

KNOWLEDGE AND ATTITUDES REGARDING INSULIN PUMP USE AMONG ADULTS WITH TYPE 2 DIABETES IN THE UNITED STATES

William H. Polonsky¹, Steven V. Edelman², Ray Sieradzan³, Christianne Pang⁴, Trevor Bell⁴, Alison Zeng⁴, Pasha Javadi³, Andrew Thach³

¹Behavioral Diabetes Institute, San Diego, CA, USA, ²Taking Control of Your Diabetes and University of California San Diego School of Medicine, CA, USA, ³Embecta Corp., Parsippany, NJ, USA, ⁴dQ&A - The Diabetes Research Company, Quantitative Research, San Francisco, CA, USA

Introduction

- Many people with type 2 diabetes (T2D) will eventually require insulin therapy, often progressing from basal insulin to basal-prandial insulin therapy^{1,2}
- Intensification of insulin therapy can be accomplished with multiple daily injections (MDI); however, adherence to insulin injections and MDI regimens for T2D is notably suboptimal,^{2–4} and alternatives for insulin delivery are often needed to optimize glycemic control⁵
- Continuous subcutaneous insulin infusion (CSII), or insulin pump therapy, has been shown to improve outcomes for people with T2D who switch from MDI^{2,5–7}
- The aim of this study was to investigate the perspectives and attitudes of adults with T2D regarding insulin pump therapy

Methods

- Participants ≥18 years old, with T2D on insulin therapy, and who had completed an online survey as part of the dQ&A US Q3 2022 Diabetes Connections Patient Survey are included in the analysis
- Responses were summarized from the survey participants who used insulin therapy and specifically pump therapy or MDI, which was defined as ≥3 daily injections of long- and rapid-acting insulin, with adjustments for meals

Results

Survey participants

- Overall, 1,778 people with T2D and using insulin were surveyed, 37% from the US South Census Region, 26% from the Midwest, 19% from the West, and 18% from the Northeast
- A total of 144 people (8%) were on insulin pump therapy and 489 (28%) were using MDI
- One-half of the 144 people on insulin pump therapy (73; 51%) were using a hybrid closed-loop system

Table 1. Characteristics of survey participants with T2D

Characteristic	Pump (n=144)	MDI (n=489)
Female sex, n (%)	87 (60)	306 (63)
Age, mean (SD)	62 (12)	65 (11)
Range	24–86	30–98
18–44 years, n (%)	12 (8)	27 (6)
45–64 years, n (%)	66 (46)	170 (35)
≥65 years, n (%)	66 (46)	292 (60)
Race, n (%)		
White	114 (79)	367 (75)
Hispanic/Latino	9 (6)	43 (9)
Black	7 (5)	45 (9)
Other / no answer	14 (10)	34 (7)
Educational level, n (%)		
Associate's degree or higher	106 (74)	288 (59)
High school graduate +/- some college	38 (26)	193 (39)
Lower level or no answer	0	8 (2)

Results (cont.)

