize the information because of insufficient knowledge. "*I don't know if I would use it or not. I've never had to use anything like that before.*"

<u>Theme 1</u>: Patients thought they would use quality measures in evaluating and choosing a pharmacy in certain situations. For example, if they had a negative experience with their current pharmacy which might have validated their personal experience, if they were aware of available pharmacy quality information, or if they were moving to a new area (Table 1).

Verbatim statements included:

"Well, if it was real disastrous, I probably would switch"... "If they are giving the wrong prescriptions, I don't want to take that chance with me"

"... I'd have to have some really negative information before I'd switch"

"The only reason I'd change is if they do something to me personally or someone I know. I can validate that error, then I would change"

"Well, if I was moving to a new area, I probably would use the information. You want the best available"

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Patients thought some measures might be more helpful than others in deciding whether to switch pharmacies. "*If it's something kind of serious like they've been dispensing the wrong drugs or something, then I definitely would go to a different one*"

"Yeah, I would switch.—they don't have my health in mind...especially the drug-to-drug interactions. They're dispensing something that they know would react to something else, and they're not doing anything about it, I'd be gone in a heartbeat."

Some individuals were hesitant to change their pharmacies based on quality measures. They noted that they would stay with their pharmacies as long as they still had a personal positive experience and ask the pharmacist about a poor score they might have seen in a public report. "*I'd probably consider it. I don't know if it'd be yes or no for sure. But I would consider it'': "If I had a good experience at my pharmacy, I would keep using it. However, if it had a bad score, I would inquire. I would ask them why they were getting these bad scores because my personal experience has been good"* 

<u>Theme 2</u>: Patient perceptions on whether they would switch their pharmacy based on quality information also seemed to differ by their place of residence. In the urban setting, most participants agreed that they would consider using pharmacy quality measures to switch their community pharmacies (Table 1).

"I'd switch in a heartbeat. I would. See, it would be for anything. You know, people with diabetes should have the same quality of care coming out of their pharmacy, and I would look at that. If they're rated low, what else are they rated low at? Maybe down the road, I could develop it, and then I would have to change pharmacies because their rating was low, and I wouldn't trust them to monitor my medication. I mean, if they can't watch the elderly, and the

elderly you know, have times where they don't always remember, and they need that pharmacy to help them keep on track of what they're taking and what they're not. It's all important to me"

"Yeah, no matter how well I like it there or like who is there, my health is way more important than any of them! It takes one time and you're dead!"

In the rural area, patients' were hesitant/ not sure of whether they would use quality information in their pharmacy decision making/pharmacy switch because of the good credibility of available pharmacies, limited pharmacy choices in the area, and personal relationships with the owners of the pharmacies they used (Table 1). Verbatim statements included:

"Oh, where I'm living right now to switch to a different pharmacy—no, I don't think so. I can see that making a difference more like in a bigger town. (Urban Town name) versus in (Small town name)...because in (Small town name), it's a smaller community, and you know the people in the pharmacy better. You know the pharmacy better"

"In a (Urban town name) pharmacy, there's more people going into the pharmacy every day. And the people in the pharmacy are seeing more people. To me, you know more about what's going on in a pharmacy in a small town than what you would in (Urban town name)"

#### Number of Pharmacies available may influence use of quality information

"To me, the most use I would ever get out of the data was—say I'm retired and move into a new place where I have no idea what any of the pharmacies are. I would definitely use the data. Here it's not such a big deal 'cause there's only two options really unless you're going mailorder. ..."

"There's not much choice here. Also... We have two wonderful pharmacies and have no problem with any of them. We have nothing to complain about"

"I can see where... You have six different pharmacies, and you want to know if (pharmacy name) is better at doing well than what (Pharmacy name) or (Pharmacy name) does"

#### Credibility of pharmacies influence the probability of switching

"It's hard to say here (whether I would switch or not) when we do have two good pharmacies. I think they are pretty even"

# Personal relationships influence pharmacy choice and may hinder the possibility of switching pharmacies

"I feel like my answers for whether I would change pharmacies would be different if I lived in (Urban town name) than if I lived in (Small town name). I feel like your selection of pharmacy here (Small town) is based almost solely around personal relationship"

Using the questionnaires, most participants (n=32, 94.1%) agreed that they would use quality measures information to choose their pharmacies. When asked if they would use each specific measure to choose their pharmacy, most patients agreed that they would use each measure. Absence of Controller Therapy for Persons with Asthma and Suboptimal Treatment of Hypertension in Patients with Diabetes had the lowest number of participants who would use the measures to choose a pharmacy (n=19, 55.9%) and (n=22, 64.7%) respectively. (Table 2)

Survey results showed that most patients would switch their pharmacies based on quality scores (n=28, 84.8%). All participants agreed that they would use Drug-Drug Interactions as a measure in evaluating whether to switch their pharmacy but fewer participants would use Suboptimal Treatment of Hypertension in Patients with Diabetes (n=19, 55.9%) and Absence of Controller Therapy for Persons with Asthma (n=21, 61.8%). (Table 3)

#### **Objective 2**

The objective was to examine patients' perceived value of pharmacy quality measures (including its specific measures).

Based on the focus groups, patients thought all the PQA-approved quality measures were important in evaluating a pharmacy. *"You don't know when you're going to get the condition or when it might change. So, I would think all the measures would be important all the time"* 

Some participants valued certain measures in evaluating a pharmacy more highly than others (Table 4). For example, the adherence measure, Helping Patients Get Needed Medication, and medication safety measures, Drug-Drug Interactions, and Use of High Risk Medication in the Elderly were highly valued.

#### Adherence Measure

#### Helping Patients Get Needed Medication

"Well, I think it's pretty important because I have a friend who has the start of Alzheimer's. When she saw on her prescription bottle that no refills, she thought that meant that she wasn't supposed to take it. If she didn't get it refilled and the pharmacy followed up on it, when she hadn't had it refilled—that would be pretty important because it's critical medicine"

Patients' were concerned that the pharmacist would have time to ensure they were getting their needed medications if time was taken to perform these activities (Table 4)

There was some uncertainty as to the role of the pharmacist in ensuring adherence to medicines and there were mixed feelings about receiving pharmacy calls concerning prescription refills. "how are pharmacies are going to ensure that patients received their medications. The pharmacies are not responsible for calling up the patients. I don't think it's their responsibility..."

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Some patients also questioned using medication adherence measures to evaluate a pharmacy. *"If they didn't follow-up and call a patient that it was time for their medication, that wouldn't make any difference to me"* 

#### **Medication Safety Measures**

#### **Drug-Drug Interactions**

Drug-Drug Interactions was considered by patients as one of the most important quality measure to use in evaluating pharmacies (Table 4)

"I count on my pharmacy to make sure that neither one are prescribing something—that is higher or is going to react with something because I went through reactions already. It put me in the hospital for over a week. That's not going to happen! I really count on my pharmacy to make sure."

Use of High Risk Medication in the Elderly

Patients thought this quality measure was also important in evaluating a pharmacy (Table

4).

#### **Diabetes Medication Dosing**

Diabetes Medication Dosing seemed to be of medium value. In some instances, patients noted that the value of the diabetes-related measure might change if they developed the chronic condition later (Table 4)

"I would hope that they give me accurate medications; not too much or not enough...

Theoretically they have to be accurate. If they're not, then they better not be in pharmacy"

#### **Appropriateness Measures**

#### Suboptimal Treatment of Hypertension in Patients with Diabetes

Diabetes Ma Diab noted that th condition lat "I we Theoreticall Appropriat Suboptimal This quality measure seemed to be of medium value. Patients were not sure if it was the role of the pharmacist to ensure patients with diabetes were receiving an antihypertensive or the role of the physician.

"so why is this (suboptimal treatment of hypertension in patients with diabetes) the pharmacist responsibility instead of the doctor's responsibility? That's what their doctor should know to start with..."

#### Absence of Controller Therapy for Patients with Asthma

Patients who had the chronic condition (asthma) seemed to value the quality measure.

"I'm on asthma medication—you know. I would like my pharmacy to say, "You're getting your rescue inhalers filled this many times, and I think you need to talk to your doctor about—" or him give the doctor a call! And he could say, "This patient of yours has filled their medication or inhalers this many times this month." So, we need to do something to prevent that. Yeah, we need to do something to prevent it instead of waiting 'til they've already got a fullblown asthma attack going on"

Patients' perceived value for specific measures varied. Their decision to use quality information in pharmacy selection was based on the specific measure, individual preference, and if they had the chronic condition associated with the measure. Verbatim statements included:

"What would make me switch? Well, it depends on what put them at 80. You know, which one of these measures"

"I don't know that one would be more important than the other. They all seem important, depending on the person's needs"

"These measures are personal. Some of these measures depends on whether you have this (the condition) I suppose to a degree on whether you care so much. I have asthma, so I do care

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4	about asthma. I feel like you would probably only use (specific measures) to evaluate a
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6	pharmacy if those apply to you."
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8	"I don't have diabetes but I said yes (it is important) because my girlfriend is diabetic"
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10	Additional themes (Table 1)
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15	the source of the ratings before using the information to make a desigion
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18	Source of the rating
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20	"it all goes back to who is rating them and where the information is coming from"
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22	Differential in quality measures before making a switch in pharmacies
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24 25	Patients described how they wanted to see a big difference before they made a switch in
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27	their pharmacy depending on the rating system "it would have to be a huge difference before I
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29	would switch"
30	would switch
31	"I
32	I suppose if it was 30 and 90 I would switch, but 70 and 80—I aon t know. That s too close
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34 25	"It would have to be at ten percent or twenty percent for me to switch"
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37	<i>"Well, if there was a four star limit, and they only had one, I'd want to change. If they had three</i>
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39	out of the four, I'm not so sure I would change"
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41	Other participants stated that the difference they would see before they made a switch
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43	depended on the specific measure they were using to evaluate the pharmacy and the
44 45	depended on the specific measure may were using to evaluate the plannacy, and the
40 46	consideration of other convenience and cost factors. Verbetim statements included:
40 47	consideration of other convenience and cost factors. Verbatini statements included.
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49	It all depends on which one of these categories! If it is overall categories, 20 percent
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51	(difference in pharmacy quality ratings) is huge on overall! If I don't have diabetes, and they're
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53	getting nicked on diabetes stuff, then I probably don't care so much. If it is drug-to-drug
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interaction, the gap is probably narrower. It's probably more like ten percent. So, it would depend on the measure"

