Improving Diabetes Care in Underserved Patients through a “Learning Your ABCs” Education And Screening Program

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Abstract

Pharmacists are accessible health care professionals and can provide diabetes education and counseling to underserved patients. Knowledge of hemoglobin A1C, blood pressure and cholesterol (ABC) implications and treatment targets may improve diabetes self-management. This article describes ABC education in a community pharmacy with a large uninsured and underinsured patient population.

Keywords: Medication Therapy Management; Type 2 Diabetes Mellitus; Hemoglobin A1C; Blood pressure; Cholesterol

Introduction

Diabetes outcomes may be improved when patients effectively manage blood glucose, blood pressure, and cholesterol levels through lifestyle modifications and pharmacotherapy [1,2]. Unfortunately, many patients fail to attain these treatment goals [3,4].

Failure to adequately manage blood glucose and other goals in underserved and uninsured patients may be due in part to lack of access to needed monitoring or counselling [5]. Hemoglobin A1C (A1C), blood pressure, and cholesterol (ABC) are clinical indicators of diabetes control and concomitant vascular disease [6]. ABC education and screening of underserved and uninsured patients is an important part of helping these patients improve their diabetes management and understand their disease.

Recognizing that many underserved patients face barriers to receiving care, a diverse group of stakeholders convened a working group to determine if there were opportunities to engage underserved patients and help them better understand diabetes and the importance of monitoring and self-management. It was discussed that uninsured patients often avoided or declined testing due to cost. Thus, the working group secured a small grant to develop and pilot a pharmacy-based Know your ABCs Program to provide free education and ABC screening to patients with diabetes, with an emphasis on engaging an underserved and uninsured population.

Objectives

The purpose of the program was to provide access to diabetes education, counseling and screening and improve diabetes self-care knowledge in a predominantly underserved population of patients with diabetes.

Setting and Practice Description

In 2011 four pharmacist-led ABC education and screening events were conducted in a grocery store-based community pharmacy. The program provided patients with tools to assess their own diabetes management and achieve goals through diabetes and co-morbid condition education, and the importance of ABC monitoring, self-management and adherence to medication use. The host pharmacy is located in an urban setting and has a large population of uninsured and underinsured English and Spanish speaking patients. It also serves many older adults, and patients treated at a nearby federally qualified Community Health Center (CHC) with a large Hispanic population and disproportionately high rates of type 2 diabetes. The host pharmacy advertised the sessions to patients through posters and flyers placed in the pharmacy and the nearby CHC. The sessions were held mid-week from 3 to 7pm when many working adults would be able to attend.

The target population included English or Spanish speaking patients with self-reported diabetes or who considered themselves at risk for diabetes. While uninsured and underserved patients were targeted, all interested patients could participate regardless of economic or health insurance status. Participation was measured by the count of new and returning patients at each session, and effectiveness was assessed through patient-reported diabetes/ABC knowledge and intended medication adherence.

Innovation

The theme of the program was “Know Your ABCs”, with events providing education and screenings for each letter of the ABC acronym: the first session (A) offered A1C testing, the second (B) offered blood pressure measurement, and the third sessions (C) focused on cholesterol tests (Figure 1). The program was originally planned for 3 events, but due to low attendance at the cholesterol event, an additional cholesterol session was scheduled. Free A1C and cholesterol testing was available but optional. Each patient had one-on-one contact with a bi-lingual pharmacist, resident, and/or a pharmacy student under the direction of a pharmacist. Interventions included ABC screening, basic disease education, a medication review, and adherence counseling. The intervention included a patient needs assessment to determine patient diabetes educational level and needs, an assessment of the patient’s ABC parameter, and patient counseling regarding screening results and other areas of need, such as medication adherence. Patient educational materials in English and
Spanish were made available and discussed with the patient as appropriate.

Main Outcome Measures

Participant counts and patient reported knowledge and adherence measures were evaluated to determine the impact of the study on reaching patients and in improving patient diabetes and self-care knowledge. The number of patients attending each event was identified, as was the number of patients who participated in the ABC testing.

To maintain patient privacy only non-identifiable patient information was captured. Information was collected based on pre-developed questions to guide the counseling session. Questions assessed patient knowledge of the ABCs in terms of diabetes control and target values, and were asked before and after patient counseling and A1C, blood pressure, or cholesterol screening, if undertaken. After patients were counseled and screened they were asked about their intentions for future medication adherence. Because no identifying data were collected, it was not possible to link patient responses across multiple sessions.

Patient participation in an ABC education and screening event was not contingent on their willingness to participate in data collection. The study protocol was reviewed and approved by the University of Utah Institutional Review Board.

