PCR274

Exploring Drivers for Treatment Preferences in Canadian Patients with Type 2 Diabetes: A Qualitative Interview Study to Inform a Discrete Choice Experiment

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OBJECTIVE: To explore drivers in people living with type 2 diabetes (T2D) preferences for basal insulin treatment attributes to inform a discrete choice experiment (DCE).

KEY FINDINGS: Seven treatment attributes identified through a literature review were relevant to people living with T2D and had sufficient differentiation across insulin treatment profiles. Six of the attributes were reported to be important and influential to treatment decisions by interview participants.

INTERPRETATION: There are a wide range of factors people with T2D consider when making treatment decisions. Mode of administration, frequency of administration, dose timing and monitoring and risk of severe hypoglycaemia were identified as potentially important treatment differentiators to people living with T2D and were taken forward into the attributes and levels (A&L) grid incorporated into a DCE.

Background

- T2D presents a significant challenge to healthcare systems worldwide.[1]
- Understanding preferences of people living with T2D for insulin treatment is critical to optimize treatment strategies, enhance satisfaction and improve overall clinical outcomes.[2]
- This study explored drivers in people living with T2D preferences for basal insulin treatment attributes to inform a DCE.

Methods

- This study applied best practice guidelines[3,4] for patient preference studies in a three-phase study design, with an advisory panel of clinical experts and representatives of patient advocacy groups engaged at key points throughout the study (Figure 1).
- This poster presents the findings of the phase 1 (targeted literature review) and phase 2 (qualitative interviews). Phase 3 DCE findings are presented in a separate poster – PCR211.

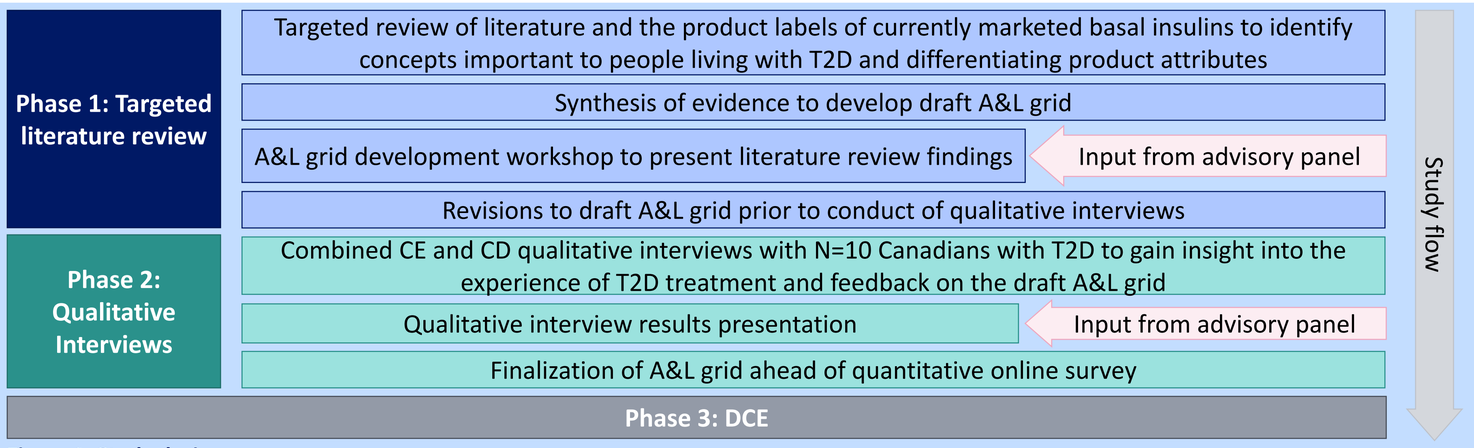

Figure 1. Study design
A&L = Attributes and levels, CE = Concept elicitation, CD = Cognitive debriefing, T2D = Type 2 diabetes, DCE = Discrete choice experiment

Results: Literature review

Patient-focused literature

- Of the 1192 abstracts identified from searches of bibliographic databases, 10 eligible publications were reviewed.
- Identified concepts were categorized into themes across treatment concepts and health-related quality of life (HRQoL) impacts (Figure 2).