"..., it probably wouldn't make that much difference (for me to switch) assuming a couple of things. It's not much less inconvenient to go there. It's not much more expensive or some of those types of things. There's other factors that are gonna factor in when you're picking a pharmacy other than how good they are. These (quality measures) are super helpful if I have (Pharmacy name) on one corner and (Pharmacy name) across the street and I live a mile away and I can drive and it's the same drive. If they're comparable or marginally worse, let's say, on healthcare ratings or their report card, I could probably live with that because it's more convenient"

Based on the questionnaires, when participants were asked to rank the value of the measures in evaluating a pharmacy, a majority ranked each measure a value of 5 with the highest mean for medication safety measure, Drug-Drug Interactions (mean=4.88 (SD=0.33). The lowest means were reported for appropriateness measures, Suboptimal Treatment of Hypertension in Patients with Diabetes (4.00 (SD=1.23), and Absence of Controller Therapy for Persons with Asthma (mean=4.03 (SD=1.26). (Figure 1)

#### DISCUSSION

This study showed that patients with chronic illnesses value quality measures in evaluating a community pharmacy with medication safety measures valued highest and more likely to be used to select pharmacies. Quality measures would not typically cause a switch in pharmacy but may influence selection in certain situations. The themes in this study that support these conclusions follow similar constructs found in two domains in the proposed consumer choice model. [3] These domains are Knowledge (the ability to interpret the information

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correctly, resulting in comprehension of information and knowledge about the quality scoring system) and Attitude (beliefs regarding quality information including trust, appreciation, value, and use of information).[3]

Focus group results showed that patients are likely to consider using pharmacy quality measures to choose their pharmacies, however, there is still some hesitation regarding how to utilize the information. Similar to the consumer choice model, Hibbard et al proposed that patients' awareness and understanding of quality information, and the perception of the information as useful were actions that needed to take place for quality-of-care information to be utilized by patients. [22] This reinforces the need for patient education on quality reporting and the importance of the data in provider choice. Future research should examine the domains of quality that motivate patients to use pharmacy quality information.

Focus group statements showed that patients were likely to use pharmacy quality information if they were relocating to a new area. Similarly, results from a previous study of lay people interpreting pharmacy quality information showed that patients thought quality information was informative but would only use it upon relocation. [20]

Though some patients were hesitant to switch their pharmacies based on quality information, majority would switch if it validated their personal experiences or they had a negative encounter with their pharmacies. It is possible that patients' use emotional prompts in their selection of providers. In addition, patients have been found to be more sensitive to quality information if they are disappointed with their current provider. [17] During a focus group discussion among patients in the United Kingdom, it was shown that provider quality information was only trusted when it confirmed patients' expectations. [23] Though patients' own physicians were rated low, patients still would not change their physician if they had good

experiences. On the other hand, a Taiwanese survey showed that 75% of their respondents would change their own physician if he/she performed badly on a quality report. 8 Patients have been noted to use quality information to avoid bad providers rather than choose good providers. Hence, patients appear to use quality reports to evade poor quality providers rather than seek providers with the best quality. [24]

Patients' opinion on whether they would use quality information to switch their pharmacy also seemed to differ by the geographical location they lived. Compared to patients living in the urban setting, patients living in the rural setting were less likely to indicate their potential use of community pharmacy quality measures to switch their pharmacy. Reasons for participants' hesitation included established personal relationships with their pharmacists, caliber of the two pharmacies in the town, and the low number of pharmacies available in the area which limited their choice. In a review by Faber et al, it was discussed that restricted health care provider access clearly influences the weight given to using quality information in provider choice. [3] Xu proposed that the use of a single community pharmacy by patients is likely to improve the quality of services received by a patient. [25] With only two community pharmacies in the rural area utilized in this study, it is possible that patients only use a single pharmacy to fill their prescriptions, thus, increasing the quality of services they receive and the merit of the pharmacies to patients. On the other hand, rural communities are typically served by independent community pharmacies which have to deal with lower prescription volumes compared to urban chain pharmacies. Dispensing lower numbers of prescriptions may have created more opportunities for personalized patient care services, hence, increasing patient satisfaction and limiting the possibility of a pharmacy switch. [26]

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Based on the focus group statements, patients thought certain quality measures might be more useful than others in choosing a pharmacy. A previous study that examined which quality indicators were relevant or useful to patients when choosing a health plan showed a large amount of variation in the salience of different indicators. [5] In this present study, patients were not likely to use Suboptimal Treatment of Hypertension in Patients with Diabetes and Absence of Controller Therapy in Persons with Asthma as quality measures to choose/switch their pharmacies. The survey results in this study also showed that these two appropriateness measures were the least understood by patients. It is possible that the hesitation to use these measures to choose or switch their pharmacies is due to insufficient knowledge of the measure and limited understanding of how to utilize the measure in their decision making. Similarly, Hibbard and colleagues showed in their study that poorly understood quality indicators were viewed as not important when choosing a health plan. In the Hibbard et al study, patient comprehension of measures was related to the perceived salience of the measure. If patients do not understand pharmacy quality measures, they are likely to dismiss them as unimportant. [19] On the other hand, since patients are not knowledgeable enough to understand appropriate drug therapy, their perceived importance and use of appropriateness quality measures in the evaluation of a pharmacy will be low.

The focus group and survey results from this study showed that the quality measure, Drug-Drug Interactions would be used by patients to choose or switch a pharmacy. In addition, Drug-Drug Interactions was ranked the highest in value among all the specific measures that would be used in evaluating a pharmacy. Previous studies have shown that safety measures are important to patients when choosing a physician. [4, 27] Similarly, Shiyanbola et al showed that among lay people who discussed community pharmacy quality measures, these individuals

valued Drug-Drug Interaction more highly compared to other quality measures. [20] Medication safety seems to be a major concern for patients and pharmacists are positioned to handle this task. This study shows that patients rely on their pharmacists to ensure their medicines are not harming them and would use pharmacy quality information that reflects patient safety standards to select pharmacies. Quality reports may be of greatest utility to patients if they only show quality measures that are of significance to patients or at least highlight such measures. [28]

Patients' seemed to value specific measures depending on whether the condition associated with the measure was personal to them. However, participants thought their preference in using certain measures to evaluate their pharmacy could change if they developed the condition later. Newly diagnosed patients have been reported to have increased sensitivity to quality-of-care information when choosing a health provider. [17] It is possible that quality information only become relevant to users when a need is identified.

Based on focus group statements, patients were concerned about the credibility of public reported quality information and the rating systems that guided them. Past research has shown that patients do not use quality measures information because of a lack of trust in the data. [3] In addition, participants were likely to use quality information to choose a pharmacy based on certain conditions including being knowledgeable of such information. Werner and Asch concluded that public reporting had a limited ability to influence patients' choice. [29] However, patients' use of public reports may influence their selection of health providers if they are aware of the availability of report cards, understand them, trust them, and are willing and able to use this information in their provider selection process. [2]

Study limitations include the small sample size and predominantly white sample population which limits the ability to generalize the study findings to other racial/ethnic groups.

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Future research should consider if the use and preferences for pharmacy quality measures might vary with patient characteristics such as race/ethnicity, health literacy level, language proficiency and education level, and if pharmacy measures that reflect these preferences can be developed and tested. In addition, it will be important to determine what dimensions of public reports are important to patients, especially considering the Survey of Consumer Experience with Pharmacy Services. [30] Also, more studies should assess the use and preferences of minority patient populations for pharmacy quality report content, design, and dissemination, and explore the best methods for refining pharmacy public reports to reflect those preferences.

#### CONCLUSION

Community pharmacy quality measures, when publicly available, may influence patients' choice of community pharmacies and their likelihood of switching their pharmacies, depending on individual preferences, patient geographical location and the availability of pharmacies in the area. The results of this study showed that patients value all pharmacy quality measures but perceive medication safety measures to be more important.

# ACKNOWLEDGEMENT

The authors would like to acknowledge Trent Harris and Alicia Christensen who helped with the data collection and coding of the focus group transcripts. Also, we thank David Nau, President of Pharmacy Quality Solutions (Senior Director for Quality Strategies, PQA at the time of the study) for providing advice and direction for this study.

# **FUNDING**

This work was supported by the Community Pharmacy Foundation [grant number 122]

# **CONTRIBUTORSHIP STATEMENT**

Both authors designed the study. OS was involved in data collection and data analysis. OS wrote the manuscript and JM critically revised the content. Both authors approved the final version of the manuscript.

# **COMPETING INTERESTS**

The authors have no competing interests.

# **DATA SHARING**

No additional data is available.