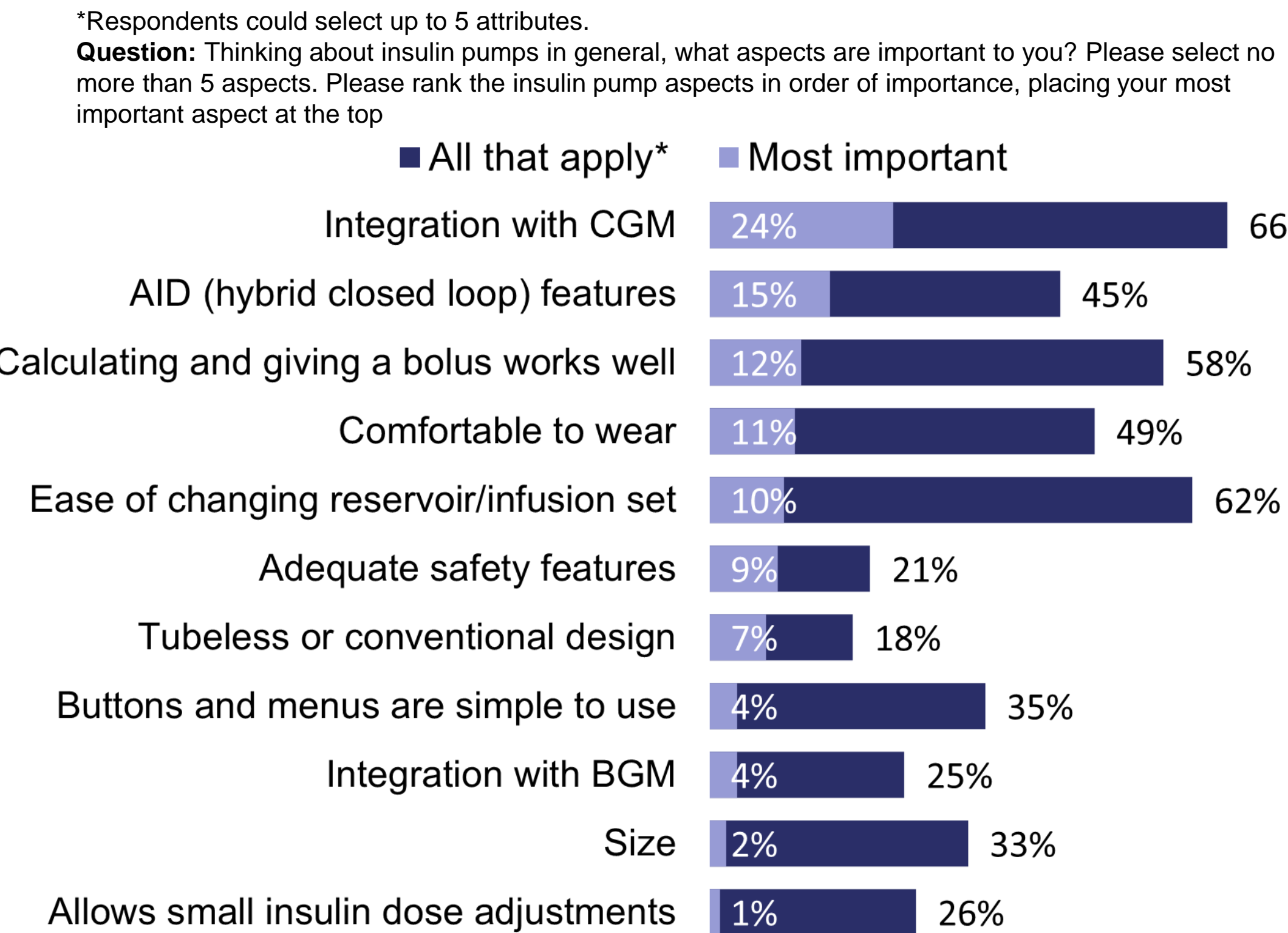
Table 1. Characteristics of survey participants (cont.)

Characteristic	Pump (n=144)	MDI (n=489)
Insurance type, n (%)		
Private insurance	62 (43)	152 (31)
Medicare only or Medicare Advantage	46 (32)	179 (37)
Medicaid or VA	11 (8)	40 (8)
Multiple insurance types ^a	25 (17)	110 (23)
Self-pay	0	8 (2)
Annual income, n (%)		
<\$50,000	44 (31)	225 (46)
\$50,000 to <\$100,000	36 (25)	119 (24)
≥\$100,000	34 (24)	59 (12)
Prefer not to answer	30 (21)	86 (18)
Time since diabetes diagnosis, n (%)		
≤5 years	5 (3)	19 (4)
6–15 years	19 (13)	107 (22)
≥16 years	120 (83)	362 (74)
A1c, n (%) ^b		
≤7.0% (≤53 mmol/mol)	65 (48)	206 (44)
>7.0% (>53 mmol/mol)	71 (52)	260 (56)
Percentages may not add up to 100 because of rounding.		
^a Includes Medicare plus private insurance, Medicare plus Medicaid, and multiple insurance types (all others)		
^b People with A1c values on pump therapy, n=136; and on MDI, n=466.		

