CLINICAL OUTCOMES OF PHARMACIST-LED DIABETES CLINIC

Rajinder (Nikky) Kaur PharmD[1], David Lash PharmD[2], Jeff Jolliff PharmD BCPS BCACP AAHIVP CDE[3]
Kern Medical Department of Clinical Pharmacy
Bakersfield, CA

Introduction

Diabetes mellitus is associated with substantial morbidity and mortality. Diabetes affects an estimated 30.3 million people in the US, 7.2 million of those being undiagnosed. Diabetes mellitus causes a significant economic burden when left untreated.

At Kern Medical under collaborative practice agreements with physicians, clinical pharmacists are given the opportunity to provide direct patient care to patients for diabetes treatment. Patients referred to clinical pharmacy receive comprehensive personalized visits with a clinical pharmacist, diabetes education and treatment authorization request (TAR) assistance for therapy.

In the new era of healthcare where quality of care is judged by performance measures and shifts to pay for performance, it is important to not only ensure quality care is delivered but also that such quality measures are met. One set of measures utilized by medical insurance plans is Healthcare effectiveness data and information set (HEDIS®). HEDIS is a standardized set of performance measurements developed by the National Committee for Quality Assurance (NCQA) to ensure that comprehensive diabetes care is delivered.

Comprehensive Diabetes Care HEDIS measures include:

- Hemoglobin A1C (A1c) poor control (>9.0%)
- Hemoglobin A1c control (<8.0%)
- Eye exam retinal performed
- Blood pressure under 140/80 mm/Hg

Objective

The main objective of this study is to evaluate the effect of outpatient pharmacist-led diabetes clinic enrollment on patients with uncontrolled diabetes.

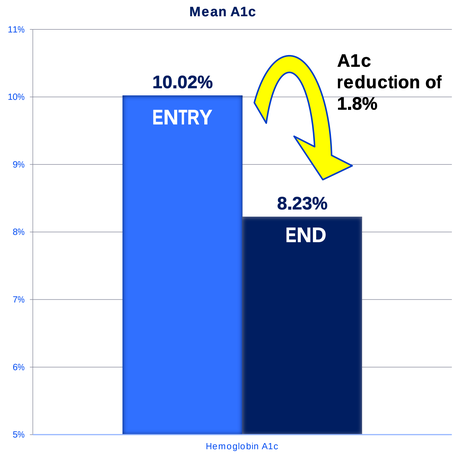
Methods

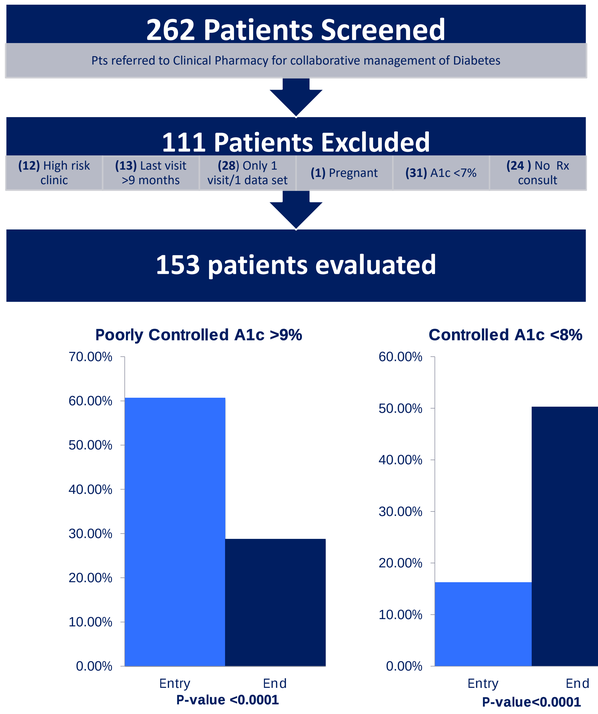
Data was collected from January 2012 to March 2018, a total of 264 patients were screened, and 111 patients were excluded. McNemar's test and T-tests were used to analyze nominal and continuous data, respectively

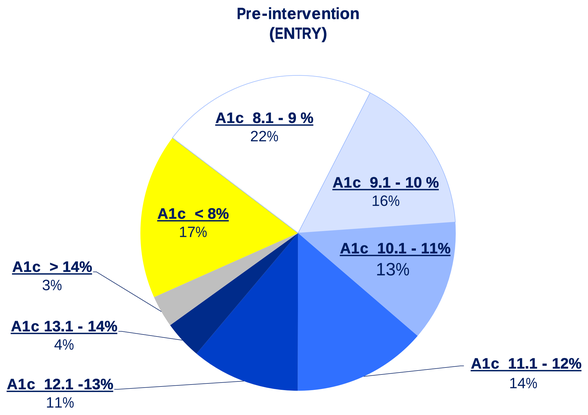
- Inclusion Criteria:
  - Adults aged 18-75 years of age
  - Diagnosis of diabetes (Type 1 & Type 2)
- Exclusion Criteria:
  - Initial Hemoglobin A1C <7.0%
  - Management by comprehensive high risk care clinics (i.e. GROW/REACH)
  - Noncompliance with visits
    - Defined as: No visit for ≥ 9 months
  - Only one visit or lab set on file
  - Only consulted for teaching/nutrition
  - Pregnancy