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<b>Objectives and Themes</b>	Question topics	Perceptions	Sample quotations
Describe patients use of	Use of Pharmacy	There is still some hesitation with	"I don't know if I would use it or not.
pharmacy quality measures in	Quality Measures	how to utilize quality information	I've never had to use anything like that
evaluating, choosing and switching a pharmacy	in decision making		before."
		Patients are likely to use quality	"I can see where people would use
Theme 1: Patients are hesitant		information to choose a pharmacy	something like this if all of a sudden
to use quality information to		1) if they had a negative	they (the pharmacy) had mistakes":
choose their pharmacy but may		experience with their current	"So, if you got disgusted or you have
consider its use in certain		pharmacy or the information	an allergic reaction that they didn't
situations.		validated their personal experience	catch, if you knew this was available,
		2) if they are aware of the	you're going to go and click on and see
		availability of pharmacy quality	how people have reviewed this one. I
		information	can see where you'd go on and see, for
		3) if they are moving to a new area	example, you have diabetes. There
			have been mistakes. What is the
			quality? You're going to go use this
			kind of information either because you
			need it or because you've had a
			negative reaction"
			"would possibly use itIf you knew
			it (quality information) was out there
			and your pharmacy was actually being
			rated"

			"I wanted if I had a see the set
			<i>i suppose if i naa never been to a</i>
			pharmacy before, you know, let's
			say I moved to another city or state
			And I don't know nobody there. If I
			don't know anybody there, then how am
			I going to know what pharmacy's
			good"
Theme 2: Patients' perception		Patients living in an urban location	"If it's something kind of serious like
of the use of quality		are likely to consider using quality	they've been dispensing the wrong
information to switch		measures to switch pharmacies.	drugs or something, then I definitely
pharmacies differs by			would go to a different one"
geographical location.			
			"If they are giving the wrong
			prescriptions, I don't want to take that
			chance with me"
		Patients living in a rural area are	" most of where you get it
		unsure of using quality information	(prescriptions) from is probably based
		to switch pharmacies because of the	on some kind of personal relationship
		limited number of pharmacies	here in town because you know
		available, established personal	everyone. The people that get their
		relationships with pharmacy owners	stuff down there are friends with the
		and the caliber of pharmacies in the	owner or know them from church or
		small town.	something like that."
Examine patients' perceived	Perceived value of	Patients think all PQA-approved	"To be a good pharmacy, I think all
value of pharmacy quality	quality measures	pharmacy quality measures are	(the quality measures) should be up
measures.		important. However, some	there. If they're lacking in something,
	•		

<u>Theme 3</u> : Patients with chronic illnesses think pharmacy quality measures are important in the evaluation of a	participants seem to value certain measures more highly than others.	well then do you really wanna go, "How important is it to me"? You know, "Is there a chance I could develop it?"
pharmacy.	8	"To me, everything on here is important. They shouldn't drop anything because they deal with so many types of patients, and they should be well-versed in diabetes and asthma and making sure there's not drugs being given to people that would interact with the drugs they're taking"
		"See, any of these (quality measures) is important. I mean, if they can't watch the elderly, and the elderly have times where they don't always remember, and they need that pharmacy to help them keep on track of what they're taking and what they're not. It's all important to me"
<u>Theme 4</u> : Patients' perceived value of pharmacy quality measures differ for each	Patients' value of pharmacy quality measures is personal to each individual as certain individuals	"But a lot of people are more concerned about the condition they have and they'll go to the pharmacy
measure	seem to value specific measures depending on their preferences and	that they think is handling that condition the best"
	whether they had the chronic condition associated with the	"I don't have diabetes, and I'm not asthmatic, so I don't see why that

		measure.	would pertain to me"
			"Well, I hate to be biased, but with my conditions, I would rate this stuff that pertained to me higher just because it pertains more to me, so I guess I'm biased.
		e.	" If it was that— they gave the wrong medication, I would not find that acceptable at all. It would give me pause for thought. Would I change pharmacy? I'd have to think about it. But it would certainly give me pause for thought. If they didn't follow-up and call a patient that it was time for their medication, that wouldn't make any difference to me."
Other themes	Source and credibility of the quality ratings	Patients were concerned about the credibility of the rating system if they were to use the information in their pharmacy selection.	"I don't know if I would (use quality information in pharmacy selection). I don't always trust the rating and who is rating it—and how much I know about the board that happens to be rating and how they're rating itHow they're saying, "Well, this is a good pharmacy, and this is a little lower on the totem pole," and that. I guess I would rather go to them and find out myself"

Differential in ruality measures refore pharmacy witch	Patients' want to see a big difference in the pharmacy ratings being compared before they make a switch.	<i>"I'd like to see a big difference before I would consider (switching pharmacies)"</i>
Dogo C	Some patients stated that the difference depended on the specific measure they were using to evaluate the pharmacy.	"Well, on certain ones, I would imagine like even just a one or a two percent difference with the drug-to- drug interactions would probably sell me. You know, just because it's such an important one."
Table 2: Survey results showing the participants who would use quality measures (and specific pharmacy quality measures) to <u>choose</u> pharmacies (n=34) <sup>a</sup>

Quality Measure	Number (%)
Drug-Drug Interactions	33 (97.1)
Helping Patients Get Needed Medications	32 (94.1)
Use of High-Risk Medications in the Elderly	27 (79.4)
Diabetes Medication Dosing	25 (73.5)
Suboptimal Treatment of Hypertension in Patients with	22 (64.7)
Diabetes	
Absence of Controller Therapy for Persons with Asthma	19 (55.9)
All quality measures	32 (94.1)

a. Survey results were collected during the focus group discussions

Table 3: Survey results showing the participants who would use quality measures (and specific pharmacy quality measures) to <u>switch</u> pharmacies (n=34)<sup>a</sup>

Quality Measure	Number (%)
Drug-Drug Interactions	34 (100)
Helping Patients Get Needed Medications	30 (90.9)
Diabetes Medication Dosing	25 (73.5)
Use of High-Risk Medications in the Elderly	24 (70.6)
Absence of Controller Therapy for Persons with Asthma	21 (61.8)
Suboptimal Treatment of Hypertension in Patients with	19 (55.9)
Diabetes	
All quality measures	28 (84.8)

a. Survey results were collected during the focus group discussions

Table 4. Latent perceptions of the value of specific pharmacy quality measures in evaluating a pharmacy (10005 0100p)
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Objective	Quality Measure	Perceptions	Sample quotations
Examine patients'	Helping Patients Get	Patients thought this measure was	"I sometimes don't watch how low I get on
perceived value of specific	Needed Medication	important in evaluating a	my medication. And then all of a sudden,
pharmacy quality		pharmacy	I'm like, "Whoa." And I do need it. I have
measures.			to call, and it needs to be faxed. It would be
			nice for a little reminder—"
			"Yes, I think that (ensuring patients got
			their needed medication) would be good
			because I think people sometimes have a
			lapse in their medications, and it hurts them
			a lot like for depression or something like
			that."
		Patients were concerned that the	"How could they call everybody? It's not
		pharmacist would have time to	possible, I wouldn't think. They'd have to
		ensure they were getting their	have a large staff."
		needed medications and refills if	
		time was taken to perform these	
		activities.	
		There was some uncertainty in the	"I can see the need for it, but then I can
		role of the pharmacist to ensure	also see that—hopefully, it's not going to be
		adherence to medicines and mixed	harassing either, you knowSometimes I
		feelings on been called by the	don't get my medicines all the time. A lot of
		pharmacy about prescription	times I can't afford to get it refilled right
			away. So, I might go a week without my

	refills.	medicine. But I don't want the pharmacy t be harassing me because I am between m pay period"
0		"I think it could be valuable if the pharmacist called up to remind the patient that they were due to have their prescription filled or that it was overdue. But I don think to ensure"
Drug-Drug Interactions	Patients noted that they relied on their pharmacists to ensure their medicines were not harming them.	"Pharmacists see interactions with drug and everything else. That's part of the responsibilityI have a friend whos doctor prescribed her something that sh was actually allergic to. The pharmaci, knew all her drugs and drug interaction and actually caught it. I think that's one of the purposes of being a pharmacist like second check with the doctor. That's ver important. She could have died!" "Yeah, I would switch.—they don't hav my health in mind. Especially the drug-to drug interactions. They're dispension
		something that they know would react something else, and they're not doin anything about it, I'd be gone in heartbeat!"

Diabetes Medication Dosing	While patients thought accurate dosing of diabetes medications was needed, patients were unsure of the role of the pharmacist to ensure accuracy.	"But why should that be left up to the pharmacist? The doctor should have prescribed it correctly"
0,000	Patients thought the measure was not as important since they did not have diabetes but noted that their perception of the measure could change if they developed the illness later.	"I put medium for it (Diabetes Medication Dosing). I'm not saying it's not important. It's just not personal. If two years down the road, I develop diabetes, then that would change"
Use of High Risk Medication in the Elderly	Patients thought this measure was very important to consider when evaluating pharmacies.	"It's (High risk medication in the elderly) extremely important because they (the elderly) don't understand. A lot of times they're lost. My mother-in-law wasn't getting medication she was supposed to be getting. She was getting stuff that was making her worse. They had not caught that. That's very important. Basically she had some serious memory problems and living in the past.
Suboptimal	This quality measure was not	"It's extremely important, but it's not
Treatment of	highly valued and patients were	nearly as important as doses (Accurate
Hypertension in	not sure of the pharmacists' role	Diabetes Medication Dosing) and everything The doctor should be catching
Patients with	related to the measure.	everyming. The abelor should be calching

Diabetes		your blood pressure. With diabetes, it will kill you a whole lot faster if you're not getting the right dose.
Absence of Controller Therapy for Patients with Asthma	Patients who had the particular chronic condition (asthma) seemed to highly value the measure	"See, the asthma does pertain to me, because I have two rescue inhalers that I can use up to every two hours. I also am on two other inhalers, a nasal spray, and a pill for my COPD You know if it takes a
200		pharmacist to remind a doctor to say, "Hey, this patent is utilizing an awful lot of rescue inhalers, you know, you may want to readdress her condition or something,"
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Quality Measure (Rank from 1 to 5 = low to high value)

a. Survey results were collected during the focus group discussions.

b. Patients ranked from 1 to 5 (1 being low and 5 being high) the value of the specific quality measure in evaluating a pharmacy.

Figure 1:



Quality Measure (Rank from 1 to 5 = low to high value)

a. Survey results were collected during the focus group discussions.

b. Patients ranked from 1 to 5 (1 being low and 5 being high) the value of the specific quality measure in evaluating a pharmacy.

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# Patients Perceived Value of Pharmacy Quality Measures: A Mixed Methods Study

Journal:	BMJ Open
Manuscript ID:	bmjopen-2014-006086.R1
Article Type:	Research
Date Submitted by the Author:	06-Nov-2014
Complete List of Authors:	Shiyanbola, Olayinka; University of Wisconsin, Social and Administrative Sciences Mort, Jane; South Dakota State University, Pharmacy Practice
<b>Primary Subject Heading</b> :	Health services research
Secondary Subject Heading:	Health policy
Keywords:	Quality Measures, Patient Perceptions, Value, Community Pharmacy



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# Patients Perceived Value of Pharmacy Quality Measures: A Mixed Methods Study

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**Objective:** To describe patients' perceived value and use of quality measures in evaluating and choosing community pharmacies.

