Strategies to Improve Smart Pen Uptake – Lessons Learned from a Pediatric **Diabetes Center**

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BACKGROUND

- Results from the T1DX-QI Connected Pens \bullet Barriers and Facilitators research project were utilized to develop testable interventions
- Connected Pens offer an alternative to insulin pump therapy that can lead to improvements in diabetes management through reports demonstrating dose visibility, accountability, and calculations

OBJECTIVE

• To increase connected pen data use for shared decision making and overall glycemic improvement in an equitable manner

METHODS

PDSA cycle 1-3: DTA questionnaire

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	
1) Diabetes technology has made my life better					
2) Diabetes technology has made my life easier					
3) Diabetes technology has made my health better					
4) Diabetes technology does more good than bad					
5) I am lucky to live in a time with so much diabetes technology					

Methods (Cont)

Key Driver	Intervention	PDSA
Communication/Shared decision making	Develop tools to help facilitate discussion	Cycle 1-3: DTA Cycle 4: Technology Laminate Cycle 5: Technology Sample Box

PDSA cycle 4: Technology laminate

GLUCOSE I	MONITORING	(VERSION 7 -	June 2021)	Insurance coverage f	or devices may vary.				Fredrange	HEALTH DESIGN BY US	INSU	JLIN DE	LIVERY (VERSION 7 - June 2	021) *Continuo	us Glucose Monitor	Insurance covera	ige for devices may va	агу.	1	T1D Exchange	HEALTH DESIG
PRODUCT	STEPS TO USE	UPKEEP	VISIBILITY	ALERTS	LINK TO PHONE?	CAREGIVER SHARING?	COMPATIBLE WITH PUMP?	BASAL ADJUSTMENTS?	DATA VIEWING?	DATA AVAILABLE?	PR	ODUCT	STEPS TO USE	UPKEEP	VISIBILITY	TUBING?	LINK TO PHONE?	COMPATIBLE WITH CGM?*	BASAL ADJUSTMENTS?	DATA VIEWING?	FEATURES
	Prepare meter Poke finger Check reading	Carry supplies at all times	ŗ	×	Some meters have mobile	×	×	×	Plug into PC to	Individual BG checks show whether BG is high, low, or in range	INJECTIC Vial & Syri	ons inge	Check BG Count carbs Calculate dose Draw up insulin Inject dose	Use a new needle for each injection	ŗ	×	×	×	×	×	Least expensive therapy option
tt FreeStyle 14 - Day	Wave reader or compatible phone over sensor	Change sensor every 14 days Charge reader	Pull out supplies	×	apps that link via Bluetooth	~	×	×	upload data	Shows current glucose, trend arrows, and graph of past data	INJECTIC Insulin Pen	DNS	Check BG Count carbs Calculate dose Prime pen with 2 units Twist dial to draw up insulin Inject dose	Use a new pen needle for each injection	ŗ	×	×	×	×	×	
	• Check reading		Sensor attached to body		Reader available for iOS and some Android devices	Via Libre LinkUp app			Scan sensor every 8 hours, plug into PC to upload data to LibreView		INJECTIO InPen Smart	ONS	Check BG Count carbs Calculate dose	Use a new pen needle for each injection	ĥ	×	~	~	×	Π	Reusable pen device with insuli cartridges; Mobile app tracks ac insulin, calculates doses, gives
GM bbott FreeStyle bre 2	Wave reader or compatible phone over sensor	Change sensor every 14 days		~	~	~	×	×		Measure glucose once per minute, shows current glucose, trend arrows, and graph of past data	Pen		Trime pen with 2 units Twist dial to draw up insulin Inject dose				not all Android devices are compatible	Dexcom G5 & G6		View on mobile phone	reminders; Can sync with some meters
112:	Check reading **	Charge reader	Sensor attached to body	Optional, customizable for highs and lows	Reader available for iOS and some Android devices	Via Libre LinkUp app			Scan sensor every 8 hours, plug into PC to upload data to LibreView		PUMP Insulet Co Omnipod I	Dash	Check BG Count carbs Enter BG Push touch screen to deliver insulin	Fill pod with insulin and change pod every 2-3 days		•	~	×	×		Waterproof pod; Omnipod Dash comes with a linked Bayer Conto glucose meter
