CASE STUDY

Pharmacy Staff Opinions Regarding Diabetic Retinopathy Screenings in the Community Setting: Findings from a Brief Survey

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**Background:** Diabetic retinopathy is a retinal vascular disorder that affects more than 4.1 million people in the United States. New methods of detecting and ensuring adequate follow-up of this life-altering disease are vital to improving patient outcomes. Wills Eye Hospital and the Centers for Disease Control and Prevention are conducting a collaborative study to initiate a novel diabetic retinopathy screening in the community setting.

**Objective:** To evaluate the feasibility of a more widespread, large-scale implementation of this novel model of care for diabetic retinopathy screening in the community setting.

**Methods:** A simple, self-administered survey was distributed to pharmacists, pharmacy technicians, student pharmacists, and Wills Eye Hospital interns. The survey consisted of open-ended questions and responders were given 1 week to respond. A total of 22 surveys were distributed and 16 were completed. The responses were culled and analyzed to assess the feasibility of implementing this novel screening model in the pharmacy.

**Results:** The response rate to this pilot survey was 72%. The majority of the responding pharmacy staff members indicated that diabetic retinopathy screening in community pharmacies would greatly benefit patients and could improve patient care. However, they also noted barriers to implementing the screening, such as concerns about the cost of carrying out the screenings, the cost of the equipment needed to be purchased, and the lack of time and shortage of pharmacy staff.

**Conclusion:** The potential exists for pharmacists to positively influence diabetes care by implementing retinopathy care through the early detection of the disease and reinforcement of the need for follow-up; however, real-world barriers must be addressed before widespread adoption of such a novel model of care becomes feasible.

Disclosures are at end of text.
The successful outcomes of these studies provide insight into the feasibility of implementing diabetic retinopathy screenings in community pharmacies, showing that quick interventions, such as friendly reminders and on-the-spot counseling, are effective ways to motivate patients to improve their health.

**Diabetic Retinopathy Community Pharmacy Study**

The Wills Eye Institute Department of Research and the Centers for Disease Control and Prevention (CDC) are completing a collaborative study to test diabetic retinopathy screenings in a community pharmacy setting. The screening is performed using the Nidek fundus camera, which has a market price of $26,000 and can be completed in approximately 15 minutes. Patients do not require chemical dilation, and the process is painless.

Although the Nidek fundus camera is not the gold standard for screening for diabetic retinopathy, it is an emerging practice that shows promise in identifying eye abnormalities. Of the patients screened at Wills Eye Hospital, 10% showed signs of diabetic retinopathy and 49% showed signs of other eye abnormalities, such as cataracts and hypertensive changes.

Despite these promising findings, the technology can only be successfully integrated into pharmacy settings if staff members are trained and have the necessary time and tools to conduct the screenings. Pharmacies are often very busy, and additional staff may be required to operate the camera and spend time screening patients.

To explore these issues, we created and conducted a brief open-ended pharmacy staff survey assessing the potential benefits and barriers of such screening. This pilot survey was an unfunded research exercise conducted outside of the formal CDC parent project.

**Methods**

Surveys were self-administered on paper by 5 pharmacists, 3 pharmacy technicians, 3 pharmacy students, and 5 research interns who were working at or who were connected to the pharmacy that participated in the diabetic retinopathy screening study. Research interns were actively running the eye screenings, while the pharmacists and pharmacy technicians referred patients with diabetes to the beneficial free screening. Each respondent was given 1 week to answer the survey, and responses were collected in person at the end of the 1-week time frame.

The total study sample included 16 respondents (Figure 1, page 550) of a total of 22 surveys distributed, resulting in a 72% response rate.

The survey consisted of 7 open-ended questions regarding the benefits of the eye screening, possible barriers to widespread implementation (Figure 2, page 551), and personal opinions of the screening (see Appendix at www.ahdbonline.com). Because this was a pilot survey of attitudes and beliefs of the pharmacy staff, approval by an Institutional Review Board was not required.

**Placing this technology at the hands of community pharmacists enables the detection not only of diabetic retinopathy but of other eye abnormalities that may remain otherwise undiagnosed.**

**Results**

The responses to the survey by the pharmacy professionals revealed several potential benefits for the diabetic retinopathy screenings when done by pharmacists.

First, pharmacists are convenient and accessible healthcare providers who are trained to counsel patients to improve healthy behaviors.

Second, pharmacists can readily identify patients with diabetes for screening based on their medication histories.

Third, placing this technology at the hands of community pharmacists enables the detection not only of diabetic retinopathy but of other eye abnormalities that may

**KEY POINTS**

➤ Diabetic retinopathy, which can severely impair vision, affects more than 4.1 million patients in the United States.

