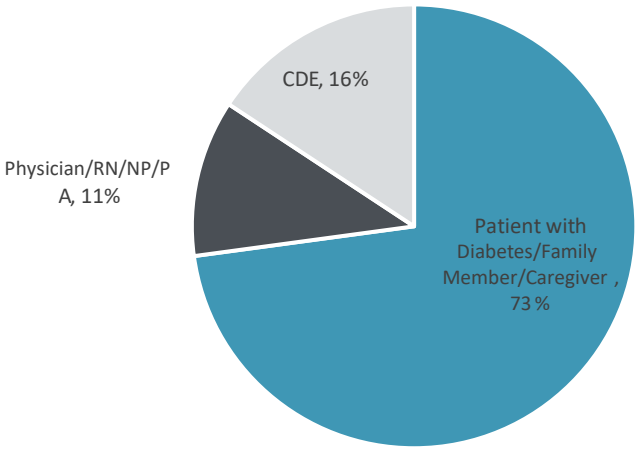
Pumps vs. Daily Injections: the Future of Insulin Delivery

Diabetes In Control survey conducted November 17 – 25, 2018. For analysis, visit
http://www.diabetesincontrol.com/pumps-vs-daily-injections-the-future-of-insulin-delivery

Charts and Graphs

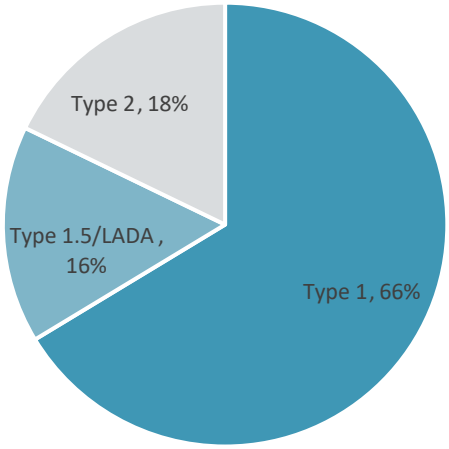
Which of the following best describes you?



Source: Piper Jaffray & Co and Diabetes In Control Survey

Of the 101 patients that completed the survey, 66% were Type 1, 16% Type 1.5 (LADA) and 18% Type 2. The survey was heavily weighted toward Type 1s, which is not surprising given the topic of Insulin Delivery (Pumps vs. Daily Injections).

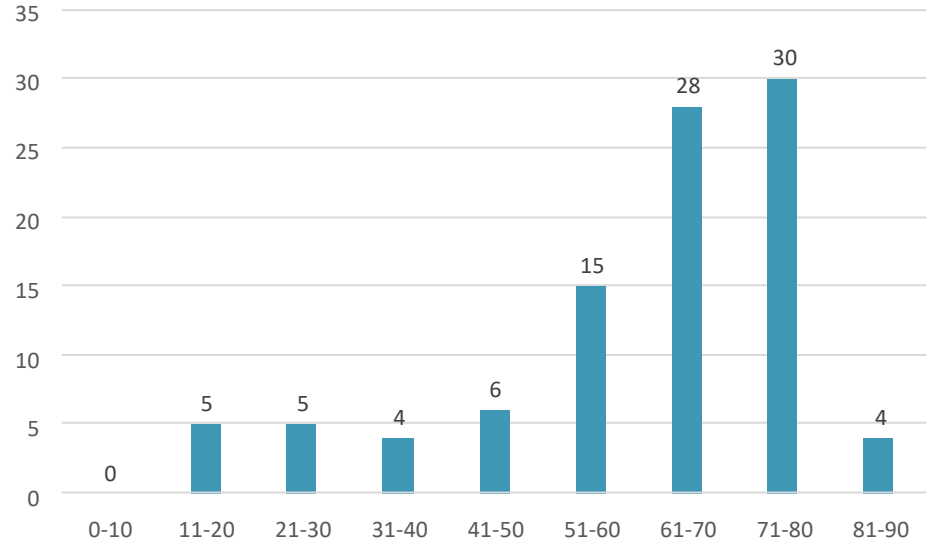
What type of diabetes do you/they have?



Source: Piper Jaffray & Co and Diabetes In Control Survey

The average age of patients was 60, with the majority of respondents falling in the 50-80 age range.

How old are you or the person with diabetes?