Results

Participation

A total of 52 patients attended the A1C session, 8 patients attended the blood pressure session, and 46 participants attended the cholesterol sessions (Table 1). This translates to 106 total episodes of participant counseling and ABC monitoring. Between 80% and 100% of patients opted for the screening at the session.

<table>
<thead>
<tr>
<th>ABC Topic</th>
<th>A1C</th>
<th>Blood Pressure</th>
<th>Cholesterol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance estimate</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Number of participants</td>
<td>52</td>
<td>8</td>
<td>46</td>
</tr>
<tr>
<td>Number indicating they would return</td>
<td>35 (67.3%)</td>
<td>6 (75%)</td>
<td>NA</td>
</tr>
<tr>
<td>Repeat participants</td>
<td>NA</td>
<td>3 (37.5%)</td>
<td>4 (8.7%)</td>
</tr>
<tr>
<td>Number of patients tested</td>
<td>51 (98.1%)</td>
<td>8 (100%)</td>
<td>37 (80.4%)</td>
</tr>
</tbody>
</table>

Table 1: Diabetes Education and Screening Event Participation

Diabetes General Knowledge (Pre- and Post-Counseling)

Prior to screening and education, 31 (59.6%) patients attending the A1C session reported not knowing about A1C testing and why it is important, while post counseling and testing 43 (92.7%) of the participants knew that A1C should be less than 7%. Additionally, 48 participants (96%) reported that the event taught them why it was important to control their diabetes (Table 2).
Currently Taking Diabetes Medication(s) 24 8 44

Pre-Counseling

Reported times per week that diabetes medication doses were not taken*

<table>
<thead>
<tr>
<th></th>
<th>Count (%)</th>
<th>Count (%)</th>
<th>Count (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Times</td>
<td>17 (70.8%)</td>
<td>6 (75.0%)</td>
<td>14 (31.8%)</td>
</tr>
<tr>
<td>1 Time</td>
<td>3 (12.5%)</td>
<td>1 (12.5%)</td>
<td>5 (11.4%)</td>
</tr>
<tr>
<td>2 Times</td>
<td>1 (4.2%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3+ Times</td>
<td>1 (4.2%)</td>
<td>1 (12.5%)</td>
<td>25 (56.8%)</td>
</tr>
</tbody>
</table>

Post-Counseling

Participants reported plans for making changes to how medications will be taken in the future^*

<table>
<thead>
<tr>
<th></th>
<th>Count (%)</th>
<th>Count (%)</th>
<th>Count (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will be better at taking medications as prescribed</td>
<td>11 (21.2%)</td>
<td>0</td>
<td>5 (10.9%)</td>
</tr>
<tr>
<td>May be better at taking medications as prescribed</td>
<td>3 (5.8%)</td>
<td>1 (12.5%)</td>
<td>2 (4.4%)</td>
</tr>
<tr>
<td>Will not change the way medications are taken</td>
<td>1 (1.9%)</td>
<td>1 (12.5%)</td>
<td>6 (13.0%)</td>
</tr>
<tr>
<td>Am currently compliant or no need for improvement</td>
<td>29 (55.8%)</td>
<td>4 (50.0%)</td>
<td>16 (34.8%)</td>
</tr>
</tbody>
</table>

* Proportion of those taking diabetes medication(s)
^ Proportion of all patients participating in session

Table 2: Diabetes General Knowledge

During the blood pressure session, 3 (37.5%) reported being familiar with the “ABC’s” of diabetes prior to education and screening. After the counseling, 4 (50%) of the participants knew that the usual target A1C should be less than 7%, 5 (62.5%) knew that an ideal blood pressure for patients with diabetes is less than 130/80 mmHg, and 3 (37.5%) acknowledged that their LDL cholesterol should be less than 100 mg/dL and 6 (75%) indicated knowing why it is important to control their diabetes (Table 2).

In the cholesterol sessions, 21 (45.7%) reported not knowing the “ABC’s” of diabetes and 13 (28.3%) while after screening and education 36 (78.3%) participants knew that A1C should be less than 7%. Further, 35 (76.1%) agreed that the blood pressures should be less than 130/80 mmHg, and 37 (80.4%) reported that LDL cholesterol should be less than 100mg/dL. A total of 26 (56.5%) cholesterol session participants acknowledged that the session taught them why it was important to control their diabetes (Table 2).

