Impact on HbA1c and Analysis of Interventions in a Pharmacist-Led Diabetes Service within an Endocrinology Clinic

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Purpose

Clinical pharmacists can closely manage patients through frequent visits and monitoring of medication side effects and efficacy.

Study Objectives:

- Evaluate HbA1c impact from short-term pharmacist-led diabetes management
- Describe the interventional changes in drug classes and devices during pharmacist referral in diabetes care
- Analyze subgroups of patients with type 1 diabetes mellitus (T1DM) and type 2 diabetes mellitus (T2DM)

This study focused on class/device changes and did not include dose adjustments.

Methods

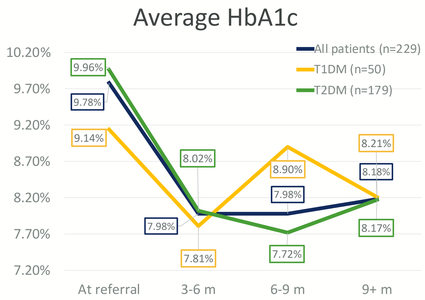
Retrospective chart review was conducted for 229 adult patient consultations referred by their endocrinologist for short-term pharmacological intensification.

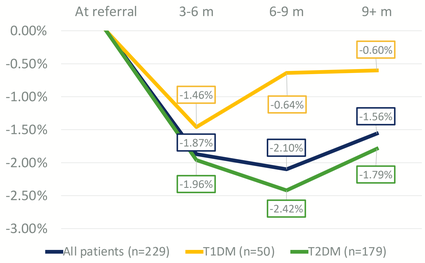
- All patients had at least 2 visits with the pharmacist within the consultation and had HbA1c data at referral (within the last 3 months prior to first visit or within 14 days of first visit) and the initial visit occurring between December 2018 to December 2022.
- Exclusions: cystic fibrosis, steroid-induced diabetes, consultations to manage hypoglycemia.
- For patients who had two consults which met criteria, each consult was recorded separately.
- HbA1c data was collected at referral and at 3-6 months, 6-9 months, and 9+ months after referral start.
- Diabetes medications and devices, including continuous glucose monitoring (CGM), were recorded at the first and last visit.
- Each addition or discontinuation of a medication was recorded including if CGM or insulin pump therapy was initiated or stopped.

This research has been approved by the IRB.

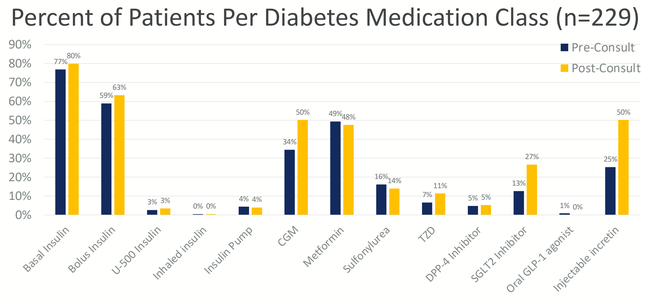
Results

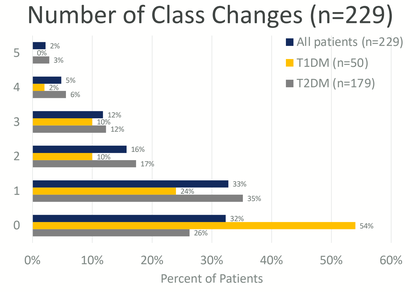
HbA1c Impact

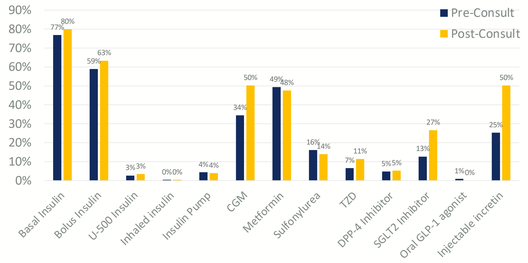


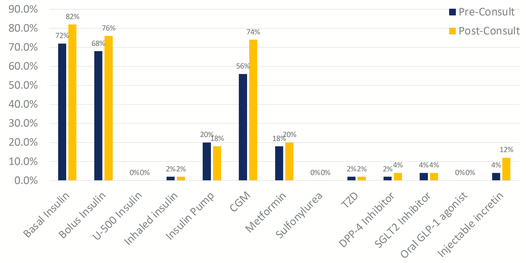


Interventions









Percent Change in Diabetes Medication Classes Pre- and Post-Consult

	Basal Insulin			Bolus Insulin			U-500 Insulin			Inhaled insulin			Insulin Pump			CGM			Metformin			Sulfonylurea			TZD			DPP-4 Inhibitor			SGLT2 Inhibitor			Oral GLP-1 agonist			Injectable incretin*		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
All patients *(n=229)*	77	80	+3	59	63	+4	3	3	+1	0	0	0	4	4	0	34	50	+16	49	48	-2	16	14	-2	7	11	+5	5	5	0	13	27	+14	1	0	-1	25	50	+25
T1DM *(n=50)*	72	82	+10	68	76	+8	0	0	0	2	2	0	20	18	-2	56	74	+18	18	20	+2	0	0	0	2	2	0	2	4	+2	4	4	0	0	0	0	4	12	+8
T2DM *(n=179)*	78	79	+1	56	60	+3	3	4	+1	0	0	0	0	0	0	28	44	+15	58	55	-3	21	18	-3	8	14	+6	6	6	0	15	33	+18	1	0	-1	31	61	+30

Abbreviations: CGM = continuous glucose monitoring; TZD = thiazolidinedione; DPP4 = dipeptidyl peptidase-4; SGLT2 = sodium-glucose co-transporter-2; GLP-1 = glucagon-like peptide
*Injectable incretins includes both GLP-1 agonists and glucose-dependent insulinotropic polypeptide/glucagon-like peptide (GIP/GLP-1s) agonists

Discussion

- Aside from dose adjustments, injectable incretins and CGM were the most newly initiated interventions among all patients referred.
  - SGLT-2 inhibitors were also commonly initiated in patients with T2DM.
- 1.3 changes in medication classes were made on average per consult.
  - Many patients, especially those with T1DM, had extensive insulin dose titrations rather than medication class changes.

Conclusions

- Diabetes management with clinical pharmacy services reduces HbA1c with the greatest reduction during consultation and overall improvement sustained after 6+ months.
- Through even short consultations (on average 3-month duration), clinical pharmacists can implement and sustain multiple classes of medications to improve diabetes outcomes, including injectable incretins, CGM, and SGLT-2 inhibitors most commonly.
- Integrating clinical pharmacists into diabetes care can effectively counteract clinical inertia and improve diabetes-related outcomes.

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