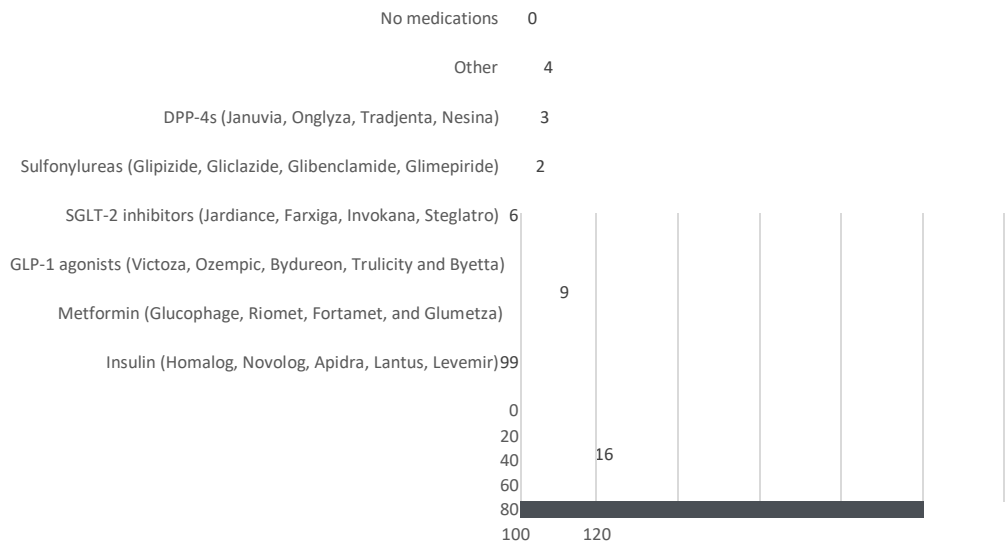


Source: Piper Jaffray & Co and Diabetes In Control Survey

Piper Jaffray and Diabetes In Control Survey Results
January 5, 2019
http://www.diabetesincontrol.com/pumps-vs-daily-injections-the-future-of-insulin-delivery

We then asked the patients what medications they are on for diabetes. Of the 101 respondents, 99 were on insulin. Again, this is not overly surprising given the title of the survey being Insulin Delivery (Pumps vs. Daily Injections). This included 18 Type 2's of which 17 were on insulin. As shown below, some patients take more than one drug to manage their diabetes.

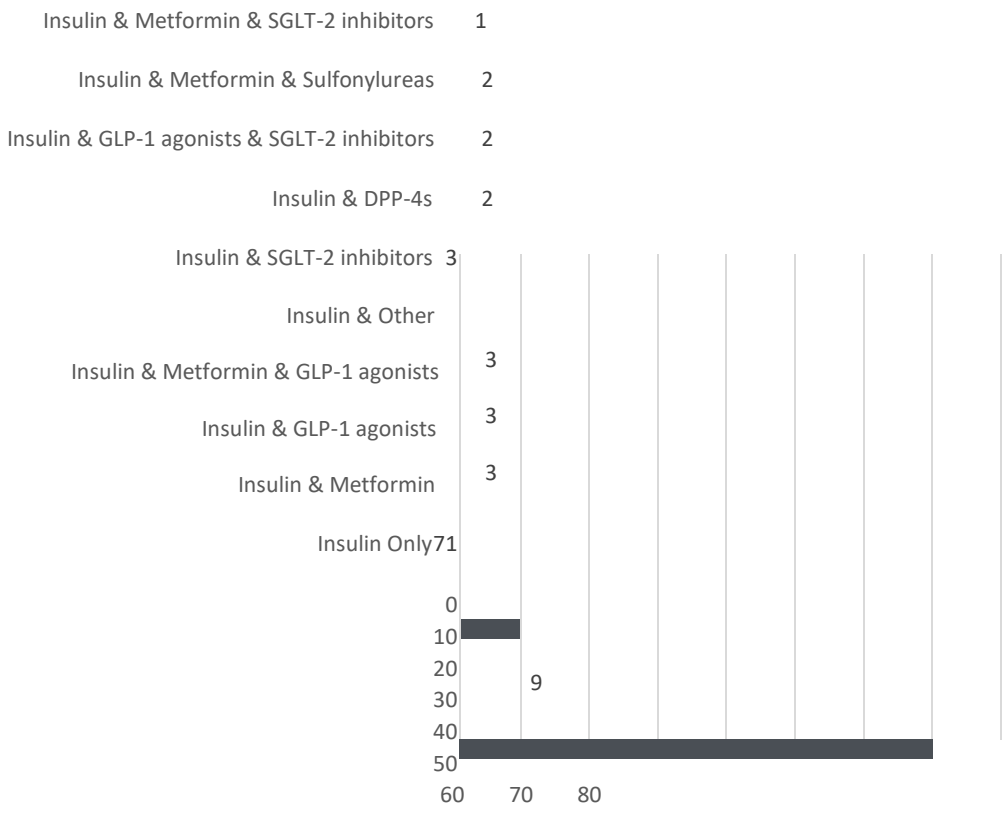
What medications, if any, do you/they take to help manage their diabetes? (select all that apply)



Source: Piper Jaffray & Co and Diabetes In Control Survey

Digging deeper into the data, of the 99 patients on insulin, 71 were on insulin only (71%) while the remaining other 29% were on insulin plus at least 1 other drug. The combo that had the most responses was insulin plus metformin at 9, followed by insulin plus a GLP-1 and insulin plus metformin plus GLP-1. The Type 2 patients were more likely to be on another drug with 72% being on more than 1 drug for their diabetes compared to 20% for Type 1s.

