

Ease of use and functionality of the newly developed AllStar® PRO versus the ClikSTAR® insulin pen: experience of people with diabetes and diabetes nurse educators

Thomas Haak¹, Richard Head², Houda Mihad³, Frank Flacke³

¹Diabetes Clinic, Diabetes Center Mergentheim, Bad Mergentheim, Germany; ²The Research Partnership, London, UK; ³Global Diabetes Division, Sanofi, Frankfurt am Main, Germany

INTRODUCTION

- When initiating insulin therapy, fear of injections and perceived discomfort can be an obstacle for people with diabetes.¹
- Healthcare providers also face barriers to initiating insulin therapy in people with diabetes, including worries about starting and adjusting insulin doses, concerns about the complexity of insulin regimens, and fears about the difficulty of training people with diabetes to use insulin.¹
- Simplifying insulin administration to facilitate initiation and optimize adherence to therapy is an important goal in diabetes management. The introduction of insulin pens as a delivery mechanism has helped reduce resistance to initiating and adhering to insulin therapy.^{1,2}
- Insulin pen design has focused on developing a delivery mechanism that provides a combination of convenience, satisfaction and affordability that may lessen the burden of diabetes self-management and improve treatment adherence compared with vials and syringes.²

OBJECTIVE

Through interviews with people with diabetes and diabetes nurse educators (DNEs), we examined the ease of use and functionality of the newly developed AllStar® PRO pen and the current ClikSTAR® pen.

METHODS

- Insulin pen users aged 18–65 years with type 1 or type 2 diabetes (n=90; prior ClikSTAR® users [n=45], non-ClikSTAR® users [n=45]) and DNEs (n=90) from Canada, Germany and the UK (30 pen users and 30 DNEs per country) participated in 30-minute face-to-face in-depth interviews.
- The interviews included practical assessment of both the new AllStar® PRO pen and the ClikSTAR® insulin pens.
- The results were tabulated and t-tests and z-tests were used to establish significance between means and proportions, respectively.

RESULTS

Demographics:

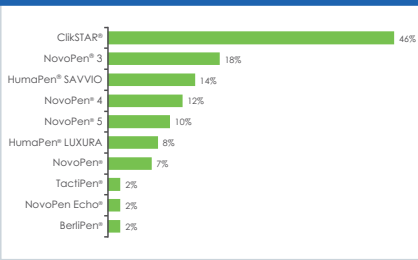
- The majority of participants with diabetes in the study were between 51 and 65 years old (Table 1) and the mean length of time since diabetes diagnosis was 14 years.
- Almost half of the participants were using both basal and bolus insulins.

Table 1: Demographics of study participants (n=90) with diabetes

	% of participants
Age (Years)	
18–30	11
31–40	22
41–50	13
51–60	26
61–65	26
Over 65	2
Diabetes type	
Type 1	39
Type 2	61
Insulin type	
Basal	26
Bolus	28
Both	47

- ClikSTAR® was the most commonly used insulin device (Figure 1).
- DNEs were most familiar with the NovoPen® 4 device, with 82% scoring familiarity as 6/7 or 7/7. The equivalent proportion for ClikSTAR® was 68%. There was no clearly favored reusable device among DNEs.
- Device attributes:**
 - People with diabetes and DNEs who were shown various pen injector attributes generally found functional pen features to be of greatest importance (Figure 2).
 - Very few people from either group experienced any issues when using AllStar® PRO or ClikSTAR®, and ≥90% correctly completed each step in the injection process for both insulin pens.
 - Significantly more participants in both groups agreed that it was easy to dial the correct dose with AllStar® PRO (88%) compared with ClikSTAR® (76%); this was considered the most important device feature overall (Figure 3).

Figure 1: Current insulin device type used (% of participants)



- Significantly more participants in either group agreed that AllStar® PRO was 'easy to learn/teach others to use' (93% vs 86%), 'comfortable to use in public' (72% vs 43%) and 'easy to use overall' (92% vs 79%) compared with ClikSTAR® (Figure 3).
- Among participants with diabetes, the AllStar® PRO device was typically preferred over the ClikSTAR® device by younger participants (<50 years old) and those with diabetes for

less time (<10 years), with 36% and 41% stating it was easy to inject compared with 15% and 13% in participants >50 years old and those with diabetes for >10 years.