GM	Check iOS device	Change sensor							_	Shows current glucose, trend arrows,		•				Tubeless pod attached to body	Display and View on iOS devices only			iOS auto. uploads to Glooko, plug into PC or Android	
edtronic Guardian nnect System	• Calibrate with meter 2x per day	every 6-7 days • Charge transmitter	Sensor attached	Customizable for highs and lows	Real-time view for iOS devices	Via CareLink Connect app for	×	×	Mobile app uploads data to CareLink	anu graph vi pasi uara	PUMP Tandem t:	slim X2	Check BG Count carbs Enter BG Push touch screen button to deliver insulin	Change infusion set every 2-3 days; reflll insulin supply			×	Dexcom G6	Auto-dosing (Control IQ),		Device can be easily updated via Tandem Device Updater Control IQ and Basal IQ require connection with Dexcom G6 CGM
			to body	(not severe lows)		iOS			web app every night			-				Tube attached to body			suspend (Basal IQ)	Plug into PC to upload to t:connect	
M dtronic Guardian nsor 3	Check connected 670G pump for glucose level ** Calibrate with meter 2x per day	Change sensor every 6-7 days Charge transmitter	Sensor attached to body	Customizable for highs and lows (not severe lows)	×	×	Medtronic 630G Medtronic 670G	Connects to Medtronic 670G for auto-dosing and 630G for low glucose suspend	Plug into PC to upload data to CareLink	Shows current glucose, trend arrows, and graph of past data	PUMP Medtronic MiniMed 6	570G	Check BG Count carbs Enter BG Push manual button to deliver insulin Calibrate sensor 2x per day and have at least 4 BG checks per day to use basal auto-dosing	Change infusion set every 2-3 days; refill insulin supply	A	Tube attached to body	×	Medtronic Guardian Sensor 3	Basal insulin auto-dosing, predictive low glucose suspend	Plug into PC	Can be linked to Bayer Contour Next Link 2.4 meter
xcom G6	Check phone or receiver for glucose level **	Change sensor every 10 days Charge receiver Charge transmitter every 90 days	Sensor attached to body	Customizable for highs and lows (not severe lows)	Real-time view for iOS and Android	~	Tandem tslim X2	Connects to Tandem Lstim X2; Control IQ for auto-dosing and Basal IQ for low digoce suspend	Mobile phone view, data transmits to Dexcom Clarity; plug receiver into PC to upload data	Shows current glucose, trend arrows, and graph of past data	PUMP Medtronic MiniMed 7	770G	Check BG Count carbs Enter BG Push manual button to deliver insulin Calibrate sensor 2x per day and have at least 4 BG checks per day to use basal auto-dosing	Change infusion set every 2-3 days; refill insulin supply	Ą	Tube attached to body	via MiniMed Mobile App and CareLink Connect App	Medtronic Guardian Sensor 3	Basal insulin auto-dosing, predictive low glucose suspend	Plug into PC or send data via app	Can be linked to Bayer Contour Next Link 2.4 meter

PDSA cycle 5: Technology sample boxes









29 opted for technology changes (64%)

- pen
- Barriers to connected pen initiation
- technology with family

- T1D Exchange QI Collaborative Medtronic CHLA IT: Alyson Harrison

Keck School of Medicine of USC

Results

Between Dec 2022 to April 2023, we documented 45 shared decision making



None succeeded in transitioning to connected

CONCLUSIONS

- copay requirement
- lack of insulin cartridge samples in
 - clinic to facilitate in-clinic device training
- poor responsiveness when trainer reaches out to family
- Clinic process change: technology sample
 - boxes are now placed in every patient room for
- our clinicians to utilize when discussing

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