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OBJECTIVE: To quantify the relative importance of frequency of administration in basal insulin treatment preferences of people living with type 2 diabetes (T2D).



KEY FINDINGS: Frequency of administration emerged as a key preference driver for basal insulin treatment among people living with T2D, with a preference towards once weekly (OW) administration.




INTERPRETATION: OW basal insulin treatments have the potential to provide more patient-centric treatment options for individuals living in Canada, Spain, France and Japan.



Background

- Basal insulin treatments have historically been administered via once daily (OD), or twice daily (BD) injections. OW basal insulin treatments have recently been developed.^{1,2}
- There is a need to understand insulin treatment preferences of people living with T2D to ensure patient-centric value assessment and decision making.^{3,4}
- This study aimed to quantify the relative importance of frequency of administration in basal insulin treatment preferences of people living with T2D in Canada, Spain, France and Japan.



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).
- Phases 1 and 2 contributed to the development of an attributes and levels (A&L) grid for input into a discrete choice experiment (DCE) (results presented in a separate poster - PCR274).

Phase 3: DCE

- An online DCE survey was administered to adults living with T2D across Canada, France, Spain and Japan between 23rd October 2023 and 29th April 2024.
 - The DCE included 13 choice tasks, presented as two hypothetical treatment profiles, based on the A&L grid.

Statistical analyses

- Analysis of DCE data utilized Hierarchical Bayesian estimation to determine the relative value each participant put on each attribute level, called part-worth utilities.⁷
 - The part-worth utilities ranges were taken for each attribute and repositioned to obtain the relative importance of each attribute.

Phase 1: Targeted Literature Review
Review of peer reviewed patient-focused literature and product labels of currently marketed basal insulins

Input from advisory panel

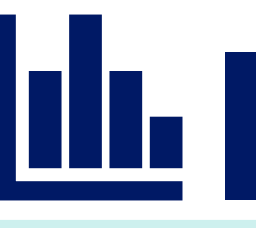
Phase 2: Qualitative Interviews
Combined qualitative concept elicitation and cognitive debriefing interviews with N=10 participants with T2D from Canada

Input from advisory panel

Phase 3: Online DCE Survey
Development and pilot testing of DCE
Conduct of online survey with DCE
Quantitative data analysis
Final results