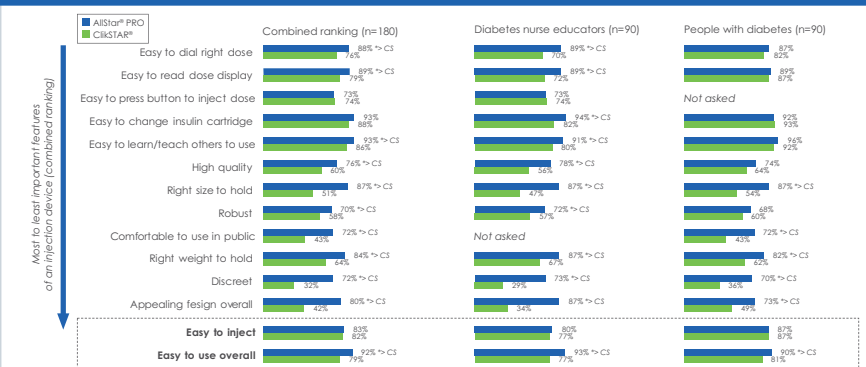
- In all countries assessed (Canada, Germany and the UK), the AllStar® PRO device was ranked ahead of the ClikSTAR® device for the overall ease of use attribute.
- The AllStar® PRO device was rated 6/7 or 7/7 by participants in either group significantly more times than the ClikSTAR® device across many attributes in all assessed countries, particularly Canada (Figure 4).
- The likelihood of participants in either group making a request for/recommending the AllStar® PRO device over the ClikSTAR® device was slightly lower in Germany than the other countries surveyed.
- When asked the question: *What would be needed for you to recommend a reusable device rather than a disposable?* DNEs considered ease of use to be the most important driver. Aesthetics, durability and patient-specific factors were also considered to be important in this regard.

Figure 2: Important features of an injectable device according to diabetes nurse educators (n=90) and people with diabetes (n=90)

Most to least important features of an injectable device	Combined ranking	Diabetes nurse educators	People with diabetes
Easy to dial right dose	88%	89%	87%
Easy to read dose display	89%	89%	87%
Easy to press button*	72%	72%	72%
Easy to change insulin cartridge	93%	93%	92%
Easy to learn/teach others to use	93%	91%	92%
High quality	76%	78%	74%
Right size to hold	87%	87%	87%
Robust	70%	72%	68%
Comfortable to use in public†	43%	72%	72%
Right weight to hold	84%	87%	82%
Discreet	72%	70%	70%
Appealing design overall	80%	87%	73%

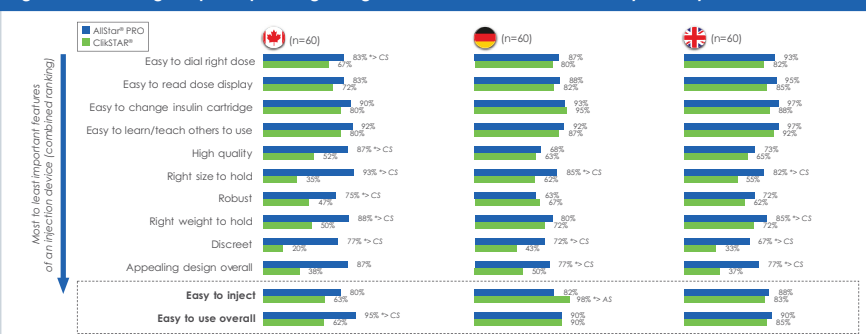
*Not asked to people with diabetes. †Not asked to diabetes nurse educators. ‡Features ranked according to the percentage of participants selecting them as 'very important'.

Figure 3: Percentage of participants agreeing with each attribute statement, by group



*>CS, statistically significant versus ClikSTAR®. Agreement with statement defined as rating of 6/7 or 7/7

Figure 4: Percentage of participants agreeing with each attribute statement, by country



*>CS, statistically significant versus ClikSTAR®; †>AS, statistically significant versus AllStar® PRO. Agreement with statement defined as rating of 6/7 or 7/7

CONCLUSIONS

- Reducing the burden of insulin treatment with more convenient delivery systems, such as reusable insulin pen devices, may help patients achieve improved glycemic control.
- The functional features of reusable insulin pen devices are thought to be of greater importance compared with aesthetic features by both people with diabetes and DNEs when ranking device attributes.
- It was found that the AllStar® PRO device was significantly easier to use overall than the ClikSTAR® device, although very few problems were experienced by people using either insulin pen.

Disclosures: Thomas Haak — Advisory board member; Ascensia, MSD, Eli Lilly, Roche, Sanofi, Richard Head — Consultant; Sanofi, Houda Mihad — Employee; Sanofi; Stock/shareholder: Sanofi, Frank Flacke — Employee; Sanofi; Stock/shareholder: Sanofi.

References: 1. Magwire ML, Am J Ther. 2011; 18: 392–402; 2. Tschiedel B, et al. Diabetes Ther 2014; 5: 545–55.

Contact details: Presenting author: Richard Head, The Research Partnership, London, UK; Richard@researchpartnership.com

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