➤ Only approximately 50% to 60% of patients with diabetic retinopathy follow the recommendation for an annual fundus examination.

➤ Community pharmacy screenings for other disease states show promise for the successful screening of patients with diabetic retinopathy as well.

➤ This pilot survey is the first analysis regarding the potential role of community pharmacists in diabetic retinopathy screening.

➤ For community pharmacies to successfully screen this patient population, staff members must be trained and have the necessary time and tools to conduct the screenings.

➤ Barriers to the successful implementation of such screenings must be addressed and include lack of time, cost of the equipment needed, and a shortage of pharmacy staff.

➤ Screenings can potentially reduce the burden of diabetic retinopathy through early detection and reinforcement of the need for follow-up.
remain otherwise undiagnosed. Furthermore, patients may feel comfortable approaching pharmacists, because doing so is free and does not require an appointment.

However, the survey findings also suggested a number of barriers to implementing diabetic retinopathy screening in community pharmacy settings. For example, in high-volume pharmacies, respondents indicated that there would not be enough time to run diabetic retinopathy screenings in addition to completing their daily responsibilities. To do so, they would need an additional staff dedicated to run the screenings to prevent the process from interfering with the daily workflow.

Another barrier relates to the cost of the Nidek fundus camera screening device. The expense associated with the purchase of this technology would only be justified if the volume of patients screened at each pharmacy resulted in reimbursements sufficient to recoup its

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**Table: Previously Published Studies Examining Community Pharmacy Screening Programs**

<table>
<thead>
<tr>
<th>Screening type/study (publication year)</th>
<th>Objective</th>
<th>Setting</th>
<th>Participants, type (N)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydia screening study (2010)11</td>
<td>Qualitative analysis of pharmacists’ views on chlamydia screening</td>
<td>Community pharmacy</td>
<td>Pharmacists (26)</td>
<td>Pharmacists appreciated the opportunity to expand their practice by providing chlamydia screenings, but were hesitant to provide screening to certain women (eg, married women or those in long-term relationships)</td>
</tr>
<tr>
<td>Study of diabetes and CV conditions (2006)12</td>
<td>To assess a new screening model for diabetes, hypertension, and dyslipidemia</td>
<td>Community pharmacy and non-healthcare settings</td>
<td>Patients: high-risk elderly (888)</td>
<td>Pharmacists were able to identify patients with elevated glucose, cholesterol, and blood pressure</td>
</tr>
<tr>
<td>Screening for PAD (2011)13</td>
<td>To evaluate the feasibility of a community pharmacy pharmacist-initiated PAD screening program</td>
<td>Community pharmacy</td>
<td>Patients (39)</td>
<td>The screening program was effective in increasing PAD recognition and demonstrated program feasibility</td>
</tr>
<tr>
<td>COPD screening study (2012)14</td>
<td>To assess the ability of pharmacists in community pharmacies to accurately conduct COPD screenings</td>
<td>Community pharmacy</td>
<td>Patients (185)</td>
<td>Pharmacists are able to effectively conduct COPD screenings and interpret results</td>
</tr>
<tr>
<td>Screening for CV risk (2010)15</td>
<td>To assess the ability of community pharmacists to conduct CV risk screenings</td>
<td>Community pharmacy</td>
<td>Patients (655)</td>
<td>The results show the ability of a CV screening program to improve diagnoses of high-risk individuals and to help contain the burden of CV disease</td>
</tr>
<tr>
<td>Osteoporosis screening (2010)16</td>
<td>To assess an osteoporosis screening and patient education program in community pharmacies</td>
<td>Community pharmacy</td>
<td>Patients (262)</td>
<td>The osteoporosis screening program doubled the number of patients who proceeded for further testing or treatment</td>
</tr>
<tr>
<td>Osteoporosis screening study (2008)17</td>
<td>To develop an effective community pharmacy screening program for the detection of osteoporosis in women</td>
<td>Community pharmacy</td>
<td>Patients: women (159)</td>
<td>With the benefit of an effective screening program, women who were screened revealed high proportions of lifestyle or medication modifications at 3- or 6-month follow-up</td>
</tr>
</tbody>
</table>

COPD indicates chronic obstructive pulmonary disease; CV, cardiovascular; PAD, peripheral arterial disease.

