Artificial Intelligence Decision Support Enhances Engagement and Integration with Home Diabetes Care

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Interval enhar	nced care interve	ntion at time interv	/als (3,4)or 6 v	veeks) as determ	nined in Aim 1	
Baseline	3 mont	3 month visit			6 month visit	
	In-pers	on clinic visits re	main at 3 mo	onth intervals		

Backgro	und					Resul	ts			
The major	rity of youth	with Type 1	Diabetes do	not meet				Baseline (n=96)	3-month Visit (n=92)	6-month Visit (n=85)
glycemic targets						HbAlc (%)	7.79 ± 0.87 (6.1, 10.6)	7.84 ± 1.05 (5.9, 11.1)	7.81 ± 0.90 (6.0, 10.2)	
-Cincinna	ati Children'	's Hospital n	nean HbA1c	8.7%			[mean ± std (range)] Glucose management index (%)	[n=95] 7.96 ± 0.74 (6.7, 10.2)	[n=90] 7.95 ± 0.82 (6.6, 10.9)	[n=83] 8.03 ± 0.71 (6.7, 10.0)
Continuous glucose monitors (CGM) and pumps provide a wealth of knowledge largely untapped –Provider visits only every 3 months –Complex data –Months of unutilized data between visits –44/52 weeks: self interpretation and management						[mean ± std (range)] Time in range (%) [mean ± std (range)]	[n=88] 45.4 ± 14.3 (5.5, 72.1) [n=96]	[n=83] 46.3 ± 15.5 (2.1, 87.6) [n=90]	[n=70] 43.8 ± 13.0 (13.0, 74.6) [n=84]	
						Hypoglycemia (%)	$1.96 \pm 2.24 (0, 11.4)$	$2.25 \pm 2.15 (0, 14.1)$	$2.24 \pm 2.22 (0, 9.7)$	
				[mean ± std (range)] [n=96] [n=90] [n=83] Using a general linear mixed model, no differences were seen over time for HbA1c (p=0.94), glucose index (p=0.76), time in range (p=0.51), and hypoglycemia (p=0.60). Six Month Patient/Family Feedback						
Artificial	Intelligence	(AI) can aid	in aggregati	on and			The ECI seems easy to u	se		
analysis o	of data, gene	ration of rec	ommendatio	ons for			The ECI seems doab	le 🚺		
insulin adjustments					The ECI seems possib	le 🚺				
						The ECI seems implementab	le 🚺			
We investigated an enhanced care intervention (ECI)							The ECI seems like a good mate	ch		
Advisor Pro®)						The ECI seems applicab	le 🚺			
							The ECI seems suitab	le 🚺		
Methods							The ECI seems fitti	ng		
Aims #1: Co-de AI-guided inter-offic	sign an ECI l recommene ce opportuni	with patient dations into ties	s/families in provider vis	ntegrating its and			I like the EC The ECI is appealing to m The ECI meets my approv		40 50 60	70 80 90 100
Baseline 3 month visit 6 month visit							Staff Feedb	ack		
In-person clinic visits remain at 3 month intervals							Using AP is efficient in the clinic w	orkflow		
#2: Establish short-term efficacy for the ECI -Primary Outcome: Time in range -Secondary Outcomes: HbA1c/GMI, % hypoglycemia						Using AP saves I often reject or ignore AP recommend I found AP recs unnecessarily co AP complements my health behav	me time dations* omplex* /ior recs			
#3: Examine acceptability, appropriateness, and feasibility of the ECI						recs match my clinical judgement on insuli I found AP recs to be a I found AP eas	y to use 0 10 20	30 40 50 60	70 80 90 100	
Inclusion Criteria	T1D for ≥6 months	Ages 7-24 years	Use of insulin pump and CGM	HbA1c or GMI 7-13%			Con	npletely disagree Disagree Neutr	al Agree Completely agree	
Exclusion Criteria	Alternative diabetes diagnosis	Patients on closed loop pump/CGM models	Insufficient CGM use to utilize AI	Use of non- insulin diabetes medications		*agree, †AP, Ad	disagree responses have been inverted visor Pro®			

management







Discussion

appreciated

Conclusion

platforms

Acknowledgements

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- No statistical change in glycemic outcomes was
- Patient/family feedback was largely positive regarding acceptability, feasibility, and appropriateness of the ECI
- Provider feedback was more heterogeneous (complexity and level of agreement with insulin recs)
- Challenges at times were seen with home upload compatibility and data flow between diabetes platforms, limiting use of AI decision support
- Negative patient/family feedback correlated with the inconsistent usability of platforms for data upload and recommendation generation
- When available, cloud based device uploading greatly improved usability of the ECI, further supporting lessening the onus on patients/families is of benefit
- Despite challenges, feedback on the ECI, if anything, improved by 6 months

- Although there were no statistically significant changes to metabolic outcomes, participant enthusiasm encourages continued acceptability of the intervention to explore further glycemic improvement with longitudinal application and improved interoperability between diabetes device
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