Treatment concepts

Dosage
- Adjusting insulin dose
- Double dosing
- Administering correct dose
- Ease of selecting correct dose
- Entire dose being taken
- Reading dose correctly
- Correcting if over dialled

Frequency of administration
- Fewer injections preferred
- Difficult to integrate with other treatments

Mode of administration
- Needle phobia
  - Preference for oral tablets
- Time and energy needed
- Desire to avoid preparation
- Preference for pens over vials/syringe
- Ease of use of device

Timing of dose
- Timing of administration
  - Convenience
- Forgetfulness

Medical professional advice
- Clinician endorsement
- Availability of treatment information/education
- Involved in decision making process

Efficacy
- Improve blood sugar
- Reduce complications
- Prolong life
- Prevention of hypoglycaemic events
- Weight loss

Side effects
- Renal failure
- Vision problems
- Weight gain
- Gastrointestinal effects

Injection site reactions
- Pain, burning, bruising, scaring, swelling and bleeding

Risks
- Stroke
- Insulin addiction

Ease of access
- Supply shortage

Cost
- Accessibility due to cost
- Insurance coverage

Impacts to HRQoL

Social functioning
- Friends and family negative opinions towards treatment
- Shame/embarrassment from public insulin injection
- Social rejection and reduction in social activities
- Burden to family
- Loss of independence

Work
- Difficulty:
  - Completing work responsibilities
  - Coordinating treatment in irregular working hours

Activities of daily living
- Difficulty integrating insulin
- Reduction in flexibility
- Give up activities

Sociodemographic/clinical
- Barriers: Visually impaired, elderly, high BMI, lower SES, CVD, cultural and linguistic
- Facilitators: Poor physical health

Emotional wellbeing
- Acceptance, hopefulness
- Worry/concern
- Personal failure
- Mental burden

Additional impacts to HRQoL
- Burdensome lifelong commitment
- Negative and fatalistic views of insulin

Figure 2. Broad concepts and impacts identified in the targeted literature review of patient-focused literature
BMI = Body mass index, SES = Socioeconomic status, CVD = Cardiovascular disease

Clinical literature and product label review

- Data from six basal insulin products were assessed for differentiating attributes.
- Findings from the patient-focused literature and clinical review were compared to identify concepts which were both important to people living with T2D and differentiated across products (Figure 3) to inform the draft A&L grid.

Patient-relevant concepts \ Differentiating product attributes	Mode of administration	Frequency of administration	Timing of administration	Dosing	HbA1c reduction	Risk of severe hypoglycemic event	Injection hold time	Onset/half-life/steady state	Storage
Mode of administration	■						■		
Frequency of administration		■					■		
Timing of administration			■				■		
Dosing				■			■		
HbA1c reduction					■				
Risk of severe hypoglycemic event						■			
Injection site reactions									
Side effects									

Figure 3. Matrix of relevant concepts to people living with T2D and differentiating product attributes
Green = both important to people living with T2D and differentiated across products

Results: Qualitative interviews

Study sample

- N=10 participants with T2D (aged 22-73; 50:50 female:male; 4.6-18 years since T2D diagnosis) were interviewed.
- A range of demographic and clinical characteristics were represented, available by scanning the QR code.

Concept elicitation

- Ten attributes of T2D treatments were reported by participants during the interviews (Figure 4).