**Design**: Focus groups combined with the use of surveys was done. During the focus groups, participants' assessed the value of Pharmacy Quality Alliance's quality measures in evaluating and choosing a pharmacy. Also, participants completed questionnaires rating their perceived value of quality measures in evaluating a pharmacy (1 being low value and 5 being high) or choosing a pharmacy (yes/no). Thematic analysis and Descriptive statistics was used to analyze the focus groups and survey respectively.

**Setting**: Semi-structured focus groups were conducted in a private meeting space of an urban and rural area of a Midwestern State in the United States.

**Participants**: Thirty-four adults who filled prescription medications in community pharmacies for a chronic illness were recruited from community pharmacies, senior centers and public libraries.

**Results**: While comments indicated all measures were important, medication safety measures were valued more highly than others (e.g. Drug-Drug Interactions). Rating of quality measure utility in evaluating a pharmacy ranged from a mean of 4.88 ("Drug-Drug Interactions") to a mean of 4.0 ("Absence of Controller Therapy for Persons with Asthma"). Patients' hesitated to use quality information to choose their pharmacy (depending on participant's location) but might consider if moving to a new area or having had a negative pharmacy experience. Use of select quality measures to choose a pharmacy ranged from 97.1% of participants using "Drug-Drug Interactions" (Medication Safety measure) to 55.9% using "Absence of Controller Therapy for Asthma".

Conclusions: The study participants valued quality measures in evaluating a community pharmacy with medication safety measures valued highest and more likely to be used to select pharmacies. The participants reported that the quality measures would not typically cause a switch in pharmacy but may influence their selection in certain situations.

Keywords: Patient Perceptions, Quality Measures, Community Pharmacy, Value

"Patient rever"

# Article Summary

The study describes patients' perceived value and use of quality measures in evaluating and choosing community pharmacies. Patients who self-reported taking prescription medications for a chronic illness and filled their prescriptions in pharmacies participated in semi-structured focus groups that assessed the value of community pharmacy quality measures in evaluating and choosing a pharmacy. During the focus groups, participants completed questionnaires rating their perceived value of quality measures in evaluating a pharmacy. Study results showed that while all measures were important to participants, some measures were valued more highly than others (e.g. "Helping Patients Get Needed Medication," "Use of High Risk Medication in the Elderly," "Drug-Drug Interactions"). Patients' hesitated to use quality information to choose their pharmacy (depending on participant's location) but may consider if moving to a new area. Use of select quality measures to choose a pharmacy ranged from 97.1% of participants using "Drug-Drug Interactions" to 55.9% using "Absence of Controller Therapy for Asthma". Participants valued pharmacy quality measures in evaluating a community pharmacy with medication safety measures valued highest. In addition, medication safety measures were more likely to be used to select pharmacies. The study participants reported that the quality measures would not typically cause a switch in pharmacy but may influence their selection on relocation.

# Strengths of the study

- This is the first study to consider patient perceptions of the value of pharmacy quality measures. This is an important first step for pharmacy performance measures to be utilized by patients.
- This is the only study to examine whether patients perceive pharmacy quality measures that may be seen in public reports as valuable or useful in their health provider selection.

 Researchers have not examined variations of importance among pharmacy quality measures. This study is significant in improving the quality of healthcare provided by providers as the pharmacy profession moves towards developing publicly available reports intended to enhance the quality of care received by patients.

# Limitations of the study

- Small sample size.
- Predominantly white sample population which limits the ability to generalize the study findings to other racial/ethnic groups.

# BACKGROUND

It has been proposed that the public reporting of provider quality of care can increase the quality of healthcare including the accountability and transparency of care delivered to patients. [1-2] While research on the influence of quality of care information on patients' healthcare provider choice has yielded mixed results, [3] it is clear that patients want quality-of-care information and are concerned about choosing a high quality provider. [4-10]

For some time patients have been using quality measures to examine healthcare in a variety of settings. [11-12] The possibility of publicly reported pharmacy quality information emerged with the development of measures by a United States consensus-based non-profit organization called the Pharmacy Quality Alliance (PQA).[13] The mission of PQA is to improve healthcare quality and patient safety through a process of measuring pharmacy and pharmacist performance and reporting this information in a meaningful way to patients, pharmacists, employers, health insurance plans and other healthcare decision makers. The intent is for them to use this information to make informed choices and improve outcomes. [13-14] The PQA quality performance measures used in this study include adherence measures: proportion of days covered; medication safety measures: diabetes medication dosing, use of high risk medications in the elderly and drug-drug interactions; and appropriateness measures: suboptimal treatment of hypertension in patients with diabetes and medication therapy for persons with asthma. [13] However, certain issues such as patient perceptions of the value of quality measures need to be considered if pharmacy performance measures are to be utilized successfully by patients.

Testing patients' perception of the importance and usefulness of public reports has been found to be essential in assuring a responsive and accountable system of care. [4] However, a

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major area of research not currently investigated is whether patients perceive pharmacy quality measures that may be seen in public reports as valuable or useful. It is important to understand patients' views on publicly reported quality measures in selecting health providers, especially if the intent of the measures is to encourage selection of high quality providers.

Hibbard et al, 2002 proposed a theoretical consumer choice model that represents the process involved in the utilization of comparative quality information to select health providers. According to this model, patients must trust the quality information and view it as useful to them before it can be used in their decision making. [15] In addition, using quality information to choose providers has been noted to increase if the patient is not satisfied with their current provider or if the patient is forced to change their present provider due to a new insurance policy or new disease condition. [16-18] In a Taiwan study, a majority of survey respondents would change their physician if they performed badly in a quality report. [8] Also, restricted health provider access is identified as a factor that might influence the use and perceived value of quality information. [3]While tremendous work has been done to identity patients' possible use of quality information in physician and health plan decision-making, no one has considered the usefulness of quality measures to choose or switch pharmacies. Therefore, it is important to investigate whether pharmacy-based quality measures are useful to patients when choosing a community pharmacy.

Hibbard and Jewett, 1997 showed that there are variations in the importance of different quality indicators. [19] For example, patient ratings of providers and quality measures examining preventive care have been shown to be useful to patients in their selection of providers compared to measures of adverse event occurrence. [5] No one has considered if there are similar variations in importance among pharmacy-based quality measures. This is significant as the pharmacy

profession moves towards developing publicly available reports intended to enhance the quality of care received by patients.

This study examined the usefulness of pharmacy quality measures in a patient's evaluation of a community pharmacy. Based on our previous pilot study, one important factor influencing the utility of these measures is the relevance of the measures in a patient's pharmacy choice. [20] In this present study, we further examine the potential utilization of quality measures in evaluating, choosing and switching a community pharmacy. We assess the potential use of pharmacy report cards by patients with self-reported chronic illnesses and describe whether patients who have a high probability of using pharmacies might utilize quality measures when deciding which pharmacy to use. It was hypothesized that each specific quality measure would be valued differently and certain pharmacy quality measures would influence the community pharmacy choice of individuals with chronic illnesses.

The objectives of the study were to:

1. Describe patients' use of pharmacy quality measures in evaluating, choosing, and switching a community pharmacy.

2. Examine patients' perceived value of specific pharmacy quality measures.

# METHODS

# **Design and Sample**

Semi-structured focus groups were conducted among adult men and women who could speak and understand English, self-reported a chronic illness diagnosed by their health provider, used a community pharmacy to fill their prescriptions and currently took a prescription medication. A questionnaire was also administered during the focus group. Sampling was by convenience and participants were recruited from a rural and urban area in a Mid-Western state. Recruitment was

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carried out in community pharmacies, a senior center, and a public library using newsletters, flyers, radio announcements and word of mouth. The Institutional Review Board of the investigator's university approved the study.

# **Data Collection**

Focus groups lasting 60 to 90 minutes were used to examine participants' perceived value of the PQA quality measures. Participants' discussed their perceptions of the importance of each pharmacy quality measures and all quality measures together. Also, participants described their possible use of the quality measures to choose and switch their pharmacies. The focus group questions were open-ended, worded neutrally and developed by the research team with revisions and feedback from a PQA collaborator. The script used in this study was previously utilized in our pilot study but was modified to meet this study's objectives. [20] (Appendix 1 and 2)

Patient-friendly phrasings and definitions of the PQA pharmacy quality measures were presented to the study participants and used in the discussion. This included:

### Adherence Measures

1. Helping Patients Get Needed Medications (Pharmacy ensured that patients received the medicines for their chronic conditions and continued to receive them on a regular basis)

### **Medication Safety Measures**

- 2. Diabetes Medication Dosing (Pharmacy ensured patients were not dispensed a dose higher than the recommended dose for diabetes medications)
- 3. Use of High-Risk Medications in the Elderly (Pharmacy ensured the elderly did not receive a Medication that can put them at high risk for developing a severe health problem)

4. Drug-Drug Interactions (Pharmacy ensured there were no patients who were dispensed two medications that can cause harm when taken together)

# Appropriateness Measures

- 5. Suboptimal Treatment of Hypertension in Patients with Diabetes (In a pharmacy, people who have diabetes and high blood pressure were not getting the best medications to treat blood pressure in people with diabetes)
- 6. Absence of Controller Therapy for Persons with Asthma (In a pharmacy, patients with asthma were using many "rescue" inhalers to treat their asthma attacks when they occur but were not getting medications to prevent asthma attacks)

Audio recordings of the focus groups were done digitally and the investigator or research assistant moderated the sessions. Two focus groups were conducted in the rural area of a Mid-Western State (rural town of about 3000 people) and four focus groups were conducted in an urban area of the state (a population of about 150,000 people).