- Relative to MDI users, pump users were younger, had lived more years with T2D, and reported higher educational attainment and greater annual income.**

Survey results

Figure 1. Preferred attributes of insulin pumps for those who had their pump for >3 months (n=136)

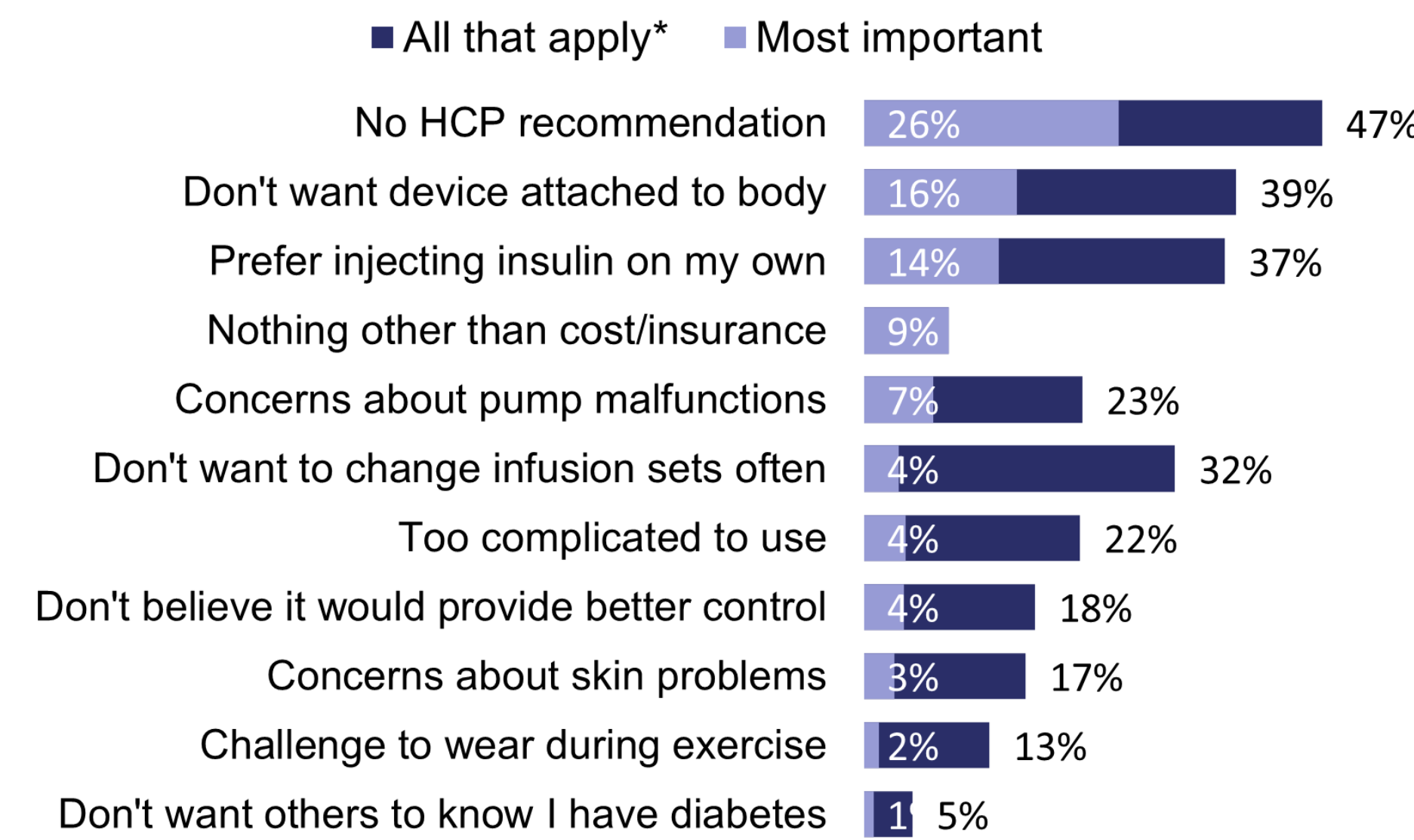


- CGM integration and AID capabilities were the most important pump attributes for people with T2D using an insulin pump.**

- Current thinking of 489 MDI users regarding insulin pumps:
 - A pump is not right for me (28%), unfamiliar with pumps (23%), never considered a pump (22%), open to trying one (21%), planning to start pump therapy (3%), and former pump user (3%)