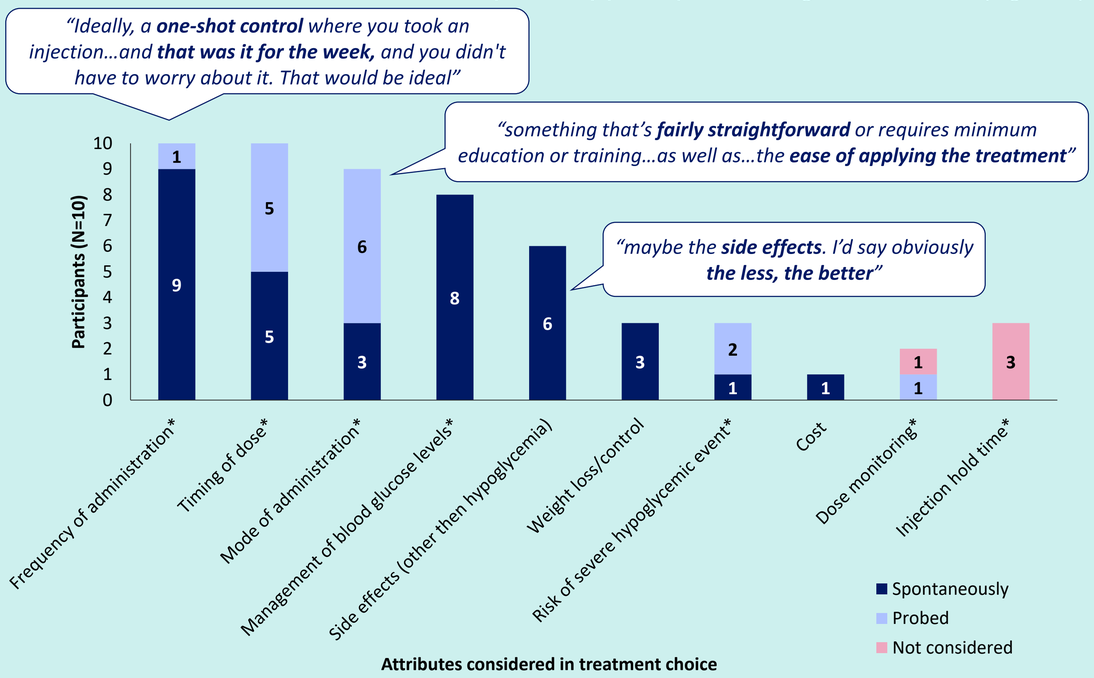

Figure 4. Treatment attributes discussed spontaneously and when probed during qualitative interviews
Note. Attributes marked with an asterix (*) were included in the draft A&L grid and debriefed during the CD section of the interviews.

Cognitive debriefing

- Attributes included in the draft A&L grid were understood, important and influential to treatment decisions (scan QR code), except for:
  - Injection hold time which was not influential to the majority of participants;
  - Risk of a severe hypoglycemic event level wording which was was not understood by most participants.

Final A&L grid

- Edits were made to the A&L grid following the qualitative interviews:
  - Removed HbA1c attributes due to the lack of understanding of the levels and inflated importance compared to other attributes. Instead, HbA1c (as well as cost) were held as constant during the DCE, due to the likelihood they would have dominated treatment preferences;
  - Removed injection hold time due to it not being influential to people living with T2D;
  - Edited the wording to improve participant understanding.
- The final A&L grid implemented in the DCE is shown in Figure 5.

Attributes	Level 1	Level 2	Level 3
Mode of administration	**Injection pen** that can provide several doses of insulin and is **thrown away after 28 days**	**Injection pen** that can provide several doses of insulin and **can be refilled with insulin cartridges**. The pen is **thrown away** after **5 years.**	
Frequency of administration	Twice **daily**	Once **daily**	Once **weekly**
Timing of dose	**Same time** for each dose (give or take **an hour**)	**Same time** for each dose (give or take **three hours**)	**Anytime** for each dose (within **24 hours**)
Dose monitoring	You **manually** record the dose you administered on **paper**	You **manually** record the dose you administered into an **app**	The dose you administered is **automatically** recorded in an **app**
Risk of a severe hypoglycemic event (insulin naïve rates)	**2 out of 100 insulin naïve** patients who took this insulin for a year experienced a **severe hypoglycemic event**	**1 out of 100 insulin naïve** patients who took this insulin for a year experienced a **severe hypoglycemic event**	**No insulin naïve patients** who took this insulin for a year experienced a **severe hypoglycemic event**
Risk of a severe hypoglycemic event (insulin experienced rates)	**6 out of 100** patients who are **on insulin** took this insulin for a year experienced a **severe hypoglycemic event**	**3 out of 100** patients who are **on insulin** took this insulin for a year experienced a **severe hypoglycemic event**	**1 out of 100** patients who are **on insulin** took this insulin for a year experienced a **severe hypoglycemic event**

Figure 5. Final A&L grid implemented into the DCE

References

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2. Soekhai V, Whichello C, Levitan B, et al. Methods for exploring and eliciting patient preferences in the medical product lifecycle: a literature review. Drug discovery today. 2019;24(7):1324-1331
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Supplementary materials