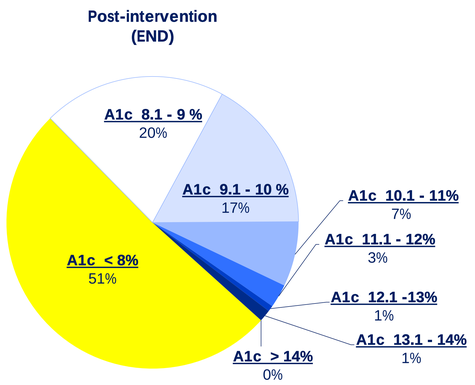
Results

Demographics (n=153)	
Age in years [mean,(SD)]	51.9 (10.7)
Male [%(n)]	47% (72)
Female [%(n)]	53% (81)
Baseline BMI baseline [mean(range)]	33.2 (20.8-69.5)
Baseline Blood pressure SBP/DBP in mmHg [Mean (SD)]	137/79 (18.6/0.9)









	Entry	End	P-value
Mean A1c (SD)	10.02 (1.99)	8.23 (1.61)	P<0.0001
A1c poor control >9% (n)	62.09% (95)	28.80% (44)	P<0.0001
A1c controlled <8% (n)	16.3% (25)	50.3% (77)	P<0.0001
Blood Pressure <140/90 mmHg	55% (85)	70% (108)	P =0.0049
BMI in kg/m² (SD)	33.72 (7.79)	33.34 (7.52)	P =0.7068
Eye Exam w/in last year	-	43% (65)	-
Foot Exam w/in last year	-	73% (93)	-

Discussion

Patients enrolled in the Clinical Pharmacy Diabetes Clinic had significantly improved glycemic control, with a mean reduction in A1c of 1.8% ($p < 0.001$) from baseline. The HEDIS goal of A1C <8% was met in only 16.3% of patients prior to clinic enrollment, compared to 50.3% post enrollment ($p<0.0001$), NCQA defines poorly controlled diabetes as any patient with A1c >9%, and sets the national benchmark to be less than 43.3% of the diabetic population. Prior to enrollment, 60.7% of patients were poorly controlled with A1c >9%, whereas only 28.8% remained poorly controlled after enrollment ($p<0.0001$). The HEDIS goal of blood pressure less than 140/90 was met by only 55% of the population prior to enrollment, compared to 70% post enrollment ($p=0.0049$). This study did not exclude patients who were non-compliant with the prescribed medication management plan, therefore potentially underscores the true impact of pharmacist led intervention. No significant change in BMI was noted, and this could be due to the mechanism of action of prescribed therapy of antidiabetic agents such as insulin which typically cause weight gain.

Conclusions

Overall, outcomes data from Pharmacist led diabetes clinic exhibits excellent care provided by the clinical pharmacy team. Overall, there was a mean reduction in A1C of 1.8%, without excluding non-compliance with the prescribed medication management plan. This data suggests pharmacist-led diabetes clinic improves achievement of NCQA quality benchmark goals in addition to maintaining preventative measures of diabetic foot exams and eye exams at 73% and 43% of the studied population, respectively.

References

1. "Statistics About Diabetes." *American Diabetes Association*, www.diabetes.org/diabetes-basics/statistics/.
2. Ko J, Lu J, Rascati K, et al. Analysis of glycemic control of a pharmacist-led medication management program in patients with type 2 diabetes. *J Manag Care Spec Pharm*. 2016;22(1):32-37.
3. Chung N, Rascati K, Lopez D, Jokerst J, Garza A. Impact of a clinical pharmacy program on changes in hemoglobin A1c, diabetes-related hospitalizations, and diabetes-related emergency department visits for patients with diabetes in an underserved population. *J Manag Care Pharm*. 2014;20(9):914-19.
4. Santschi V, Chiolero A, Paradis G, Colosimo AL, Burnand B. Pharmacist interventions to improve cardiovascular disease risk factors in diabetes: a systematic review and meta-analysis of randomized controlled trials. *Diabetes Care*. 2012;35:2706-2717.
5. Martinez, J., Laswell, E., Cailor, S., Ballentine, J. Frequency and impact of pharmacist interventions in clinical trial patients with diabetes. *Clin Ther*. 2017;39:714–722.
6. "Report Cards." *Diabetes Care*, www.ncqa.org/report-cards/health-plans/state-of-health-care-quality/2017-table-of-contents/diabetes-care.