Utilization of Risk Stratification in Patients with Diabetes Mellitus in a Health System Specialty Pharmacy Setting

Haskinie Stout, PharmD; Nicholas McDonald, PharmD; Lauren Bryant, PharmD, CCES; Casey Ross, PharmD, CTTS, MBA; Ana Lopez Medina, PharmD; Carly Giavatto, PharmD; Jessica Moursi, PharmD

BACKGROUND

• Diabetes has a high economic burden, accounting for one in four healthcare dollars.
• It is estimated to cost over $16,000 on average to care for a patient with diabetes annually.
• Integration of pharmacists into health systems result in significant hemoglobin A1C (A1C) reductions and improved patient outcomes in patients with diabetes mellitus.
• Limited research has been conducted illustrating how to adopt chronic disease management (CDM) services into a health system specialty pharmacy (HSSP) workflow.
• Risk stratification has been proven successful in other disease states in prioritizing high risk patients.

OBJECTIVES

The purpose of this study is to assess the effect of patient outcomes after implementing a risk stratification protocol in the HSSP setting for patients with diabetes.

METHODS

Study Design

This is a retrospective descriptive study of adult patients enrolled in the CDM program from July 2020 to August 2022.

Patients were risk stratified based on A1C value.

### Table 1. Risk Stratification Criteria

<table>
<thead>
<tr>
<th>A1C (%)</th>
<th>Low Risk (n=372)</th>
<th>Not Enrolled (n=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 7.0</td>
<td>27%</td>
<td>95%</td>
</tr>
<tr>
<td>7.0-8.0</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>8.0-9.0</td>
<td>12%</td>
<td>2%</td>
</tr>
<tr>
<td>&gt; 9.0</td>
<td>4%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Setting

Southern Ohio Medical Center’s (SOMC) outpatient family practice offices.

Inclusion and Exclusion Criteria

Inclusion: Diagnosis of diabetes, filled diabetes medication with SOMC’s community pharmacy, and had at least two A1C values recorded.

Exclusion: Pediatric patients, prescribed diabetes medications for other conditions.

Endpoints

• Average change of A1C from baseline to most recent follow-up A1C in which at least three months had elapsed
• Average time for patients to move from high to low risk group

Statistical Analysis

• Average baseline and recent A1C was compared using a Paired t-Test
• All statistical analysis were completed in R Programming Software

RESULTS

### High risk patients saw an average A1C change of 23%

<table>
<thead>
<tr>
<th>A1C (%)</th>
<th>High Risk</th>
<th>Average Baseline A1C</th>
<th>Low Risk</th>
<th>Average Recent A1C</th>
<th>Not Enrolled</th>
<th>Change in A1C</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 7.0</td>
<td>2%</td>
<td>6.95</td>
<td>28%</td>
<td>7.54</td>
<td>95%</td>
<td>-2%</td>
</tr>
<tr>
<td>7.0-8.0</td>
<td>4%</td>
<td>7.04</td>
<td>4%</td>
<td>7.99</td>
<td>2%</td>
<td>-1.9%</td>
</tr>
<tr>
<td>8.0-9.0</td>
<td>12%</td>
<td>8.03</td>
<td>12%</td>
<td>9.78</td>
<td>2%</td>
<td>-1.78%</td>
</tr>
<tr>
<td>&gt; 9.0</td>
<td>4%</td>
<td>9.26</td>
<td>4%</td>
<td>7.39</td>
<td>2%</td>
<td>1.87%</td>
</tr>
</tbody>
</table>

### Regimen Intervention Reason (n=325)

- Regimen Ineffective
- Regimen Incorrect
- Regimen Appropriate
- Patient Requests Change
- Recommendation Accepted
- Recommendation Declined
- In Progress

### Risk Improvement

71% of high-risk patients moved to low-risk with HSSP CDM program.

### CONCLUSIONS

• Risk stratification in DM results in both best patient outcomes and profit by allocation of pharmacist resources and 340B cost savings.
• The risk stratification model allows high volume chronic diseases like diabetes mellitus to be operationalized by specialty pharmacies.
• Risk stratification in HSSP demonstrated no loss of patients or healthcare providers.

### COST SAVINGS

- Reduction in Diabetes Healthcare Cost for High Risk Patients:
  - High Risk Patients: $9,273
  - Low Risk Patients: $84,653
  - Not Enrolled: $404,761

### REFERENCES

2. Lage MJ, Boye KS. The relationship between HbA1c reduction and healthcare costs among patients with type 2 diabetes from a U.S. claims and non-Copay Assistance
4. Lage MJ, Boye KS. The relationship between HbA1c reduction and healthcare costs among patients with type 2 diabetes from a U.S. claims and non-Copay Assistance

CONCLUSIONS

- Risk stratification into both the high- and low-risk groups had greater reductions in A1C compared to patients who did not use CDP services.
- High-Risk Patients saw an average A1C change of 23% from baseline.
- Low-risk patients decreased A1Cs, and remained controlled, demonstrating the efficacy of risk stratification.

- Pharmacists successfully identified regimen interventions in between provider visits to improve regimen efficacy.
- 63% of these interventions resulted in regimen changes.
- Pharmacists identified a 95% acceptance rate by both patients and providers.

- This study demonstrates the impact HSSP pharmacists have on diabetes management and their ability to manage this high volume patient population.
- It also outlines the benefits of a risk stratification protocol in patients with diabetes.