

The Experience and Challenges Associated With the Use of High Doses of Insulin: Insights From Patients and Providers

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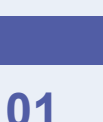
BACKGROUND



Daily basal insulin needs of people with type 2 diabetes (T2D) change. Depending upon individual needs this can result in an increase or decrease in their daily basal dose requirement, leading to people with T2D needing to manage their daily basal insulin needs. As T2D progresses and the dose of insulin increases, the number of insulin pens/vials needed increases, as well as the likelihood that prefilled pens/vials will not contain an exact multiple of doses needed to fulfill the dose



There is often a disconnect between healthcare providers (HCPs) and people with T2D regarding the extent to which the burdens and emotional stressors associated with insulin therapy affect a person's ability to adhere to insulin therapy



There are no studies that have assessed whether high-capacity pens can improve how people take insulin therapy

OBJECTIVES

01

GAIN INSIGHTS of the patient experience and quantify the challenges faced by people using high doses (≥ 50 units/day) of basal insulin

02

ASSESS the commonalities and disconnects between the perspectives of the basal injection experience between people with T2D and HCPs

03

MEASURE the preferences and importance placed on basal insulin pen features among HCPs and people with T2D



The HCP-patient relationship is at the root of all care decisions

This study was conducted to more fully understand and appreciate the challenges experienced by people with T2D using high dose basal insulin from both the HCP and patient perspectives

METHODS

STUDY POPULATION

People with T2D



Adults with T2D

- ≥ 1 year on ≥ 50 units/day of basal insulin (pen or syringe)
- Used their current brand of basal insulin for ≥ 1 year



People using second-generation basal insulins and high-capacity pens were excluded

HCPs



Post-residency practice for 2–35 years

- ≥ 150 patients a month
- $\geq 50\%$ of time in office-based practice/clinic or private group/solo practice



PCPs treated ≥ 50 , and endocrinologists ≥ 80 patients per month with T2D

- Prescribed insulin therapy for $\geq 25\%$ of T2D patients

- Online quantitative surveys were conducted with people with T2D during 9 July–18 August 2021; HCPs completed surveys during 29 July–13 August 2021
- The surveys contained questions on basal insulin usage to identify challenges associated with the injection experience, as well as pen familiarity and a blinded concept test
- In the blinded concept test, respondents were shown “insulin pen x,” which had the following profile (Toujeo Max Solostar characteristics): 900-unit capacity, maximum injection of 160 units, 5-second hold time, concentration/injection volume of 300 units, dial that extends, 8-week shelf life, and 2-U dose increment

KEY FINDINGS

PERCEPTION OF INJECTION EXPERIENCE

People with T2D

Wasting insulin was reported by **57%** of respondents

33% reported wasting insulin more than once a month



WASTING INSULIN

HCPs

48% of HCPs were aware of insulin wasting; they estimated that 43% of people with T2D were doing so

HCPs estimated that **25%** of patients wasted insulin more than once a month

HCPs underestimated the proportion of people wasting insulin

Shorting insulin was reported by **31%**

7% of whom were doing so more than once a month



SHORTING INSULIN^a

49% of HCPs believed people with T2D were shorting their dose

Of these, they estimated **33%** of people were doing so, and that **19%** were doing so more than once a month

HCPs underestimated the proportion of people shorting insulin

41% of people on >1 basal insulin injection/day strongly agreed that they would prefer to take only one basal insulin injection every day

32% of people on >1 basal insulin injection/day strongly agreed that one less injection per day would make a meaningful difference to injection burden



BURDEN OF TWO INJECTIONS

65% of HCPs strongly agreed that people prefer to take only one basal insulin injection every day

52% of HCPs strongly agreed that one less injection per day would make a meaningful difference to injection burden

HCPs underestimated the willingness of people to take injections back-to-back

Missing long-acting insulin doses was reported by **38%** of all people with T2D

47% of people receiving >1 basal insulin injection/day reported missing doses

17% of people receiving >1 basal insulin injection/day strongly agreed that missing injections negatively affected blood glucose control



ADHERENCE ISSUES

63% of HCPs knew that people were skipping insulin doses

They estimated that **28%** of people on >50 units (taking ≥ 1 injection/day) were missing their insulin dose

40% of HCPs strongly agreed that missing injections negatively affected blood glucose control

HCPs underestimated the proportion of people skipping insulin doses

Injection-site reactions (including pain, bruising, knots and/or bumps) were reported by **68%**



INJECTION-SITE REACTIONS

Endocrinologists estimated that **17%** and PCPs estimated that **23%** of people experience injection-site reactions

HCPs underestimated the proportion of people experiencing injection-site reactions

PEN FAMILIARITY AND BLINDED CONCEPT TEST



72% of people receiving 50–80 units/day and **59%** of those receiving >80 units/day had never heard of high-capacity pens



Endocrinologists were more likely than PCPs (**~90% vs ~55%**) to prescribe high-capacity pens



83% of people receiving 50–80 units/day, and **91%** of those receiving >80 units/day indicated that they would likely/definitely switch to the concept “insulin pen x”



Most people were not aware of high-capacity pens

A smaller proportion of PCPs prescribed high-capacity pens than endocrinologists

REASONS FOR SWITCHING TO “INSULIN PEN X”



People's reasons for choosing pen

■ 50–80 units/day

■ >80 units/day

Increased convenience

15%

26%

Lower injection volume

24%

16%

Reduction in the number of pens to store or travel

20%

15%

Increased time of use/pen capacity

16%

19%



HCPs' reasons for prescribing to people

■ 50–80 units/day

■ >80 units/day

High dose/one dose

20%

37%

High capacity/lasts longer

31%

30%

Low volume/high concentration

29%

26%

CONCLUSIONS

01

This study highlights a disconnect between people with T2D and HCPs in the behaviors and emotions associated with the use of basal insulin

02

People are experiencing challenges associated with therapy, such as wasting and shorting basal insulin, of which HCPs are not aware

03

A smaller proportion of PCPs than endocrinologists prescribed high-capacity pens, indicating a need for education of PCPs on their use and suitability for people requiring >20 units of basal insulin per day

04

HCPs need to play a key role in helping people overcome these challenges, including connecting with their patients' emotional needs and understanding stressors associated with managing T2D

05

HCPs should consider how to encourage more effective communication with their patients to discuss their needs and provide education on long-acting insulin therapy, including available pen devices, to reach a shared decision on the most appropriate device for each individual

^aInjecting only the amount of insulin left in a pen, and not making the rest of the required dose with a second injection.

Abbreviations: HCP, healthcare provider; PCP, primary care practitioner; T2D, type 2 diabetes.