Evaluation of Pharmacists' Impact on the Implementation of a Diabetes Treatment Algorithm Emphasizing Cardiovascular and Renal Protection at a Large Academic Medical Center

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Introduction

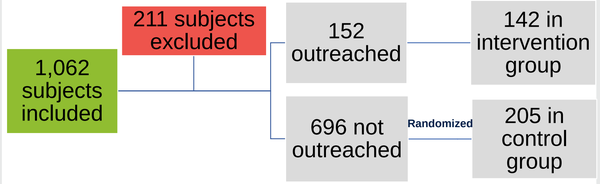
- Sodium glucose cotransporter 2 inhibitors (SGLT-2i) and glucagon-like peptide 1 receptor agonists (GLP-1 RA) are preferred agents for type 2 diabetic patients at high risk or established atherosclerotic cardiovascular disease, kidney disease, or heart failure per the American Diabetes Association 2022 guidelines[1]
- Emerging evidence has found increased use of SGLT-2i and GLP-1 RA in high-risk type 2 diabetic patients under pharmacist management[2–3]
- In 2021, UC Davis Health (UCDH) adopted a population health diabetes initiative intended to promote the use of the UC Way diabetes algorithm

Study Objectives

- Primary Endpoint: difference in utilization of SGLT-2i or GLP-1 RA between primary care pharmacists and standard of care by physicians
- Secondary Endpoint: change in Hemoglobin A1c (HbA1C), pharmacists' identified resources and barriers to the utilization of SGLT-2i or GLP-1 RA

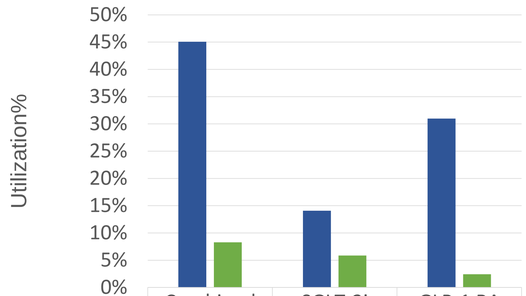
Methods

- Study design: retrospective single center cohort study, at 13 UC Davis Health primary care clinics
- Retrospective chart review was performed for adults on the DM and CKD Population Health Registry identified August 2021 - February 2022
- Primary care pharmacists met with patients in-clinic and prescribed anti-diabetic agents under a CPA
- Expected sample size of 194 required for 80% power
- Screening of Participants:



Results

Figure One: Percent Utilization by Drug Class



	Combined	SGLT-2i	GLP-1 RA
Intervention	45.1%	14.1%	31.0%
Control	8.29%	5.85%	2.44%

OR: 9.07, 95% CI: 4.99-16.5%, p < 0.0001

Discussion

- There was a significant increase in utilization of SGLT-2i and GLP-1 RA between the intervention and control group that surpassed findings reported from other similar studies
- GLP-1 RA were more often utilized than SGLT-2i in the intervention group, and vice versa in the control group
- There was not a statistically significant mean change in HbA1C for both groups
- Primary care pharmacists offered cost assistance, performed dose adjustments, and improved medication adherence that contributed to the successful uptake of SGLT-2i or GLP-1 RA agents
- Barriers to the utilization of SGLT-2i were often due to identified contraindications and for GLP-1 RA were due to cost restrictions and "Other" reasons

Conclusions

- The UCDH pharmacist-led population health team model led to a significant increase in SGLT-2i and GLP-1 RA initiation for high-risk patient populations
- Primary care pharmacists serve a meaningful role in supporting population health initiatives and may improve in utilization of cardiovascular and renal protective medications for type II diabetes
- Limitations to the study include: the retrospective and single cohort study design, a short study period, and variations in the timing of therapy initiation among groups
- Future Direction: examine the impact of the population health initiative over an extended study period and at other large health care systems

Results

Figure Two: Resources and Barriers Identified

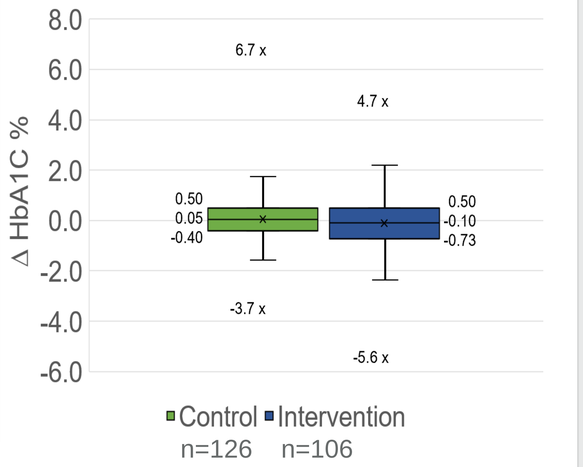
Resources	**n = 64 % (n)**
Cost*	45.3% (29)
Dose Adjustments	37.5% (24)
Adherence Tools	3.1% (2)
Barriers: SGLT-2 Inhibitors	**n = 78 % (n)**
eGFR < 30	30.8% (24)
Other**	29.5% (23)
History of intolerance or adverse effects	11.5% (9)
Cost	3.8% (3)
History of Diabetic Ketoacidosis	2.6% (2)
Barriers: GLP-1 Receptor Agonist	**n = 78 % (n)**
Other**	38.5% (30)
Cost	15.4% (12)
History of Gastroparesis	10.3% (8)
CKD on Dialysis	7.7% (6)
History of intolerance or adverse effects	7.6% (6)
History of MTC/MENS2	2.6% (2)

* Cost resources include patient assistance program, savings card, low-income subsidy application, and other resources to help patient afford a medication

** Other includes patient refusal, lost to follow up, patient receiving alternative diabetes therapy, or other conditions or symptoms preventing initiation of therapy

MTC = Medullary thyroid cancer, MEN2 = Multiple endocrine neoplasia type II

Figure Three: Change in HbA1C% from baseline



Acknowledgements

We would like to thank all UCDH employees who participated in the study, and the UCD statisticians Machelle Wilson and Matt Yang for consulting on statistical analysis. We also thank UCDH PROC and DPS for supporting the study, and the UCSF Campus Life Services Department for printing of the poster.

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