Input from advisory panel

Figure 1. Study design
DCE=Discrete choice experiment



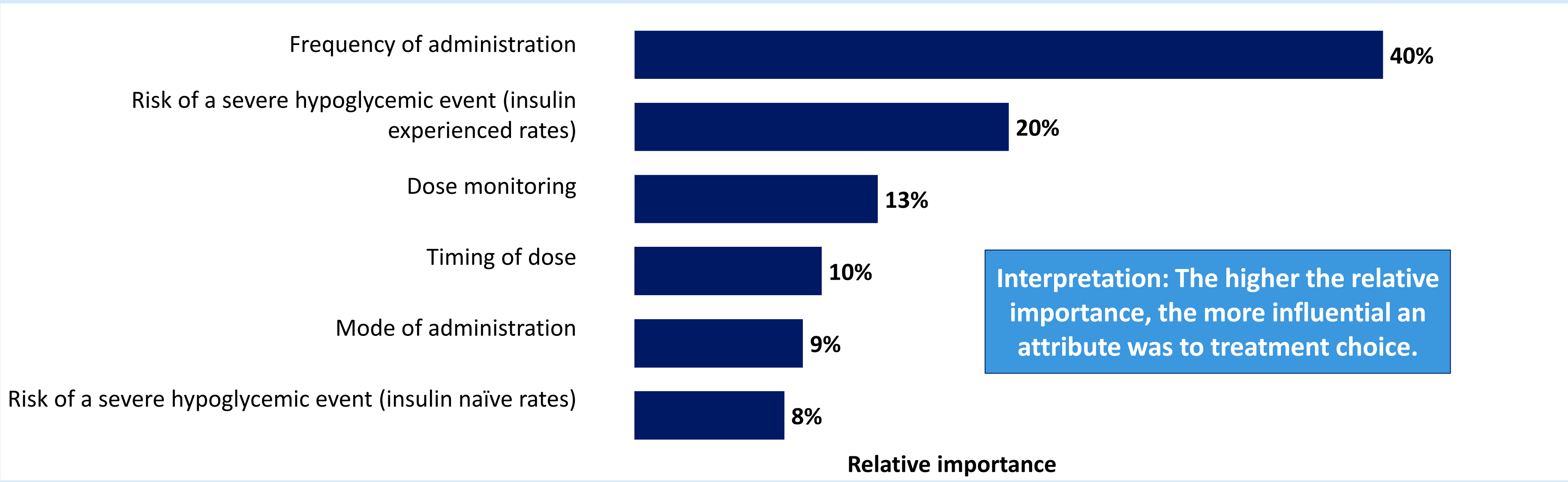
Results: DCE

Study sample

- N=513 participants with T2D (aged 20-90; 54% male; mean time since diagnosis: 11.6 years) completed the DCE and passed data validation checks.
- A range of demographic and clinical characteristics were represented, available by scanning the QR code.

Relative importance of the total sample

- Frequency of administration emerged as the most influential driver of treatment preferences within the total sample.**
 - This was at least twice as important as any other treatment attribute tested in this study (Figure 2).
- The risk of experiencing a severe hypoglycemic event emerged as the second most influential preference driver when considering insulin experienced rates for risk of experiencing a hypoglycemic event.



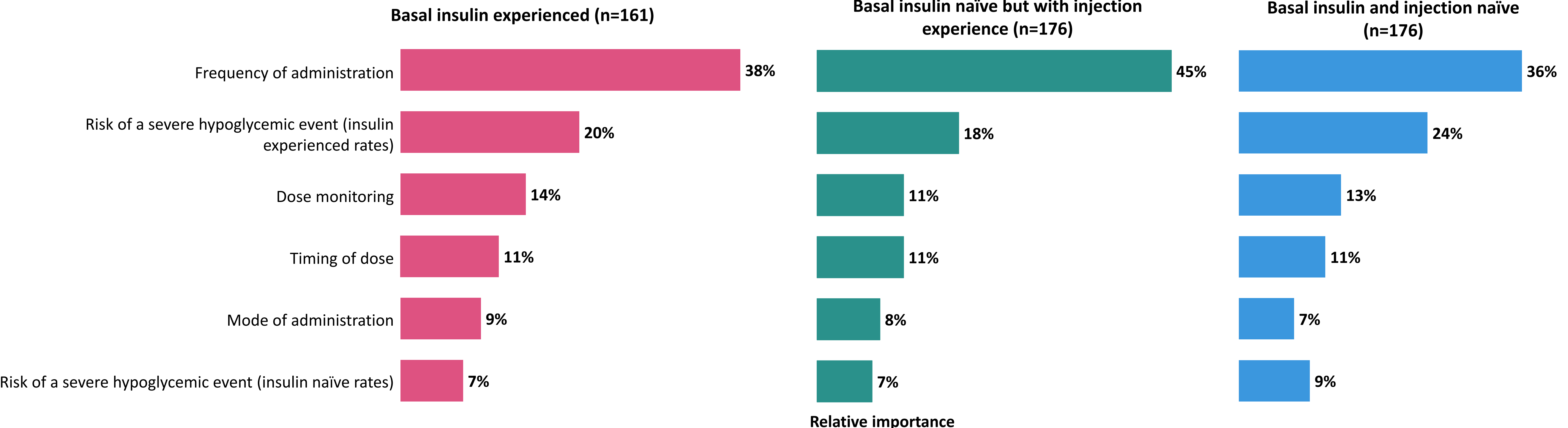
Attribute	Relative importance
Frequency of administration	40%
Risk of a severe hypoglycemic event (insulin experienced rates)	20%
Dose monitoring	13%
Timing of dose	10%
Mode of administration	9%
Risk of a severe hypoglycemic event (insulin naïve rates)	8%

Interpretation: The higher the relative importance, the more influential an attribute was to treatment choice.

Figure 2. Relative importance of attributes in the DCE by total sample (N=513)

Relative importance by sub-groups

- Frequency of administration consistently emerged as the most influential preference driver of treatment choice across treatment experience sub-groups (Figure 3) and countries.