Of those on insulin, what else do they take?



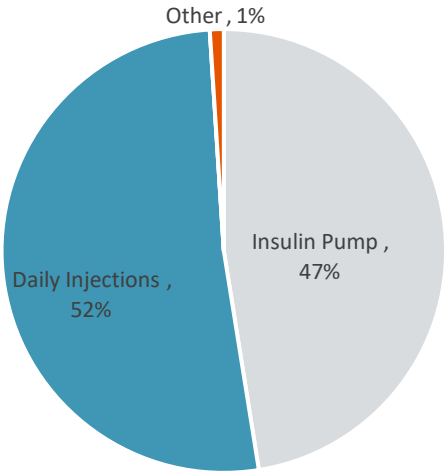
Source: Piper Jaffray & Co and Diabetes In Control Survey

Piper Jaffray and Diabetes In Control Survey Results
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Current Pump Users

we asked those who take insulin how they do it: either pump, daily injections, inhalable insulin or other. We had 99 responses of which 47% were on pumps, 52% were on daily injections and 1% other. Looking at those responses between Type 1 and Type 2, of the Type 1s, 50% were on a pump and 49% daily injections. Of the Type 2s, 35% were on a pump and 65% daily injections (note only had n=17 for Type 2 here).

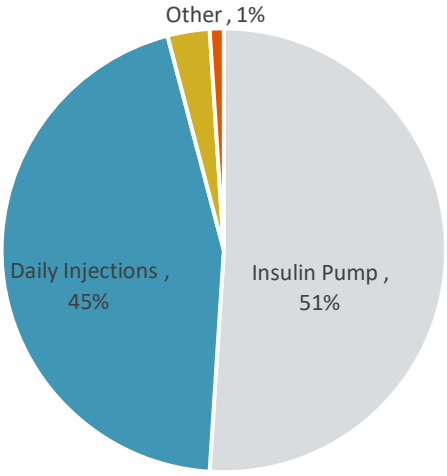
How do you/they currently take insulin?



Source: Piper Jaffray & Co and Diabetes In Control Survey

We then asked the patients how they plan on taking insulin in the future, which showed a share shift of 400 bps to pumps (47% today going to 51% in the future). So of the 98 responses (lost 1 respondent), 51% plan to use insulin pumps in the future, 45% daily injections, 3% inhalable insulin and 1% other. Of the Type 1s, 52% plan to use a pump and 43% daily injections in the future. Of the Type 2s, 44% plan to use a pump and 56% daily injections in the future (note only had n=16 for Type 2 here). The data suggest year-over-year pump growth of ~6.4%. Interestingly enough, inhalable insulin was an attractive alternative for daily injections.

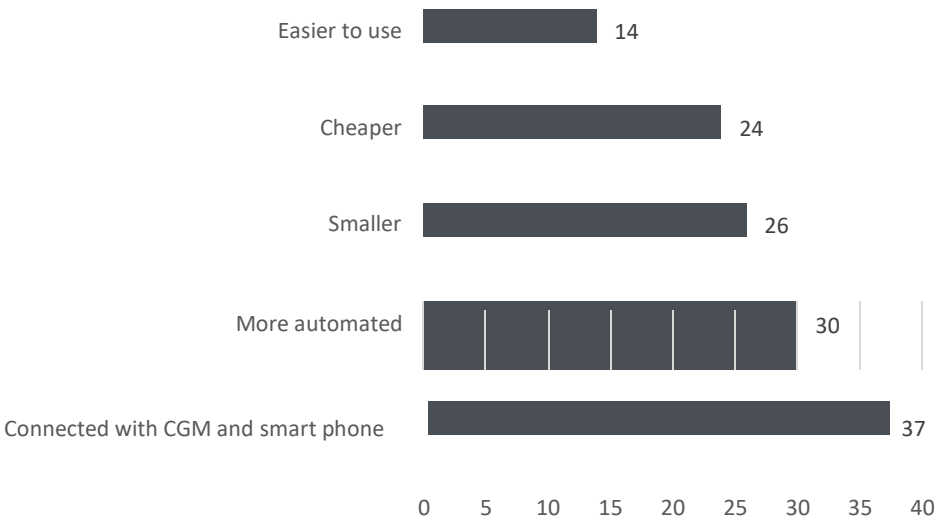
How do you/they plan to take insulin in the future?



