Brief Educational Intervention to Improve Medication Adherence & **Glycemic Control in Adults with Persistent Poorly Controlled Type 2 Diabetes: A Quality Improvement Project**

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Background & Aims

• In the United States, 1 in 10 adults, have diabetes. Adults with diabetes are at 60% higher risk of early death¹. Diabetes medication nonadherence due to inadequate knowledge leads to poor glucose control and costly complications.

Project aims:

- Improve diabetes medication adherence
- Improve diabetes medication knowledge
- Improve blood glucose time-in-range

Methods

- **Design**: Quality Improvement pre- and posttest one-group
- **Setting**: diabetes center in the Northeast region of the U.S.
- **Sample**: Adults with poorly controlled type 2 diabetes meeting inclusion and exclusion criteria.

Outcome Measures:

- > Medication Nonadherence: Voils Medication nonadherence questionnaire, a validated 2-part scale with seven-day recall: 3item extent of nonadherence: Likert scale & 18-item reasons for nonadherence
- Medication Knowledge: 5-item medication knowledge survey
- > Time-In-Range Percentage: Calculated automatically by a CGM sensor, or manually using fingerstick BG results
- IRB Approval: Johns Hopkins Medicine
- Statistical Analyses: Descriptive statistics, Paired t-test, Wilcoxon signed rank, Chi-square

Intervention

- A personalized educational leaflet was designed containing medications used to treat type 2 diabetes, with key need-toknows: how they work, common side effects, how and when to take them, what to do if a dose is missed or has side effects.
- Implementation involved 1:1 educational session using leaflet and teach-back method patient counseling conducted during participant's scheduled diabetes office visit.

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Results: Aim I. Medication Adherence								
Medication NonAdheren	Ce	Mean S	core (SD)		Reasons Endorsed for Medication Nonadherence	Baseline	Postintervention	
Preinterventi	on (N=15)	1.50 (0.	39)		I forgot	20%	50%	
Postintervent	ion (N=14)	1.40 (0.	30)		I did not have my medicines with me	7%	21%	
Difference pro post $(N = 1.4)$ $O \cap E (0.42)$			ハつ \		I was asleep	$70/_{0}$	14% 7%	
Difference pre-post (N=14) 0.95 (0.42			42)		I ran out of medications	7%	7%	
P-value 0.41					I was out of my routine	0%	7%	
- varae					I could not meet the food requirements	0%	7%	
Result	s: Aim	2. Me	dication		My blood sugar was too low	0%	7%	
Know	edge				Conclusion			
			Mean Score	(SD)				
Baseline Know	/ledge (N=14))	5.43 (1.34)		 Medication adherence decreased after the intervention, but this was not statistically significant 			
12-weeks post intervention knowledge (N=14)			7.57 (0.65)		 Findings suggest an intervention to increase medication adherence other than education provided at regularly scheduled visits Incorporating brief educational intervention using leaflet and teach-back patient counseling improved medication knowledge. 			
Change in Knowledge			-2.14 (1.29)					
P-value			0.00		• The intervention did not result in statistically significant increase in blood glucose time-in-range (TIR).			
Result	s:Aims	3.Tim	ne-in-Rai	Jge	• Since each 5% increase in TIR is associate according to the international consensus g	ed with clinically guidelines on TIF	meaningful benefit R ² ; the intervention	
Baseli TIR (N=15)	ne 2-week post- TIR (N= 13)	12-week post- TIR (N= 12)	Difference Baseline & 2- weeks post TIR (N= 13)	Difference Baseline TIR & 12-weeks post TIR (N= 12)	produced a clinically significant increase in References	n TIR at 2 weeks	post intervention.	
Mean 47.67 (SD) (22.72	55.31 (22.30)	52.50 (17.33)	9.38 (22.29)	4.67 (23.23)	1. Centers for Disease Control and Prevention Report, 2020. Atlanta, GA: Centers for Disea Health and Human Services; 2020. Retrieved https://www.cdc.gov/diabetes/library/featu	on. (2020). <i>Nation</i> se Control and P d from ures/diabetes-stat	<i>nal Diabetes Statistics</i> revention, U.S. Dept of t-report <u>.</u> html	
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