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**Figure 1 Participants in the Pharmacy Staff Survey, by Type (N = 16)**

![Figure 1](image-url)
Figure 2  Survey of Staff Opinions about Pharmacy Vision Screenings

1. I am a (circle one):
   Pharmacist  Pharmacy technician  Student
   Staff intern  Other: ________________________

2. Have you recommended anyone to be screened for diabetic retinopathy at the TJUH pharmacy? Why or why not?
   __________________________

3. If the pharmacy staff were asked to complete the vision screenings, do you feel that there is sufficient manpower? Why or why not?
   a. If “no” to the above question, what do you think it will take for proper staffing (for example, in terms of additional employees, number of staffing hours required per week, and what training they should have)?
   __________________________

4. Do you feel that conducting these eye screenings is a task you would be willing to complete on a routine basis? Why or why not?
   a. If “no” to the above question, what would be necessary to enable you to conduct the screenings?
   __________________________

5. Do you think this technology is useful to the patients at this pharmacy? Why or why not?
   __________________________

6. What positive and negative aspects, if any, have you noticed about offering this screening in the pharmacy?
   Positive aspects of the screening in the pharmacy:
   __________________________
   Negative aspects of the screening in the pharmacy:
   __________________________

7. What are your beliefs about the following?
   a. Your beliefs about the vision screening technology:
   __________________________
   b. Your beliefs about the implementation of the vision screening in the pharmacy:
   __________________________
   c. Your beliefs about the role a pharmacist should have with respect to implementing the screening:
   __________________________

TJUH indicates Thomas Jefferson University Hospital.

References

Author Disclosure Statement
Ms Law, Ms Komura, Dr Marchison, and Dr Pizzi reported no conflicts of interest.

Cost. Currently, the diabetic nephropathy screening is being provided at no charge; however, the respondents noted that large-scale, sustainable implementation would require pharmacies to charge for this screening to make it financially feasible.

Conclusion
The responses to our pilot survey showed that diabetic retinopathy screenings by community pharmacies are beneficial to patients, although real-world implementation barriers exist. Pharmacists are in a unique position to identify diabetic retinopathy screening candidates based on their medication histories and can utilize the screenings as a vehicle for promoting patients to seek diabetic retinopathy care from their physicians. However, the time and resources required to implement the screenings must be addressed. If implemented, diabetic retinopathy community pharmacy screenings have the potential to reduce the burden of diabetic retinopathy at the population level and to also positively impact the care of individual patients through detection and reinforcement of the need for follow-up.
Screening for Diabetic Retinopathy in the Community Setting: Exploring the Options

By Gary M. Owens, MD
President, Gary Owens Associates, Ocean View, DE

**PATIENTS:** Diabetes is among the most prevalent diseases in the United States today, affecting more than 8.3% of the population or almost 26 million people.1 This far exceeds earlier projections that the total number of people with diabetes would rise to 20 million by 2025 and to 29 million by 2050.2 Largely driven by the epidemic of obesity, diabetes prevalence by 2050 could impact 1 of 3 adults according to the Centers for Disease Control and Prevention.3

One major complication of diabetes is diabetic retinopathy, a leading cause of visual impairment and blindness. As Law and colleagues point out in the current article, diabetic retinopathy affects more than 4.1 million patients in the United States, yet only approximately 50% to 60% of these patients follow the recommendation for an annual fundus examination. An even smaller number of patients with diabetes have proper screening for diabetic retinopathy. With a relative shortage of primary care physicians, and larger insured populations on the horizon with the implementation of the Affordable Care Act, one can speculate that these statistics may not improve without innovative approaches to screening.

**PHARMACISTS/PROVIDERS:** As is the case for many common chronic diseases, we can do a far better job of screening for this severely debilitating illness. In this article, the authors consider the possibility of screening for diabetic retinopathy at the community pharmacy. This is an interesting concept that bears further exploration before implementation. We know that one of the most frequently used sites of service for most patients is the pharmacy. Patients with diabetes who present to the pharmacy can readily be identified by their medication profiles, and it would be relatively easy to ask them at the time of encounter about the timing of their last eye examination. However, practical considerations (many of which are mentioned in the article) must be considered before moving forward with such screenings in the pharmacy. Such things as equipment cost, training, and even time needed to do the examination properly are significant considerations that need further exploration. How the results are interpreted and how continuity of care is ensured are also concerns when one entertains widespread screening in novel sites of care. In addition, we must consider whether patients would be willing to take the time to have the examination done during a pharmacy visit. These issues bear further exploration before considering implementation of this approach to diabetic retinopathy screening.

What struck me as most intriguing in this article is that the authors were willing to explore the use of pharmacy resources to positively impact the care of a large and growing population of patients with a chronic illness. This potential approach to the management of a chronic illness and others like it must be considered if we are to improve access and outcomes of care in the future. Further investigation of nontraditional sites of care and perhaps integrating traditional services in alternate locations should be encouraged in the future.

**References**

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