

A QUALITATIVE EVALUATION OF 'REAL-WORLD' EXPERIENCES WITH CONTINUOUS GLUCOSE MONITORING TECHNOLOGY

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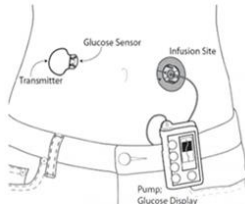
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Background and Aims

Despite evidence of clinical- and cost-effectiveness for Continuous Glucose Monitors (CGM) in a type 1 diabetes population (T1D), uptake of the technology is relatively low in Canada and elsewhere [1,2].

Purpose: To better understand real-world experiences with and perceptions of CGM (used in conjunction with insulin pump) from the perspectives of 5 stakeholder groups.



Methods

Semi-structured qualitative interviews were conducted with members of 5 key stakeholder groups who shared insights on topics related to:

- Diabetes and diabetes management
- CGM technology
- Decision-making and reimbursement of medical devices

29 participants took part in the study, including:

- T1D patients ($n=10$),
- parents ($n=5$);
- clinical experts ($n=8$),
- decision-makers ($n=4$)
- payers ($n=2$).

Interviews were audio taped and lasted between 30-180 minutes each.

Analysis

- Transcripts were coded for emergent themes and patterns
- Constant Comparative Method [3] was applied to identify similarities and differences within and between stakeholder groups

Results



Theme 1: Complex and Unending Work of Diabetes Management

- Diabetes management was described in terms of unending, intricate, highly specialized and skilled "work"
- Self-management work was described as exhausting and when paired with the unpredictability of diabetes, often became overwhelming
- The all-consuming nature of diabetes work and the ongoing challenges associated with maintaining tight glycemic control were described as a catalyst for CGM uptake

Theme 2: Benefits and Burdens of CGM Technology

Benefits	Burdens										
'Minding the Information Gap' <ul style="list-style-type: none"> • CGM's real-time data was seen as providing a clearer picture of the "ongoing story" • Retrospective review of CGM data helped patients and physicians better tailor management strategies 	Device Usability and Learning Curve <ul style="list-style-type: none"> • Technical management of the device, interpretation of CGM data and translating data to appropriate action were identified as challenging • Participants stressed the need for education, provider support and time to adjust to the steep learning curve 										
Safety and Psychological Impact <ul style="list-style-type: none"> • Predictive features of CGM (trend arrows, alarms, low glucose suspend, etc.) improved sense of control, reduced fear of hypoglycemia and improved overall feelings of safety • This contributed to improved "peace of mind" and overall quality of life 	Technical Issues <ul style="list-style-type: none"> • Participants across stakeholder groups felt that device accuracy was inconsistent (e.g. false alarms, defective sensors) • Technical issues led to a loss of confidence, prompting some patients to verify CGM results using self-monitoring blood glucose strategies 										
"Finding a balance": Diabetes management and everyday life <ul style="list-style-type: none"> • CGM was described as "life changing" – limiting the overall burden of management and promoting improved freedom and flexibility in everyday life 	Discomfort <table border="0"> <tr> <td><i>Physical</i></td> <td><i>Symbolic</i></td> </tr> <tr> <td>- sensor insertion pain</td> <td>- tethered to technology</td> </tr> <tr> <td>- adhesion problems</td> <td>- concealing and</td> </tr> <tr> <td>- dislodgement of sensor</td> <td>integrating CGM into</td> </tr> <tr> <td>- bodily "real estate"</td> <td>one's wardrobe</td> </tr> </table>	<i>Physical</i>	<i>Symbolic</i>	- sensor insertion pain	- tethered to technology	- adhesion problems	- concealing and	- dislodgement of sensor	integrating CGM into	- bodily "real estate"	one's wardrobe
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*Agreement across stakeholder groups that benefits outweighed the burdens

Theme 3: Barriers and Facilitators to CGM Uptake

Personal uptake

- High cost and inadequate reimbursement were cited as the most prominent barriers to individual uptake
- Participants from across stakeholder groups recounted how patients' prolonged and intermittent use of sensors was a strategy used to mitigate costs
- Clinical experts felt these strategies were risky. While patients and parents acknowledge it was not ideal, they felt partial CGM use was better than nothing

Health System uptake

- Access to CGM was framed as an important health equity issue
- From a public reimbursement perspective, a progressive ramp-up strategy targeting the T1D patients *most likely to benefit* (e.g. insulin pump users, hyper-/hypoglycemic unawareness, and motivated) was suggested
- While perceived as a cost-effective device, the added monitoring cost (e.g. CGM + test strips) was perceived to be a potential barrier to uptake from a health-systems perspective

Conclusions

- Participants across stakeholder groups foregrounded the benefits of CGM, noting an enhanced sense of control, improved health outcomes, improved psychological state, quality of life and overall well-being
- Participants also acknowledged shortcomings of CGM and argued that it was not well-suited for every T1D patient
- Costs and inadequate reimbursement practices were cited as significant barriers to greater individual uptake
- Establishing criteria for those who are most likely to benefit from CGM was seen as a clinically reasonable, economically feasible, and equitable approach to public reimbursement

References

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