Figure 2. Reasons for not using a pump according to MDI users with T2D (n=428)

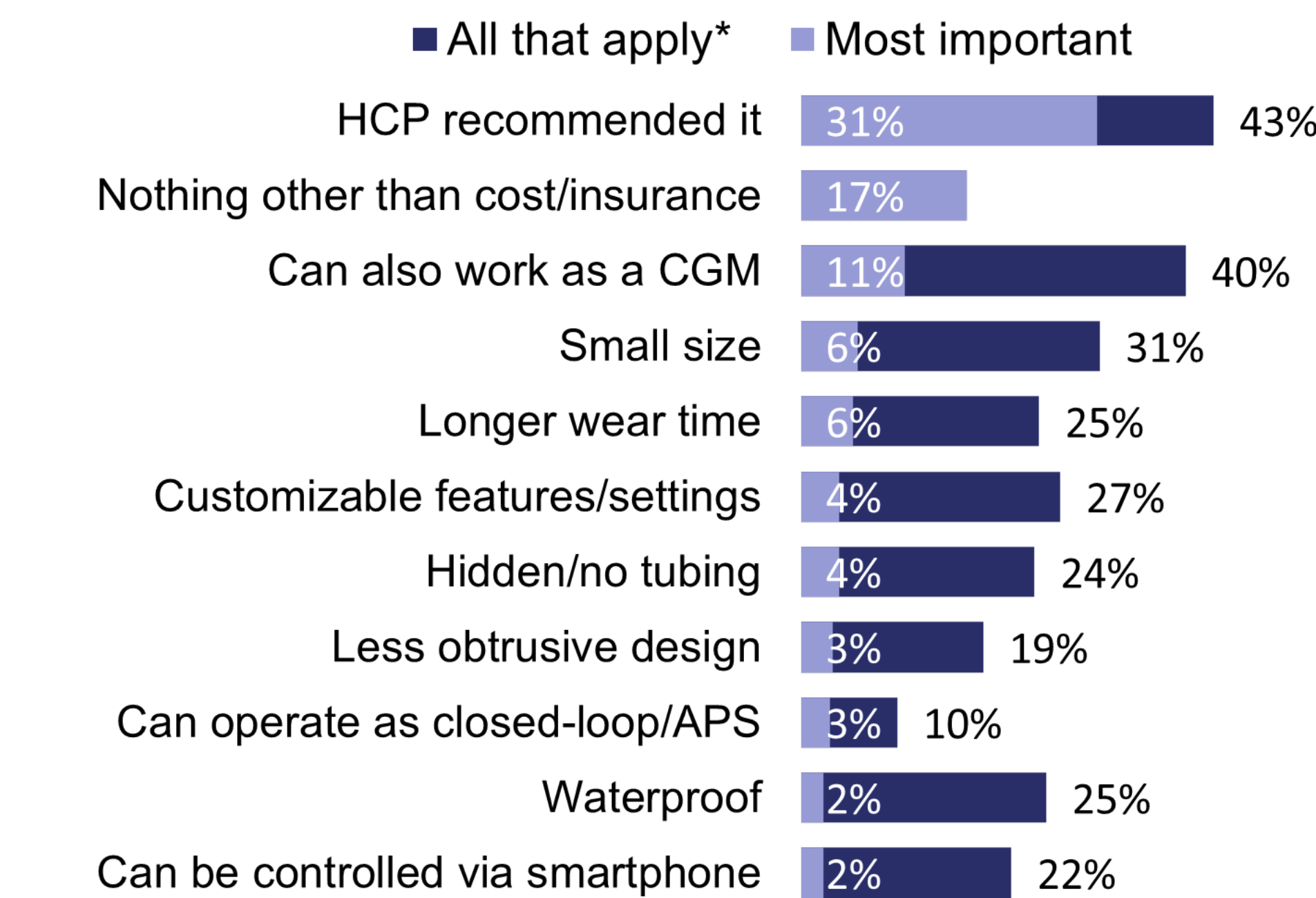
*Respondents could select up to 5 reasons (unless selecting cost or insurance issues).
Question: What are the main reasons you do not currently use an insulin pump? Excluding cost or insurance coverage issues, please rank the reasons why you do not currently use an insulin pump.