Medication Adherence

Diabetes medication use was generally high, although over half (53.8%) attending the A1C session reported not taking a medication for diabetes. Patient-reported diabetes medication adherence was assessed by asking patients to recall how many doses they had missed over the past week. Of patients on diabetes medications, 5 (20.8%) in the A1C session, 2 (25.0%) of those attending the blood pressure session, and 25 (56.8%) in the cholesterol session reported missing one or more dose of diabetes medication in the past week (Table 3).
Following the education and screening, participants were asked about their intent to take their medications as prescribed, even if not currently taking diabetes medications. Among the participants attending the A1C, blood pressure, and cholesterol sessions, 29 (55.8%), 4 (50.0%), and 16 (34.8%) patients respectively reported that they were currently adherent or did not feel the need for improvement with 11 (21.2%), 0 (0.0%), and 5 (10.9%) patients respectively reporting a goal of improved medication adherence.

### Discussion

Over a 4 month period, a community pharmacy based diabetes ABC education and screening program provided 106 episodes of diabetes counseling and ABC monitoring to individuals who reported having diabetes or recognized that they were at a risk for diabetes. While participant demographic data were not captured, participating pharmacists, pharmacy residents, and pharmacy students indicated that many attendees were patients of the nearby CHC which provides care to uninsured and underserved patients. Although the target BP and LDL cholesterol are based on previous ADA clinical practice recommendations that were in place in 2011, the concept is still the same in that patients should ideally know what their BP and LDL cholesterol should be.

The project demonstrates that with a small amount of funding, ABC education and screening can be provided to an underserved population that includes patients who might otherwise go without screening and counseling. This program received a small grant, which was primarily used to purchase 50 A1C and 50 cholesterol point-of-care tests. The host pharmacy provided the program promotional flyers, while bilingual program educational materials were obtained at no/nominal costs from the state Department of Health and pharmaceutical companies. Educational materials were related to diabetes (e.g., “About Diabetes”), diabetes management (e.g., “Know Your ABCs” refrigerator magnet, “Diabetes Zone” wallet card), and medication adherence (e.g., “My Medicines” medication chart).

In addition to providing patient access to education and screening, the program was generally effective in improving patient knowledge of the ABCs of diabetes. Prior to counseling, 9.6% to 37.5% of the participants were unaware of the ABCs of diabetes. This improved with counseling, with 50%-92.7% specifically knowing that A1C target is <7.0%, 62.5% to 76.1% knowing that the blood pressure goal is <130/80 mmHg, and 37.5% - 80.4% knowing that LDL cholesterol should be <100 mg/dL. This observation is consistent with other evaluations that have shown that patients often do not remember their A1C values accurately [7].

While this project assessed self-reported medication adherence and intentions for improving adherence, it was not specifically designed to evaluate if the education and screening had an impact on adherence. Further, it was observed that many patients reported not missing diabetes medication doses and as a result, many patients felt they were compliant and would not need to make improvements. This finding likely reflects a degree of recall-bias, common issue with self-reported adherence.

A goal of the “Know your ABCs” project was to identify issues and best practices for providing future diabetes-related education and screening events. In general, the sessions were conducted with minimal problems or issues, but some key learning points were obtained. First, the time it took to conduct A1C and cholesterol screening generally took longer than patient counseling. In addition, free blood pressure screening was much less of a patient draw than the free A1C and cholesterol tests. For future events, we will add blood pressure readings to the A1C and cholesterol events to better align counseling time with test processing time, and eliminate blood pressure screening as a stand-alone session.

We also noted that patients’ general understanding of the importance of diabetes control was quite high after the A1C session, but lower for BP and cholesterol. For future events, we will consider ways to reemphasize the importance of diabetes control when A1C is not the screening offered, or consider providing rapid blood glucose monitoring when parameters are the focus of session screening.

Our plan is to hold similar “Know your ABCs” diabetes education and screening sessions in the future to increase patient awareness of target values for A1C, blood pressure, and cholesterol. To expand patient reach, we aim to enhance our partnerships with nearby clinics to advertise events. One of the participating pharmacists is a Certified Diabetes Educator and provides diabetes care and management to underserved patients at a clinic close to the community pharmacy, a relationship that we will better leverage in future events. We will also develop new partnerships with additional clinics with a large underserved patient population who would like to refer patients to these events.

To take advantage of increased awareness generated by national activities, future “Know your ABCs” sessions will be timed to coordinate with the American Diabetes Association and American Heart Association wellness and information events (November and
February, respectively). Finally, we are considering providing the education message to additional pharmacy patients by pairing “Know Your ABCs” literature with diabetes medication fills. This will enable our pharmacy to reinforce ABCs knowledge and the importance of reaching target goals to more patients with diabetes.

Conclusion

In conclusion, this program met its goals of delivering effective diabetes patient counseling and monitoring to a population of underserved patients who might otherwise lack access to these services. It also provided insights for future pharmacist-led diabetes ABC education and screening sessions that will help to ensure effective counseling to promote diabetes self-management, including medication adherence behavior, with an ultimate goal of helping improve patient outcomes.

References:


