

# Outcomes of a Clinical Pharmacist in a Rural Clinic

Denna Mohamed, PharmD, Austin Pliska, PharmD, BCACP  
Sky Lakes Medical Center, Klamath Falls, Oregon

## Introduction

### Background:

Diabetes Mellitus (DM) is a chronic condition that requires long term medical care, consistent follow-up from the patient, and provider availability. The incidence of Type 2 Diabetes Mellitus (T2DM) is growing rapidly due to increased obesity and sedentary lifestyles, which along with its social and economic burden has long-term complications<sup>1</sup>. Several studies have shown that changing the structure of the primary healthcare team, i.e. the addition of a pharmacist, provides an improved healthcare experience for patients<sup>2</sup>. With one such study citing most effective strategy for glycemic control, principally in clinical trials that enrolled patients with mean baseline levels of glycosylated hemoglobin (HbA1c) greater than 8.0%, involved clinical pharmacist interventions, as part of the healthcare team<sup>3</sup>.

### Purpose:

The primary aims of this project are to evaluate the clinical outcome of clinical pharmacist lead intervention in the treatment of diabetes mellitus in the outpatient ambulatory care setting.

## Objectives

- Evaluate how clinical pharmacist interventions in DM management can affect patient management goals

## Methods

- The study will look retrospectively at patients who are diagnosed with DM and have been consulted by an outpatient clinical pharmacist, to evaluate the overall change in HbA1c from baseline; for comparison, patients being seen in Sky Lakes Primary Care Clinics (SLPCC) who does not employ a clinical pharmacist at the time of this study.
- We will examine the progression of patient treatment, i.e. escalation/adherence, HbA1c, decrease in number of visits and frequency of visits at Sky Lakes Medical Center.
- In order to improve the ease of comparison and analysis, only patients that are within the outlined characteristics as determined by their age, sex, baseline medications, use of Angiotensin Receptor Blockers (ARBs)/Angiotensin Converting Enzyme Inhibitors (ACE-Is)/Statins, urine albumin/creatinine ratio (UACR), serum creatinine (SCr), staging of Chronic Kidney Disease (CKD), Blood Pressure (BP), and baseline HbA1c, will be evaluated for this study.
- Evaluation will begin upon approval of IRB and will include patients that meet outlined characteristics at that time. Data collection will occur for the above-listed metrics for the patients during a 20 month time period.

## Data Collection

- Number of Patients: 200 total patients
  - 100 patients analyzed from the clinical pharmacist intervention arm
  - 100 patients analyzed from the primary care physician intervention only arm

## Inclusion/Exclusion Criteria

### Inclusion

- Adults patients at least 18 years of age who are seen in the outpatient or diabetes clinic for the management of DM
- A diagnosis of DM
- Baseline HbA1c of 9% or greater

### Exclusion

- Patients under the age of 18 years of age
- Pregnancy

## Outcomes

### Primary endpoints:

- Mean change in HbA1c from baseline

### Secondary endpoints:

- Escalation or De-escalation of medication treatment regimen
- Adherence to medication treatment regimen
- Decrease in number of visits and frequency of visits at Sky Lakes Medical Center

## Pending Results

This study is pending results. Data will be collected from August 2022 to March 2024.

## Disclosures

The authors have nothing to disclose.

Retrospective  
Data  
Collection

Intervention  
Analysis

Evaluate  
Patient  
Outcomes

## Contact:

Denna Mohamed, PharmD  
Sky Lakes Medical Center  
[Denna.Mohamed@skylakes.org](mailto:Denna.Mohamed@skylakes.org)  
Phone: (541) 2743784

## References:

- Centers for Disease Control and Prevention. National Diabetes Statistics Report website. <https://www.cdc.gov/diabetes/data/statistics-report/index.html>. Accessed [10 Sept 2023].
- Yam FK, Adams AG, Divine H, Steinke D, Jones MD. Clinical inertia in type 2 diabetes: A retrospective analysis of pharmacist-managed diabetes care vs. usual medical care. *Pharm Pract (Granada)*. 2013 Oct;11(4):203-10. doi: 10.4321/s1886-36552013000400005. Epub 2013 Dec 20. PMID: 24367460; PMCID: PMC3869636.
- Cowart K, Sando K. Pharmacist Impact on Treatment Intensification and Hemoglobin A<sub>1c</sub> in Patients With Type 2 Diabetes Mellitus at an Academic Health Center. *J Pharm Pract*. 2019 Dec;32(6):648-654. doi: 10.1177/0897190018776178. Epub 2018 May 16. PMID: 29768945.