- The top barrier for pump adoption among MDI users with T2D is a lack of recommendation from their health care provider (HCP).**

Figure 3. Facilitators for pump adoption among MDI users with T2D (n=417)

*Respondents could select up to 5 facilitators (unless selecting cost or insurance issues).
Question: What, if anything, would encourage you to start using an insulin pump? Excluding cost or insurance coverage, please rank the factors that would encourage you to start using an insulin pump.



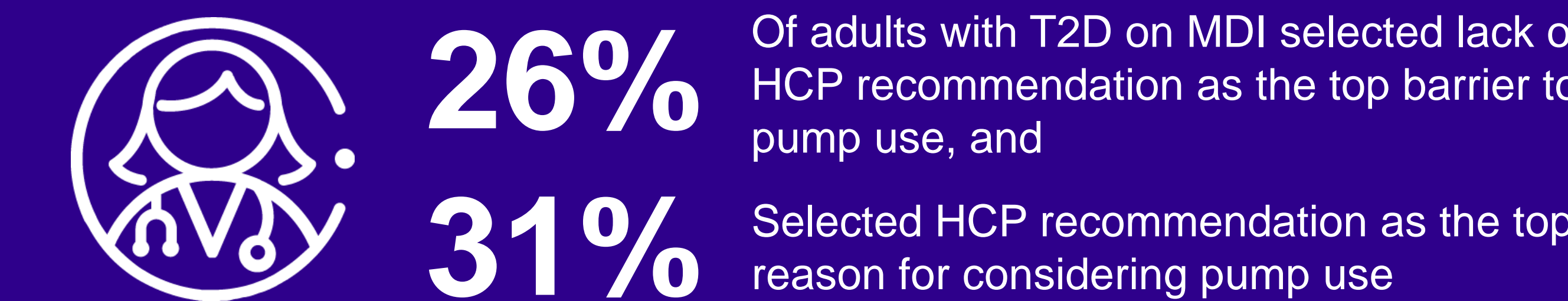
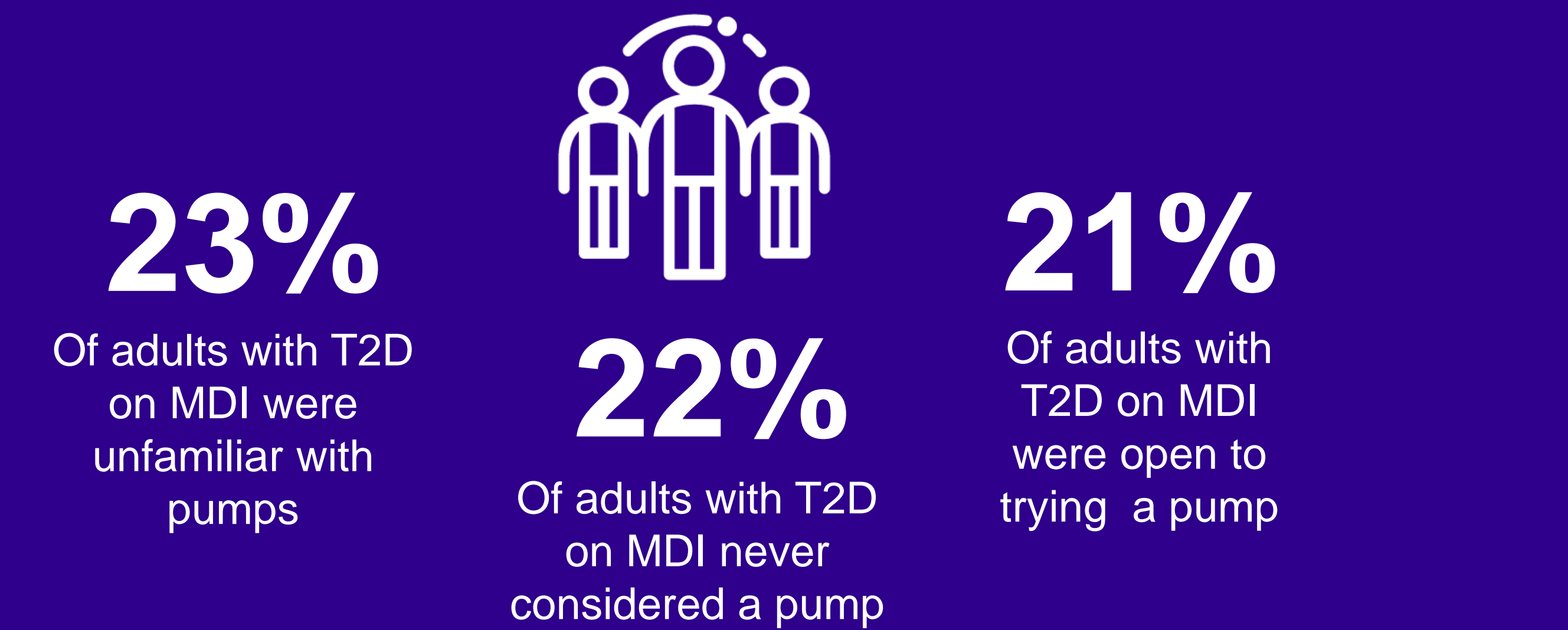
- The top driver for pump adoption among MDI users with T2D would be an HCP recommendation, which coincides with the top barrier.**

