Impact of a Clinical Pharmacist-Led Comprehensive Diabetes Management Program (CDMP) on Diabetes Outcomes at a Federally Qualified Health Center (FQHC)

Alice Solanke, PharmD Candidate, Charmaine Rochester-Eyeguokan, PharmD, CDCES, BCACP, Kathleen J. Pincus, PharmD, BCPS, BCACP, CDCES, Ifunanyachukwu Azikiwe, PharmD Candidate
University of Maryland School of Pharmacy

Background

- Nationally, approximately 37.3 million people (11.3%) have diabetes.[1]
  - In Maryland, approximately 481,290 adults (10%) have diabetes.[2]
- Lowering hemoglobin A1c is associated with a reduction in diabetes-related deaths, myocardial infarctions, and microvascular complications.[3-4]
  - For every 1% reduction in A1c, the risk of long-term diabetes complication is reduced by up to 40%.[5]
- Federally Qualified Health Centers (FQHC) provide comprehensive health services to medically underserved areas and populations.
  - Social determinants of health impact diabetes outcomes, demonstrating inequalities in diabetes burden in the United States.
  - Factors contributing to poor glycemic control include: low income, low health literacy, language barriers, poor nutrition, and healthcare access.
- In 2021, The Center for Innovative Pharmacy Solutions (CIPS®) P^3 Program in collaboration with Chase Brexton Healthcare Services implemented a pharmacist-led comprehensive diabetes management program (CDMP) to improve diabetes care and outcomes at a local FQHC.

Objectives

To assess the impact of pharmacist intervention on clinical diabetes outcomes of patients enrolled in the CDMP

Methods

Study design: retrospective chart review
Inclusion criteria:
- Referral to the CDMP
- Baseline A1c > 7%
- ≥1 follow up visit
- Post-intervention A1c documented

Primary endpoint:
- Change in A1c from baseline

Secondary endpoints:
- Proportion of patients with A1c <9% (a metric required by the Healthcare Effectiveness Data and Information Set and Uniform Data System)
- Medication prescribing patterns
- Changes in blood pressure, estimated glomerular filtration rate (eGFR), and urinary albumin-creatinine ratio

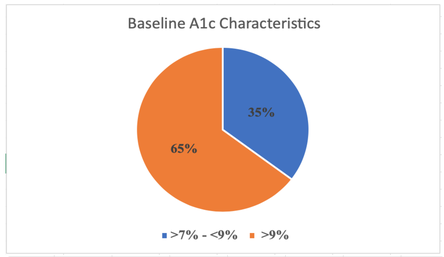
Statistical analysis: Descriptive statistics were used to present demographic and baseline data.T-tests were used to calculate p-values for paired analysis of continuous variables.

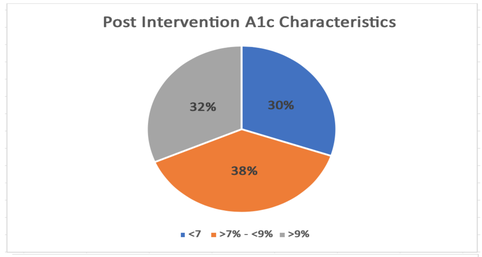
Results & Figures

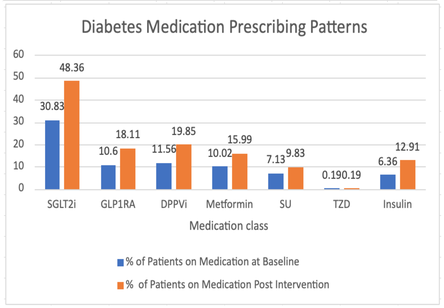
- A total of 559 patients participated in the pharmacist led CDMP at the FQHC.
  - 519 patients met the criteria to be included in this retrospective analysis (e.g., baseline A1c >7%)

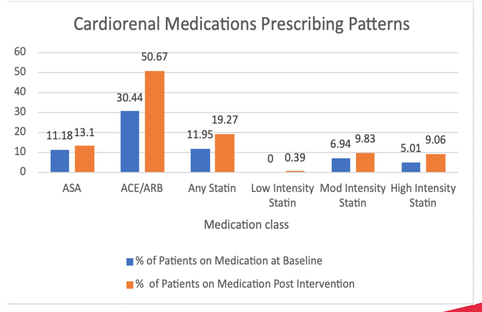
Baseline Characteristics	Total Cohort (n=519)
Mean age (years±SD)	51±13.12
Mean body mass index (BMI) (kg/m^2±SD)	31.5±7.36
Male, n (%)	239 (46.05%)
Ethnicity, n (%) - Hispanic/Latino - Non-Hispanic/Latino - Unspecified	 258 (49.71%) 250 (48.17%) 11 (2.12%)
Microvascular complications, n (%) - Nephropathy - Retinopathy - Peripheral Neuropathy - Autonomic Neuropathy	 20 (3.85%) 26 (5.01%) 51 (9.83%) 1 (0.19%)
Macrovascular Complications (STEMI), n (%)	1 (0.19%)
Insurance, n (%) - Self-pay - Sliding fee scale - Medical Assistance - Medicare - Private	 23 (4.43%) 262 (50.48%) 122 (23.51) 40 (7.71%) 72 (13.87)

	Baseline Mean (SD)	Post-intervention Mean (SD)	P-Value
A1c (n=477)	10.18(±2.09)	8.45(±2.15)	<0.0001
Blood Pressure (BP) (n=496) - Systolic	132.19 (±18.46)	128.78(±16.34)	0.0027
- Diastolic	81.17 (±10.94)	78.57 (±9.07)	<0.0001
Estimated Glomerular Filtration Rate (eGFR, n=352)	95.18 (±25.84)	94.4 (±25.89)	0.6872
Urine Albumin-Creatinine Ratio (uACR, n=207) - <30 - 30-299 - >300	 122 (58.94%) 65 (31.4%) 20 (9.66%)	 139 (67.15%) 48 (23.19%) 20 (9.66%)	









Discussion

- Enrollment in a pharmacist led CDMP led to statistically significant improvements in A1c and blood pressure (BP).
  - The mean A1c decreased by 1.73%, Which was statistically significant.
  - 30% of patients achieved an A1c <7%.
  - The improvement in mean BP was statistically significant, a key modifiable risk factor for cardiovascular events.
- Results suggest that pharmacist intervention also improved the prescribing rates of recommended diabetes medications (e.g., metformin, GLP1RA, and SGLT2i), statins, and ACE/ARBs.
- The decrease in eGFR post intervention was not statistically significant
- Additional analysis of the economic impact of this program is ongoing

Conclusion

Despite barriers related to social determinants of health, pharmacists significantly improve diabetes care and reduce A1c (p=<0.0001) in low-income, largely Hispanic, patients receiving care at an FQHC.

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