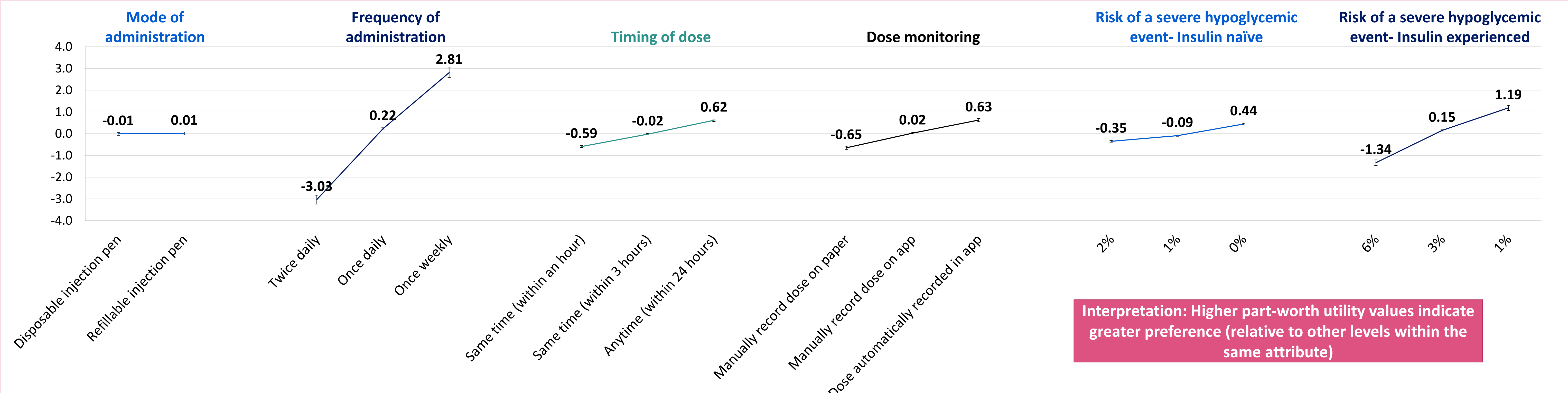


Attribute	Basal insulin experienced (n=161)	Basal insulin naïve but with injection experience (n=176)	Basal insulin and injection naïve (n=176)
Frequency of administration	38%	45%	36%
Risk of a severe hypoglycemic event (insulin experienced rates)	20%	18%	24%
Dose monitoring	14%	11%	13%
Timing of dose	11%	11%	11%
Mode of administration	9%	8%	7%
Risk of a severe hypoglycemic event (insulin naïve rates)	7%	7%	9%

Figure 3. Relative importance of attributes in the DCE stratified by T2D treatment experience

Part-worth utilities


- Frequency of administration showed the greatest range in part-worth utility values, with stronger preference towards OW administration vs OD or BD administration.



Attribute	Mode of administration	Frequency of administration	Timing of dose	Dose monitoring	Risk of a severe hypoglycemic event- Insulin naïve	Risk of a severe hypoglycemic event- Insulin experienced
Disposable injection pen	-0.01	-3.03	-0.59	-0.65	-0.35	-1.34
Refillable injection pen	0.01	0.22	-0.02	0.02	-0.09	0.15
Twice daily		2.81				
Once daily						
Once weekly			0.62	0.63	0.44	1.19
Same time (within an hour)						
Same time (within 3 hours)						
Anytime (within 24 hours)						
Manually record dose on paper						
Manually record dose on app						
Dose automatically recorded in app						


Interpretation: Higher part-worth utility values indicate greater preference (relative to other levels within the same attribute)

Figure 4. Mean part-worth utility values for attributes in the DCE



References

- Phillis-Tsimikas A, Bajaj HS, Begtrup K, et al. Rationale and design of the phase 3a development programme (ONWARDS 1-6 trials) investigating once-weekly insulin icodec in diabetes. Diabetes Obes Metab. Feb 2023;25(2):331-341. doi:10.1111/dom.14871
- Lilly E. With Once-a-Week Dosing, Insulin Efsitora Alfa Delivers A1C Reduction and Safety Profile Consistent with Daily Insulin. Eli Lilly. Accessed 09/09/2024, 2024. <https://investor.lilly.com/news-releases/news-release-details/once-week-dosing-insulin-efsitora-alfa-delivers-a1c-reduction>
- US Food and Drug Administration. Patient-focused drug development: Collecting comprehensive and representative input - Guidance for industry, Food and Drug Administration staff, and other stakeholders. 2020;
- PREFER I. "PREFER Recommendations. Why, when and how to assess and use patient preferences in medical product decision-making. 2022.



Supplementary materials