Study limitations

- This was a cross-sectional assessment among a sample of adults with T2D on MDI or an insulin pump; responses regarding insulin pumps may not be generalizable to all people with T2D

Key Findings

- The importance of health care provider (HCP) recommendations in encouraging pump use was evident among survey participants
→ An HCP recommendation was the most common influence on potential insulin pump acceptability among adults with T2D on MDI
- Among current insulin pump users, advanced pump features such as CGM integration and AID capabilities were selected as the most important attributes



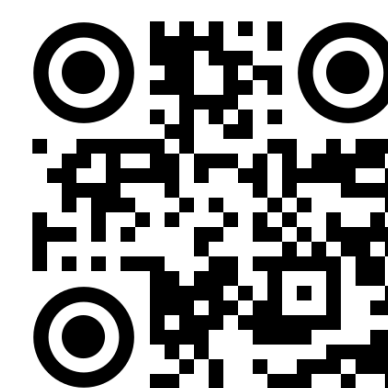
Presented at ATTD 2024
March 6–9, Florence

Abbreviations
AID: automatic insulin delivery
APS: artificial pancreas system (closed-loop system)
CGM: continuous glucose monitoring
HCP: health care provider
MDI: multiple daily injections of insulin
T2D: type 2 diabetes

References
1. ElSayed NA, et al. Diabetes Care. 2023;46(Suppl 1):S140–S157.
2. Ekanayake P, Edelman S. Diabetes Obes Metab. 2023;25(Suppl 2):3–20.
3. Peyrot M, et al. Diabet Med. 2012;29(5):682–689.
4. Edelman SV, et al. J Manag Care Spec Pharm. 2019;25(12):1420–1431.
5. Aronson R, et al. Diabetes Obes Metab. 2016;18(5):500–507.
6. Polonsky WH, Soriano EC. J Diabetes Sci Technol. 2023. doi:10.1177/19322968231198533.
7. Jendle J, Reznik Y. Diabetes Obes Metab. 2023;25(Suppl 2):21–32.

Acknowledgments
Original research funded by dQ&A Market Research Inc. Research concept, survey design, and data analysis by dQ&A Market Research Inc. Access to data for this publication was funded by Embecta Corp., Parsippany, NJ, USA. Medical writing and editorial support were provided by Elizabeth V. Hillyer, DVM, and funded by embecta in accordance with Good Publication Practice (GPP 2022) guidelines.
embecta, formerly part of BD.
Contact Information
Ray Sieradzan, email: ray.sieradzan@embecta.com

Disclosures
WHP is a consultant for embecta.
SVE has served on advisory boards and speakers' bureaus for AstraZeneca, MannKind, and Xeris and on an advisory board for BrightSight and is a board member for Senseonics and TeamType1.
RS, PJ, and AT are employees and stockholders of embecta.
CP, TB, and AZ are employees of dQ&A; dQ&A's clients include several pharmaceutical and device companies in the diabetes field.



Scan to download a copy of this poster
Copies of this poster and its content, obtained through this QR code, are for personal use only and may not be reproduced without written permission from the authors

