The Impact of a Health System Specialty Pharmacy Disease Management Program on Diabetes Mellitus

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**BACKGROUND**

Diabetes type 1 and type 2 are diseases characterized by increased blood glucose caused by either insulin deficiency, insulin resistance, or both, which affect approximately one in ten Americans.

Type 2 diabetes affects approximately 34.2 million, or one of every ten, Americans. Diabetes has a high economic burden, accounting for an estimated $273 billion including $237 billion in direct medical expenses in the U.S. annually. For patients with an A1c greater than 7%, research has found that a reduction of A1c by 1% is associated with a significant decrease in all-cause diabetes related expenditures of $736 annually.  

Adherence to medication regimens plays a key role in optimizing disease management and A1c reduction; however, barriers including cost, medication regimen complexity, and health literacy can prevent patients from adhering to their therapy regimens. Working with patients to overcome these barriers will reduce A1c and diabetes related expenditures.

**OBJECTIVES**

- Compare the reduction in hemoglobin A1c values for patients enrolled in CDM pharmacy services at SOMC compared to patients not enrolled in CDM pharmacy services at SOMC.
- Evaluate patient adherence to diabetes medications when managed by specialty pharmacy teams and pharmacists.

**METHODS**

- **Design**: Retrospective study of adult patients enrolled in CDM pharmacy services from July 2020 to March 2021 who had a baseline and at least one 3-month A1c completed. Patients were separated into three groups: high-risk patients with a baseline A1c ≥10 who are enrolled in CDM pharmacy services, lower-risk patients with a baseline A1c <10 who are enrolled in CDM pharmacy services, and patients who choose not to enroll in CDM pharmacy services. Enrolled high-risk patients received A1c checks every 3 months, in addition to monthly glucose log reviews. Lower-risk patients received A1c checks every 6 months. Non-enrolled patients received only services rendered by their physician. All patients enrolled received proactive refill calls and compliance check memos from the CDM pharmacy team.
- **Setting**: Outpatient family practice offices at Southern Ohio Medical Center (SOMC), a community medical center serving rural Ohio and Kentucky.
- **Measures**: Patient A1c lab values, date of enrollment into CDM pharmacy services, date of enrollment into additional support program for high-risk patients, average reduction of A1c from baseline to most recent follow A1c that is at least three months time has elapsed since baseline A1c was collected for all enrolled patients, average time from enrollment to graduation from education program for high-risk patients.

**RESULTS**

**Hemoglobin A1c of Different Patient Groups**

<table>
<thead>
<tr>
<th>Group</th>
<th>Baseline A1c</th>
<th>Recent A1c</th>
<th>Change in A1c</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-Risk Patients Enrolled in CDM Pharmacy Services</td>
<td>11.87</td>
<td>9.65</td>
<td>2.21</td>
</tr>
<tr>
<td>Lower-Risk Patients Enrolled in CDM Pharmacy Services</td>
<td>7.6</td>
<td>6.89</td>
<td>0.71</td>
</tr>
<tr>
<td>Patients Not Enrolled in CDM Pharmacy Services</td>
<td>7.69</td>
<td>7.43</td>
<td>0.26</td>
</tr>
</tbody>
</table>

**Graduation Data for High-Risk Patients**

<table>
<thead>
<tr>
<th>Group</th>
<th>4Q2020</th>
<th>1Q2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients Graduated</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Average Baseline A1c (%)</td>
<td>9.5</td>
<td>10.4</td>
</tr>
<tr>
<td>Average Current A1c (%)</td>
<td>7</td>
<td>6.9</td>
</tr>
<tr>
<td>Time to Graduation (days)</td>
<td>70.5</td>
<td>110</td>
</tr>
</tbody>
</table>

**Estimated Annual Cost Savings ($)**

- **Patients Not Enrolled in CDM Pharmacy Services**: $191
- **Low-Risk Patients Enrolled in CDM Pharmacy Services**: $522
- **High-Risk Patients Enrolled in CDM Pharmacy Services and Education Program**: $1619

**CONCLUSIONS**

- Patients enrolled had greater reduction in A1c compared to those non-enrolled, and high-risk patients receiving additional education and support had the greatest decreases.
- Non-risk patients enrolled in CDM pharmacy services had a decrease from baseline of 0.1%.
- Non-enrolled patients had a decrease of 0.26%.

**REFERENCES**

4. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5338963/
5. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6357668/

**Next Steps**

- Continued outreach to patients with diabetes for enrollment in CDM pharmacy services.
- Continued expansion into other disease states.
- Asthma, COPD, heart failure, hyperlipidemia, atrial fibrillation.