During the focus groups, participants were given questionnaires to complete. Using rankings, the questionnaire assessed participants' perceived value of each PQA quality measure in the evaluation of their community pharmacy, the possible use of each quality measure in choosing/switching their pharmacy and overall perceptions of the quality measures. Specifically, participants rated on a scale of 1 to 5 (1 being low and 5 being high) how much they valued each specific quality measure in evaluating a pharmacy. Also, using yes and no responses, participants indicated if they would use quality measures (including each specific quality measure) to choose a pharmacy; if they would switch to a higher quality pharmacy based on a lower quality rating in their current pharmacy; and if they would switch pharmacies based on lower ratings on specific

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quality measures in their current pharmacy. Participants' responses were collected anonymously and each participant received a \$20 gift card as compensation for participating in the study.

# Data analysis

All focus group discussions were transcribed verbatim by a certified transcriber. Thematic analysis was used to examine whether quality measures would influence participants' pharmacy choice and their perceived value of pharmacy quality measures. Emergent themes related to quality measures variance among pharmacies before switching pharmacies were described. Using the transcribed notes and abstracted units of statements and sentences, themes and sub-themes were elicited. Transcripts were coded separately by the investigators and two research assistants and potential themes were collated based on the focus group questions. Other emergent themes from the focus groups were examined. Themes from each coder were compared to examine consistency of themes. Descriptive statistics examined the survey questions on value and use of quality measures. All survey questions were statistically analyzed using SPSS version 21.0.

# RESULTS

Overall, there were 34 participants in this study (12 in the rural area and 22 in the urban area). Participants' had a mean age of 62.85 years (SD=16.05). Most participants were female (n=26, 76.5%), white (n=31, 91.2%), had a college degree (n=12, 35.3%) and reported fair health (n= 12, 35.3%). The mean number of medication used daily was  $4.18 \pm 3.53$  and the mean number of chronic illnesses was  $3.09 \pm 2.09$ . The mean number of pharmacies used to fill prescriptions was  $1.44 \pm 0.71$  and most participants used a chain pharmacy (n=19, 55.9%) [21]

Based on the study aims, three major themes were identified from the focus groups.

First, patients are hesitant to use quality information to choose/switch their pharmacies, but would consider the use of provider quality information if they were new to an area, had a previous negative pharmacy experience, and were aware of such performance information. Second, patients' perception on the use of quality information to switch pharmacies differed by the participants' place of residence (urban vs. rural). Third, patients thought all the pharmacy quality measures were important in the evaluation of pharmacies but seemed to value certain measures more than others depending on whether they had the chronic condition identified in the quality measure. Additional themes were also described.

# **Objective 1**

The objective was to describe patients' use of pharmacy quality measures in evaluating, choosing and switching a community pharmacy.

Though patients were likely to consider using quality measures, there was still some hesitation regarding how to utilize the information because of insufficient knowledge. "*I don't know if I would use it or not. I've never had to use anything like that before.*"

<u>Theme 1</u>: Patients thought they would use quality measures in evaluating and choosing a pharmacy in certain situations. For example, if they had a negative experience with their current pharmacy which might have validated their personal experience, if they were aware of available pharmacy quality information, or if they were moving to a new area (Table 1).

Verbatim statements included:

"Well, if it was real disastrous, I probably would switch"... "If they are giving the wrong prescriptions, I don't want to take that chance with me"

"... I'd have to have some really negative information before I'd switch"

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"The only reason I'd change is if they do something to me personally or someone I know. I can validate that error, then I would change"

"Well, if I was moving to a new area, I probably would use the information. You want the best available"

Patients thought some measures might be more helpful than others in deciding whether to switch pharmacies. "*If it's something kind of serious like they've been dispensing the wrong drugs or something, then I definitely would go to a different one*"

"Yeah, I would switch.—they don't have my health in mind...especially the drug-to-drug interactions. They're dispensing something that they know would react to something else, and they're not doing anything about it, I'd be gone in a heartbeat."

Some individuals were hesitant to change their pharmacies based on quality measures. They noted that they would stay with their pharmacies as long as they still had a personal positive experience and ask the pharmacist about a poor score they might have seen in a public report. "I'd probably consider it. I don't know if it'd be yes or no for sure. But I would consider it": "If I had a good experience at my pharmacy, I would keep using it. However, if it had a bad score, I would inquire. I would ask them why they were getting these bad scores because my personal experience has been good"

<u>Theme 2</u>: Patient perceptions on whether they would switch their pharmacy based on quality information also seemed to differ by their place of residence. In the urban setting, most participants agreed that they would consider using pharmacy quality measures to switch their community pharmacies (Table 1).

"I'd switch in a heartbeat. I would. See, it would be for anything. You know, people with diabetes should have the same quality of care coming out of their pharmacy, and I would look at

that. If they're rated low, what else are they rated low at? Maybe down the road, I could develop it, and then I would have to change pharmacies because their rating was low, and I wouldn't trust them to monitor my medication. I mean, if they can't watch the elderly, and the elderly you know, have times where they don't always remember, and they need that pharmacy to help them keep on track of what they're taking and what they're not. It's all important to me"

"Yeah, no matter how well I like it there or like who is there, my health is way more important than any of them! It takes one time and you're dead!"

In the rural area, patients' were hesitant/ not sure of whether they would use quality information in their pharmacy decision making/pharmacy switch because of the good credibility of available pharmacies, limited pharmacy choices in the area, and personal relationships with the owners of the pharmacies they used (Table 1). Verbatim statements included:

"Oh, where I'm living right now to switch to a different pharmacy—no, I don't think so. I can see that making a difference more like in a bigger town. (Urban Town name) versus in (Small town name)...because in (Small town name), it's a smaller community, and you know the people in the pharmacy better. You know the pharmacy better"

"In a (Urban town name) pharmacy, there's more people going into the pharmacy every day. And the people in the pharmacy are seeing more people. To me, you know more about what's going on in a pharmacy in a small town than what you would in (Urban town name)"

### Number of Pharmacies available may influence use of quality information

"To me, the most use I would ever get out of the data was—say I'm retired and move into a new place where I have no idea what any of the pharmacies are. I would definitely use the data. Here it's not such a big deal 'cause there's only two options really unless you're going mailorder. ..."

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"There's not much choice here. Also... We have two wonderful pharmacies and have no problem with any of them. We have nothing to complain about"

"I can see where... You have six different pharmacies, and you want to know if (pharmacy name) is better at doing well than what (Pharmacy name) or (Pharmacy name) does"

# Credibility of pharmacies influence the probability of switching

"It's hard to say here (whether I would switch or not) when we do have two good pharmacies. I think they are pretty even"

# Personal relationships influence pharmacy choice and may hinder the possibility of switching pharmacies

"I feel like my answers for whether I would change pharmacies would be different if I lived in (Urban town name) than if I lived in (Small town name). I feel like your selection of pharmacy here (Small town) is based almost solely around personal relationship"

Using the questionnaires, most participants (n=32, 94.1%) agreed that they would use quality measures information to choose their pharmacies. When asked if they would use each specific measure to choose their pharmacy, most patients agreed that they would use each measure. Absence of Controller Therapy for Persons with Asthma and Suboptimal Treatment of Hypertension in Patients with Diabetes had the lowest number of participants who would use the measures to choose a pharmacy (n=19, 55.9%) and (n=22, 64.7%) respectively. (Table 2)

Survey results showed that most patients would switch their pharmacies based on quality scores (n=28, 84.8%). All participants agreed that they would use Drug-Drug Interactions as a measure in evaluating whether to switch their pharmacy but fewer participants would use Suboptimal Treatment of Hypertension in Patients with Diabetes (n=19, 55.9%) and Absence of Controller Therapy for Persons with Asthma (n=21, 61.8%). (Table 3)

# **Objective 2**

The objective was to examine patients' perceived value of pharmacy quality measures (including its specific measures).

Based on the focus groups, patients thought all the PQA-approved quality measures were important in evaluating a pharmacy. *"You don't know when you're going to get the condition or when it might change. So, I would think all the measures would be important all the time"* 

Some participants valued certain measures in evaluating a pharmacy more highly than others (Table 4). For example, the adherence measure, Helping Patients Get Needed Medication, and medication safety measures, Drug-Drug Interactions, and Use of High Risk Medication in the Elderly were highly valued.

# Adherence Measure

# Helping Patients Get Needed Medication

"Well, I think it's pretty important because I have a friend who has the start of Alzheimer's. When she saw on her prescription bottle that no refills, she thought that meant that she wasn't supposed to take it. If she didn't get it refilled and the pharmacy followed up on it, when she hadn't had it refilled—that would be pretty important because it's critical medicine"

Patients' were concerned that the pharmacist would have time to ensure they were getting their needed medications if time was taken to perform these activities (Table 4)

There was some uncertainty as to the role of the pharmacist in ensuring adherence to medicines and there were mixed feelings about receiving pharmacy calls concerning prescription refills. "how are pharmacies are going to ensure that patients received their medications. The pharmacies are not responsible for calling up the patients. I don't think it's their responsibility..."

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Some patients also questioned using medication adherence measures to evaluate a pharmacy. *"If they didn't follow-up and call a patient that it was time for their medication, that wouldn't make any difference to me"* 

# **Medication Safety Measures**

# **Drug-Drug Interactions**

Drug-Drug Interactions was considered by patients as one of the most important quality measure to use in evaluating pharmacies (Table 4)

"I count on my pharmacy to make sure that neither one are prescribing something—that is higher or is going to react with something because I went through reactions already. It put me in the hospital for over a week. That's not going to happen! I really count on my pharmacy to make sure."

Use of High Risk Medication in the Elderly

Patients thought this quality measure was also important in evaluating a pharmacy (Table

4).

# **Diabetes Medication Dosing**

Diabetes Medication Dosing seemed to be of medium value. In some instances, patients noted that the value of the diabetes-related measure might change if they developed the chronic condition later (Table 4)

"I would hope that they give me accurate medications; not too much or not enough...

Theoretically they have to be accurate. If they're not, then they better not be in pharmacy"

# **Appropriateness Measures**

# Suboptimal Treatment of Hypertension in Patients with Diabetes

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This quality measure seemed to be of medium value. Patients were not sure if it was the role of the pharmacist to ensure patients with diabetes were receiving an antihypertensive or the role of the physician.

"so why is this (suboptimal treatment of hypertension in patients with diabetes) the pharmacist responsibility instead of the doctor's responsibility? That's what their doctor should know to start with..."

# Absence of Controller Therapy for Patients with Asthma

Patients who had the chronic condition (asthma) seemed to value the quality measure.

"I'm on asthma medication—you know. I would like my pharmacy to say, "You're getting your rescue inhalers filled this many times, and I think you need to talk to your doctor about—" or him give the doctor a call! And he could say, "This patient of yours has filled their medication or inhalers this many times this month." So, we need to do something to prevent that. Yeah, we need to do something to prevent it instead of waiting 'til they've already got a fullblown asthma attack going on"

Patients' perceived value for specific measures varied. Their decision to use quality information in pharmacy selection was based on the specific measure, individual preference, and if they had the chronic condition associated with the measure. Verbatim statements included:

"What would make me switch? Well, it depends on what put them at 80. You know, which one of these measures"

"I don't know that one would be more important than the other. They all seem important, depending on the person's needs"

"These measures are personal. Some of these measures depends on whether you have this (the condition) I suppose to a degree on whether you care so much. I have asthma, so I do care

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feel like you would probably only use (specific measures) to evaluate a apply to you."

petes but I said yes (it is important) because my girlfriend is diabetic"

(Table 1)

ere concerned about the credibility of rating systems and wanted to be sure of tings before using the information to make a decision.

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lity measures before making a switch in pharmacies

scribed how they wanted to see a big difference before they made a switch in pending on the rating system. "it would have to be a huge difference before I

s 30 and 90 I would switch, but 70 and 80— I don't know. That's too close" be at ten percent or twenty percent for me to switch"

s a four star limit, and they only had one, I'd want to change. If they had three not so sure I would change"

cipants stated that the difference they would see before they made a switch specific measure they were using to evaluate the pharmacy, and the her convenience and cost factors. Verbatim statements included:

ends on which one of these categories! If it is overall categories, 20 percent macy quality ratings) is huge on overall! If I don't have diabetes, and they're diabetes stuff, then I probably don't care so much. If it is drug-to-drug

interaction, the gap is probably narrower. It's probably more like ten percent. So, it would depend on the measure"

"..., it probably wouldn't make that much difference (for me to switch) assuming a couple of things. It's not much less inconvenient to go there. It's not much more expensive or some of those types of things. There's other factors that are gonna factor in when you're picking a pharmacy other than how good they are. These (quality measures) are super helpful if I have (Pharmacy name) on one corner and (Pharmacy name) across the street and I live a mile away and I can drive and it's the same drive. If they're comparable or marginally worse, let's say, on healthcare ratings or their report card, I could probably live with that because it's more convenient"

Based on the questionnaires, when participants were asked to rank the value of the measures in evaluating a pharmacy, a majority ranked each measure a value of 5 with the highest mean for medication safety measure, Drug-Drug Interactions (mean=4.88 (SD=0.33). The lowest means were reported for appropriateness measures, Suboptimal Treatment of Hypertension in Patients with Diabetes (4.00 (SD=1.23), and Absence of Controller Therapy for Persons with Asthma (mean=4.03 (SD=1.26). (Figure 1)

### DISCUSSION

In this study, individuals with chronic illnesses reported that they value quality measures in evaluating a community pharmacy with medication safety measures valued highest and more likely to be used to select pharmacies. Among the study participants, quality measures would not typically cause a switch in pharmacy but may influence selection in certain situations. The themes in this study that support these conclusions follow similar constructs found in two domains in the proposed consumer choice model. [3] These domains are Knowledge (the ability

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to interpret the information correctly, resulting in comprehension of information and knowledge about the quality scoring system) and Attitude (beliefs regarding quality information including trust, appreciation, value, and use of information). [3]

Focus group results showed that patients are likely to consider using pharmacy quality measures to choose their pharmacies, however, there is still some hesitation regarding how to utilize the information. Similar to the consumer choice model, Hibbard et al proposed that patients' awareness and understanding of quality information, and the perception of the information as useful were actions that needed to take place for quality-of-care information to be utilized by patients. [22] This reinforces the need for patient education on quality reporting and the importance of the data in provider choice. Future research should examine the domains of quality that motivate patients to use pharmacy quality information.

Focus group statements showed that patients are likely to use pharmacy quality information if they are relocating to a new area. Similarly, results from a previous study of lay people interpreting pharmacy quality information showed that patients thought quality information was informative but would only use it upon relocation. [20]

Though some patients were hesitant to switch their pharmacies based on quality information, majority would switch if it validated their personal experiences or they had a negative encounter with their pharmacies. It is possible that patients' use emotional prompts in their selection of providers. In addition, patients have been found to be more sensitive to quality information if they are disappointed with their current provider. [17] During a focus group discussion among patients in the United Kingdom, it was shown that provider quality information was only trusted when it confirmed patients' expectations. [23] Though patients' own physicians were rated low, patients still would not change their physician if they had good

experiences. On the other hand, a Taiwanese survey showed that 75% of their respondents would change their own physician if he/she performed badly on a quality report. [8] Patients have been noted to use quality information to avoid bad providers rather than choose good providers. Hence, patients appear to use quality reports to evade poor quality providers rather than seek providers with the best quality. [24]

Patients' opinion on whether they would use quality information to switch their pharmacy also seemed to differ by the geographical location they lived. Compared to patients living in the urban setting, patients living in the rural setting were less likely to indicate their potential use of community pharmacy quality measures to switch their pharmacy. Reasons for participants' hesitation included established personal relationships with their pharmacists, caliber of the two pharmacies in the town, and the low number of pharmacies available in the area which limited their choice. In a review by Faber et al, it was discussed that restricted health care provider access clearly influences the weight given to using quality information in provider choice. [3] Xu proposed that the use of a single community pharmacy by patients is likely to improve the quality of services received by a patient. [25] With only two community pharmacies in the rural area utilized in this study, it is possible that patients only use a single pharmacy to fill their prescriptions, thus, increasing the quality of services they receive and the merit of the pharmacies to patients. On the other hand, rural communities are typically served by independent community pharmacies which have to deal with lower prescription volumes compared to urban chain pharmacies. Dispensing lower numbers of prescriptions may have created more opportunities for personalized patient care services, hence, increasing patient satisfaction and limiting the possibility of a pharmacy switch. [26]

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Based on the focus group statements, patients thought certain quality measures might be more useful than others in choosing a pharmacy. A previous study that examined which quality indicators were relevant or useful to patients when choosing a health plan showed a large amount of variation in the salience of different indicators. [5] In this present study, patients were not likely to use Suboptimal Treatment of Hypertension in Patients with Diabetes and Absence of Controller Therapy in Persons with Asthma as quality measures to choose/switch their pharmacies. The survey results in this study also showed that these two appropriateness measures were the least understood by patients. It is possible that the hesitation to use these measures to choose or switch their pharmacies is due to insufficient knowledge of the measure and limited understanding of how to utilize the measure in their decision making. Similarly, Hibbard and colleagues showed in their study that poorly understood quality indicators were viewed as not important when choosing a health plan. In the Hibbard et al study, patient comprehension of measures was related to the perceived salience of the measure. If patients do not understand pharmacy quality measures, they are likely to dismiss them as unimportant. [19] On the other hand, since patients are not knowledgeable enough to understand appropriate drug therapy, their perceived importance and use of appropriateness quality measures in the evaluation of a pharmacy will be low.

The focus group and survey results from this study showed that the quality measure, Drug-Drug Interactions would be used by patients to choose or switch a pharmacy. In addition, Drug-Drug Interactions was ranked the highest in value among all the specific measures that would be used in evaluating a pharmacy. Previous studies have shown that safety measures are important to patients when choosing a physician. [4, 27] Similarly, Shiyanbola et al showed that among lay people who discussed community pharmacy quality measures, these individuals

valued Drug-Drug Interaction more highly compared to other quality measures. [20] Medication safety seems to be a major concern for patients and pharmacists are positioned to handle this task. This study shows that patients rely on their pharmacists to ensure their medicines are not harming them and would use pharmacy quality information that reflects patient safety standards to select pharmacies. Quality reports may be of greatest utility to patients if they only show quality measures that are of significance to patients or at least highlight such measures. [28]

Patients' seemed to value specific measures depending on whether the condition associated with the measure was personal to them. However, participants thought their preference in using certain measures to evaluate their pharmacy could change if they developed the condition later. Newly diagnosed patients have been reported to have increased sensitivity to quality-of-care information when choosing a health provider. [17] It is possible that quality information only become relevant to users when a need is identified.

Based on focus group statements, patients were concerned about the credibility of public reported quality information and the rating systems that guided them. Past research has shown that patients do not use quality measures information because of a lack of trust in the data. [3] In addition, participants were likely to use quality information to choose a pharmacy based on certain conditions including being knowledgeable of such information. Werner and Asch concluded that public reporting had a limited ability to influence patients' choice. [29] However, patients' use of public reports may influence their selection of health providers if they are aware of the availability of report cards, understand them, trust them, and are willing and able to use this information in their provider selection process. [2]

Study limitations include the small sample size and predominantly white sample population which limits the ability to generalize the study findings to other racial/ethnic groups.

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Future research should consider if the use and preferences for pharmacy quality measures might vary with patient characteristics such as race/ethnicity, health literacy level, language proficiency and education level, and if pharmacy measures that reflect these preferences can be developed and tested. In addition, it will be important to determine what dimensions of public reports are important to patients, especially considering the Survey of Consumer Experience with Pharmacy Services. [30] Also, more studies should assess the use and preferences of minority patient populations for pharmacy quality report content, design, and dissemination, and explore the best methods for refining pharmacy public reports to reflect those preferences.

# CONCLUSION

Community pharmacy quality measures, when publicly available, may influence patients' choice of community pharmacies and their likelihood of switching their pharmacies, depending on individual preferences, patient geographical location and the availability of pharmacies in the area. The results of this study showed that patients value all pharmacy quality measures but perceive medication safety measures to be more important.

# ACKNOWLEDGEMENT

The authors would like to acknowledge Trent Harris and Alicia Christensen who helped with the data collection and coding of the focus group transcripts. Also, we thank David Nau, President of Pharmacy Quality Solutions (Senior Director for Quality Strategies, PQA at the time of the study) for providing advice and direction for this study.

# **COMPETING INTERESTS**

The authors have no competing interests.

# **DATA SHARING**

No additional data is available.

# FUNDING

This work was supported by the Community Pharmacy Foundation [grant number 122]

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<b>Objectives and Themes</b>	Question topics	Perceptions	Sample quotations
Describe patients use of	Use of Pharmacy	There is still some hesitation with	"I don't know if I would use it or not.
pharmacy quality measures in	Quality Measures	how to utilize quality information	I've never had to use anything like that
evaluating, choosing and	in decision making		before."
switching a pharmacy			
		Patients are likely to use quality	"I can see where people would use
Theme 1: Patients are hesitant		information to choose a pharmacy	something like this if all of a sudden
to use quality information to		1) if they had a negative	they (the pharmacy) had mistakes":
choose their pharmacy but may		experience with their current	"So, if you got disgusted or you have
consider its use in certain		pharmacy or the information	an allergic reaction that they didn't
situations.		validated their personal experience	catch, if you knew this was available,
		2) if they are aware of the	you're going to go and click on and see
		availability of pharmacy quality	how people have reviewed this one. I
		information	can see where you'd go on and see, for
		3) if they are moving to a new area	example, you have diabetes. There
			have been mistakes. What is the
			quality? You're going to go use this
			kind of information either because you
			need it or because you ve had a
			negative reaction
			" would pessible use it If you begun
			would possibly use 11
			ii (quality information) was out there
			rated"

			"I suppose if I had never been to a pharmacy before, you know, let's say I moved to another city or state And I don't know nobody there. If I don't know anybody there, then how am I going to know what pharmacy's good"
<u>Theme 2</u> : Patients' perception		Patients living in an urban location	"If it's something kind of serious like
of the use of quality		are likely to consider using quality	they've been dispensing the wrong
information to switch		measures to switch pharmacies.	drugs or something, then I definitely
pharmacies differs by			would go to a different one"
geographical location.			
			"If they are giving the wrong
			prescriptions, I don't want to take that
			chance with me"
		Patients living in a rural area are	<i>`` most of where you get it</i>
		unsure of using quality information	(prescriptions) from is probably based
		to switch pharmacies because of the	on some kind of personal relationship
		limited number of pharmacies	here in town because you know
		available, established personal	everyone. The people that get their
		relationships with pharmacy owners	stuff down there are friends with the
		and the caliber of pharmacies in the	owner or know them from church or
		small town.	something like that."
Examine patients' perceived	Perceived value of	Patients think all PQA-approved	"To be a good pharmacy, I think all
value of pharmacy quality	quality measures	pharmacy quality measures are	(the quality measures) should be up
measures.		important. However, some	there. If they're lacking in something,

<u>Theme 3</u> : Patients with chronic illnesses think pharmacy quality measures are important	participants seem to value certain measures more highly than others.	well then do you really wanna go, "How important is it to me"? You know, "Is there a chance I could develop it?"
in the evaluation of a pharmacy.		"To me, everything on here is important. They shouldn't drop anything because they deal with so many types of patients, and they should be well-versed in diabetes and asthma and making sure there's not drugs being given to people that would interact with the drugs they're taking"
		"See, any of these (quality measures) is important. I mean, if they can't watch the elderly, and the elderly have times where they don't always remember, and they need that pharmacy to help them keep on track of what they're taking and what they're not. It's all important to me"
<u>Theme 4</u> : Patients' perceived value of pharmacy quality measures differ for each measure	Patients' value of pharmacy quality measures is personal to each individual as certain individuals seem to value specific measures depending on their preferences and	"But a lot of people are more concerned about the condition they have, and they'll go to the pharmacy that they think is handling that condition the best"
	whether they had the chronic condition associated with the	"I don't have diabetes, and I'm not asthmatic, so I don't see why that

		measure.	would pertain to me"
			"Well, I hate to be biased, but with my conditions, I would rate this stuff that pertained to me higher just because it pertains more to me, so I guess I'm biased.
			" If it was that— they gave the wrong medication, I would not find that acceptable at all. It would give me pause for thought. Would I change pharmacy? I'd have to think about it. But it would certainly give me pause for thought. If they didn't follow-up and call a patient that it was time for their medication, that wouldn't make any difference to me."
<u>Other themes</u>	Source and credibility of the quality ratings	Patients were concerned about the credibility of the rating system if they were to use the information in their pharmacy selection.	"I don't know if I would (use quality information in pharmacy selection). I don't always trust the rating and who is rating it—and how much I know about the board that happens to be rating and how they're rating itHow they're saying, "Well, this is a good pharmacy, and this is a little lower on the totem pole," and that. I guess I would rather go to them and find out myself"

Differential in quality measures before pharmacy switch	Patients' want to see a big difference in the pharmacy ratings being compared before they make a switch.	<i>"I'd like to see a big difference before would consider (switching pharmacies)"</i>
	Some patients stated that the difference depended on the specific measure they were using to evaluate the pharmacy.	"Well, on certain ones, I would imagine like even just a one or a two percent difference with the drug-to- drug interactions would probably sell me. You know, just because it's such a important one."

Table 2: Survey results showing the participants who would use quality measures (and specific pharmacy quality measures) to <u>choose</u> pharmacies (n=34)<sup>a</sup>

Quality Measure	Number (%)
Drug-Drug Interactions	33 (97.1)
Helping Patients Get Needed Medications	32 (94.1)
Use of High-Risk Medications in the Elderly	27 (79.4)
Diabetes Medication Dosing	25 (73.5)
Suboptimal Treatment of Hypertension in Patients with	22 (64.7)
Diabetes	
Absence of Controller Therapy for Persons with Asthma	19 (55.9)
All quality measures	32 (94.1)

a. Survey results were collected during the focus group discussions

Table 3: Survey results showing the participants who would use quality measures (and specific pharmacy quality measures) to <u>switch</u> pharmacies (n=34)<sup>a</sup>

Quality Measure	Number (%)
Drug-Drug Interactions	34 (100)
Helping Patients Get Needed Medications	30 (90.9)
Diabetes Medication Dosing	25 (73.5)
Use of High-Risk Medications in the Elderly	24 (70.6)
Absence of Controller Therapy for Persons with Asthma	21 (61.8)
Suboptimal Treatment of Hypertension in Patients with	19 (55.9)
Diabetes	
All quality measures	28 (84.8)

a. Survey results were collected during the focus group discussions

Table 4: Patient perceptions of the value of specific pharmacy quality measures in evaluating a pharmacy (Focus Group	Table 4: Patient perceptions of th	e value of specific pharmacy	y quality measures in	evaluating a pharmacy	y (Focus Groups
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Objective	Quality Measure	Perceptions	Sample quotations
Examine patients'	Helping Patients Get	Patients thought this measure was	"I sometimes don't watch how low I get on
perceived value of specific	Needed Medication	important in evaluating a	my medication. And then all of a sudden,
pharmacy quality		pharmacy	I'm like, "Whoa." And I do need it. I have
measures.			to call, and it needs to be faxed. It would be
			nice for a little reminder—"
			"Yes, I think that (ensuring patients got
			their needed medication) would be good
			because I think people sometimes have a
			lapse in their medications, and it hurts them
			a lot like for depression or something like
			that."
		Patients were concerned that the	"How could they call everybody? It's not
		pharmacist would have time to	possible, I wouldn't think. They'd have to
		ensure they were getting their	have a large staff."
		needed medications and refills if	
		time was taken to perform these	
		activities.	
		There was some uncertainty in the	"I can see the need for it, but then I can
		role of the pharmacist to ensure	also see that—hopefully, it's not going to be
		adherence to medicines and mixed	harassing either, you knowSometimes I
		feelings on been called by the	don't get my medicines all the time. A lot of
		pharmacy about prescription	times I can't afford to get it refilled right
			away. So, I might go a week without my

Drug-Drug       Patients noted that they relied on their pharmacists to ensure their medicines were not harming them.       "Pharmacists see interactions with drugs and everything else. That's part of their responsibilityI have a friend whose doctor prescribed her something that she was actually allergic to. The pharmacist knew all her drugs and drug interactions and actually caught it. I think that's one of the purposes of being a pharmacist like a second check with the doctor. That's very important. She could have died!"         "Yeah, I would switch.—they don't have my health in mind. Especially the drug-to-drug interactions. They're dispensing something else, and they're not doing anything about it, I'd be gone in a heartbeat!"		refills.	medicine. But I don't want the pharmacy to be harassing me because I am between my pay period" "I think it could be valuable if the pharmacist called up to remind the patient that they were due to have their prescription filled or that it was overdue. But I don't think to ensure"
	Drug-Drug Interactions	Patients noted that they relied on their pharmacists to ensure their medicines were not harming them.	"Pharmacists see interactions with drugs and everything else. That's part of their responsibilityI have a friend whose doctor prescribed her something that she was actually allergic to. The pharmaciss knew all her drugs and drug interactions and actually caught it. I think that's one of the purposes of being a pharmacist like a second check with the doctor. That's very important. She could have died!" "Yeah, I would switch.—they don't have my health in mind. Especially the drug-to- drug interactions. They're dispensing something that they know would react to something else, and they're not doing anything about it, I'd be gone in a heartbeat!"

Diabetes Medication Dosing	While patients thought accurate dosing of diabetes medications was needed, patients were unsure of the role of the pharmacist to ensure accuracy.	"But why should that be left up to the pharmacist? The doctor should have prescribed it correctly"
0,000	Patients thought the measure was not as important since they did not have diabetes but noted that their perception of the measure could change if they developed the illness later.	"I put medium for it (Diabetes Medication Dosing). I'm not saying it's not important. It's just not personal. If two years down the road, I develop diabetes, then that would change"
Use of High Risk Medication in the Elderly	Patients thought this measure was very important to consider when evaluating pharmacies.	"It's (High risk medication in the elderly) extremely important because they (the elderly) don't understand. A lot of times they're lost. My mother-in-law wasn't getting medication she was supposed to be getting. She was getting stuff that was making her worse. They had not caught that. That's very important. Basically she had some serious memory problems and living in the past.
Suboptimal	This quality measure was not	"It's extremely important, but it's not
Treatment of	highly valued and patients were	nearly as important as doses (Accurate
Hypertension in	not sure of the pharmacists' role	Diabetes Medication Dosing) and
Patients with	related to the measure.	everything. The doctor should be catching
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Diabetes		your blood pressure. With diabetes, it will kill you a whole lot faster if you're not getting the right dose.
Absence of Controller Therapy for Patients with Asthma	Patients who had the particular chronic condition (asthma) seemed to highly value the measure	"See, the asthma does pertain to me, because I have two rescue inhalers that I can use up to every two hours. I also am on two other inhalers, a nasal spray, and a pill for my COPD You know, if it takes a pharmacist to remind a doctor to say, "Hey, this patent is utilizing an awful lot of rescue inhalers, you know, you may want to
	e lien	readdress her condition or something,"
For peer review only -	http://bmjopen.bmj.com/site/about/gu	41



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# Appendix

Below are the examples of mock report cards used in the study.

## Mock report card 1

**Measure**: Use of high risk medications in the elderly. This is the percentage of elderly who did not receive a medication that can put them at high risk for developing a severe health problem

LOWER % is better



[In addition to the mock report card 1, show them a comparison that is based on stars (1-5 stars) similar to Medicare plan ratings] See example here.

http://www.medicaredrugplans.com/PlansRatings.aspx?StateId=45&State=South+Dakota

Now that you have viewed the comparable information for the three pharmacies, let us look at a specific example of a report for one of the pharmacies.

# Mock report for Pharmacy A

Quality Measure	Results	State Average	
-Asthma			
Percent of Patients with asthma who were using many "rescue" inhalers to treat their asthma attacks when they occur but were not getting medications to prevent asthma attacks	27%	22%	Lower % is better
-Cardiovascular Disease			
Percent of patients with Diabetes who pharmacy helped get needed Medications	15%	21%	Higher % is better
Percent of patients with High blood pressure who pharmacy helped get needed Medications	87%	81%	Higher % is better

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Percent of patients with High cholesterol who pharmacy helped get needed Medications	20%	24%	Higher % is better
-Diabetes Care			
Percent of patients dispensed a dose higher than the recommended dose for diabetes medications	5%	9%	Lower % is better
Percent of people who have diabetes and high blood pressure and were not getting the best medications to treat blood pressure in people with diabetes	10%	15%	Lower% is better
-Medication Safety			
Percent of elderly who did not receive a Medication that can put them at high risk for developing a severe health problem	15%	20%	Lower % is better
Percent of patients who were dispensed TWO medications that can cause harm when taken together	7%	12%	Lower % is better
Overall score for Pharmacy A	80%	85%	Higher% is better

### Focus Group Script

First, distribute worksheets/questionnaires

### Framework Introduction

It is now possible to measure the quality of Pharmacies. You can compare pharmacies on how good a job they do in delivering high quality care.

Comprehension and Understanding of Measures

Study Objective 1: Examine consumers' interpretation of pharmacy quality measures data.

Study Objective 3: Determine the characteristics of people who can interpret pharmacy quality measures.

Here are some measures used in evaluating the quality of a pharmacy, please describe what you understand by each measure? (Use Worksheet 1)

How should they be worded so that you can understand it?

### I. LANGUAGE

- 1. Helping Patients get needed Medications. Definition: Pharmacy ensured that patients received the medicines for their chronic conditions and continued to receive them on a regular basis.
  - a. Now this measure has a rate for 3 types of medications separately: diabetes, high blood pressure and high cholesterol.

Assuming you had one of these conditions; would you prefer a rating for each type of medication or an overall rating? Why?

- 2. Diabetes medication dosing (Pharmacy ensured patients were not dispensed a dose higher than the recommended dose for diabetes medications)
- 3. Use of High-risk medications in the elderly (Pharmacy ensured the elderly did not receive a Medication that can put them at high risk for developing a severe health problem)
- 4. Drug-Drug Interactions (Pharmacy ensured there were no patients who were dispensed two medications that can cause harm when taken together).
- 5. Suboptimal treatment of hypertension in patients with diabetes (In a pharmacy, people who have diabetes and high blood pressure were not getting the best medications to treat blood pressure in people with diabetes)

# 6. Absence of controller therapy for persons with asthma (In a pharmacy, patients with asthma were using many "rescue" inhalers to treat their asthma attacks when they occur but were not getting medications to <u>prevent</u> asthma attacks).

## II. ACCESS AND RATING OF QUALITY INFORMATION

### Study Objective 1: Examine consumers' interpretation of pharmacy quality measures data

The next questions examine how it would make most sense for you to access this information?

What would be the best way to access this information?

Would you look to see how the pharmacy helped patients with one specific condition/specific measure? For example, would you like to see ratings specific to a chronic condition like asthma and/or diabetes or would you rather like to see the overall rating of a pharmacy? Why?

Would you want to see how the pharmacy did OVERALL (in other words...across ALL quality measures)? Why?

- 1. Helping patients get needed medications. Definition: pharmacy ensured that patients received their medicines for their chronic conditions and continued to receive them on a regular basis.
- 2. Diabetes medication dosing (patients were not dispensed a dose higher than the recommended dose for diabetes medications)
- 3. Use of high-risk medications in the elderly (elderly did not receive a medication that can put them at high risk for developing a severe health problem)
- 4. Drug-drug interactions (patients who were dispensed two medications that can cause harm when taken together).
- 5. Suboptimal treatment of hypertension in patients with diabetes (People who have diabetes and high blood pressure were not getting the best medications to treat blood pressure in people with diabetes)
- 6. Absence of controller therapy for persons with asthma (Patients with asthma who using many "rescue" inhalers to treat their asthma attacks when they occur but were not getting medications to prevent asthma attacks).

If you could see an overall rating for a pharmacy, how would you like it to be displayed?

Stars (1 to 5 stars)

Score on a scale of 0 to 100%

Score on a scale of 0 to 100, 0 to 10, Grade A to F

Some other scale???

What other grading/type of information would you like to see?

### III. DATA DISPLAY AND INTERPRETATION of report cards

Study Objective 1: Examine consumers' interpretation of pharmacy quality measures data

Let us look at an example of how this information may be presented to you using something that is already available on the internet.

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[Show them a comparison that is based on stars (1-5 stars) to be similar to Medicare plan ratings] http://www.medicaredrugplans.com/PlansRatings.aspx?StateId=45&State=South+Dakota

What do you understand about this information? What would make the information more understandable? Q, Q

Now, let us look other examples.

Below are some examples of report cards...

Mock report card 1

What do you understand about this information? Which pharmacy is best? What would make the information more understandable?

**Measure:** Use of high risk medications in the elderly. This is the percentage of elderly who did not receive a medication that can put them at high risk for developing a severe health problem

### LOWER % is better

Pharmacy A, 15%	
Pharmacy B, 25%	
Pharmacy C, 70%	

Now that you have viewed the comparable information for the three pharmacies, let us look at a specific example of a report for one of the pharmacies.

## **Mock report for Pharmacy A**

Quality Measure	Results	State Average	
-Asthma			
Percent of Patients with asthma who were using many "rescue" inhalers to treat their asthma attacks when they occur but were not getting medications to prevent asthma attacks	27%	22%	Lower % is better
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Percent of patients with High blood pressure who pharmacy helped get needed Medications	87%	81%	Higher % is better
Percent of patients with High cholesterol who pharmacy helped get needed Medications	20%	24%	Higher % is better
-Diabetes Care			
Percent of patients dispensed a dose higher than the recommended dose for diabetes medications	5%	9%	Lower % is better
Percent of people who have diabetes and high blood pressure and were not getting the best medications to treat blood pressure in people with diabetes	10%	15%	Lower% is better
-Medication Safety			
Percent of elderly who did not receive a Medication that can put them at high risk for developing a severe health problem	15%	20%	Lower % is better
Percent of patients who were dispensed TWO medications that can cause harm when taken	7%	12%	Lower % is better

together			
Overall score for Pharmacy A	80%	85%	Higher% is better

How would you interpret the information on the mock report for Pharmacy A?

What do you like/don't like about the way the data on these pharmacies is displayed?

What should be done differently to make this information simpler to understand?

What would be the best way to present this information on the quality of a pharmacy?

### IV. VALUE

Study Objective 2: Determine if pharmacy quality measures influence consumers' choice of community pharmacy in various settings.

Study Objective 3: Identify and evaluate consumers' perceived value of pharmacy quality measures (including its specific measures).

Would you use any of the items covered in the language session to pick a pharmacy and Why? How much do you value each quality measure in evaluating a pharmacy? (Use Worksheet 2)

If there were quality measures that were interpretable and available for use, how would you use them? Why would you use/not use them?

How would these quality measures influence the switch of your pharmacy? (Use Worksheet 3)

How big a difference in the rating of a pharmacy would you like to see before you make a switch in your pharmacy?

Would you want to know how other consumers have rated a pharmacy versus these clinical measures? Why or Why not?

### Other Objectives of the focus groups

1. Which consumers are most interested in performance ratings of pharmacies? Can we identify clear segments of consumers relative to their interest, and intention to use, performance ratings?

2. What type of performance ratings/information does each segment of consumer prefer? Overall rating vs. disease-specific ratings vs. some other domains. Do they give greater importance to feedback from other consumers' vs. quantitative ratings based on claims data?

3. Would consumers have differing levels of trust in the ratings if the ratings were from governmental agency vs. pharmacy association vs. Consumer Reports?