Source: Piper Jaffray & Co and Diabetes In Control Survey

We asked the pump users what they would like to see in next-generation pumps, with options being connected with CGM and smart phone, more automated, smaller, cheaper, and easier to use. As shown below, patients want a more automated system that connects with their CGM and smart phone. (The companies TNDM, PODD and Bigfoot are moving straight to the phone and all the companies have ongoing programs to link their pumps to CGMs.)

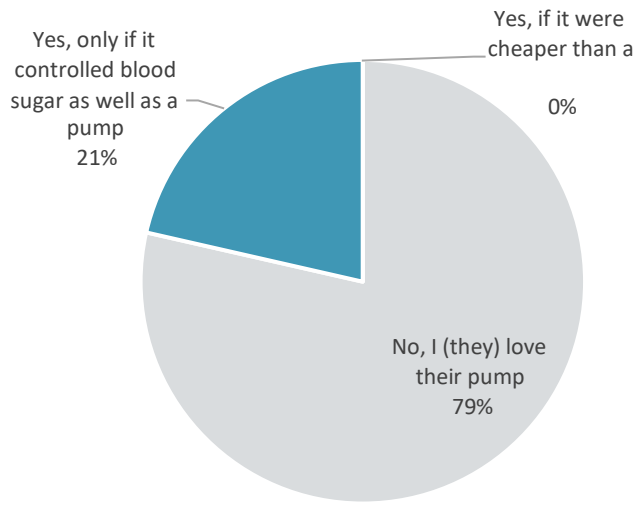
What are the top features of next generation pumps that you would like to see in the future? (select all that apply)



Source: Piper Jaffray & Co and Diabetes In Control Survey

Looking at how smart might affect usage of pumps, we asked the current/future pumpers about smart pens. If a smart pen, defined as a Bluetooth enabled insulin pen that is connected to CGM or BGM that automatically shows insulin on board, the last dose time and amount as well as a built in dose calculator were available would you stop using an insulin pump and go back to daily injections with the smart pen? As shown below, 79% said no, and 21% said yes, only if it controls blood sugars as well as a pump.

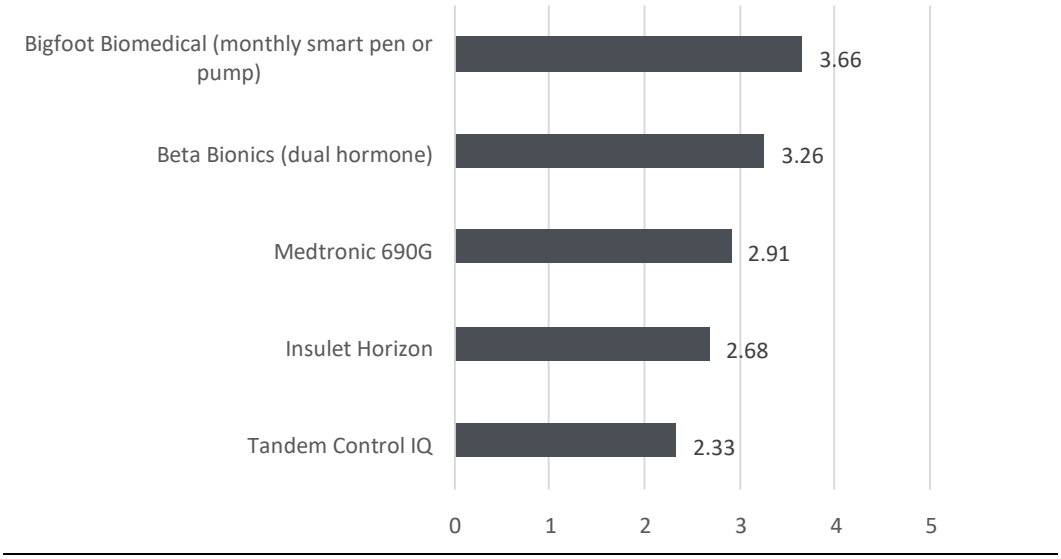
If a smart pen, defined as a Bluetooth enabled insulin pen that is connected to CGM or BGM that automatically shows insulin on board, the last dose time and amount as well as a built in dose calculator were available would you stop using an insulin pump and go back to daily injections with the smart pen?



Source: Piper Jaffray & Co and Diabetes In Control Survey

Lastly, we provided each current and future pumper with a brief description and picture of future technology from each company: MDT 690G, PODD Horizon, TNDM Control IQ, Bigfoot Biomedical system and Beta Bionics iLet (dual hormone). We asked them to rank the most interesting with a 1 and least interesting with a 5 so the lower the number the better. Of current pumpers, TNDM's control IQ was the most interesting followed by PODDs Horizon, MDT 690G, Beta Bionics and Bigfoot.

With 1 being the most interesting and 5 being the least interesting, please read the brief descriptions of each pipeline product and rank order them.

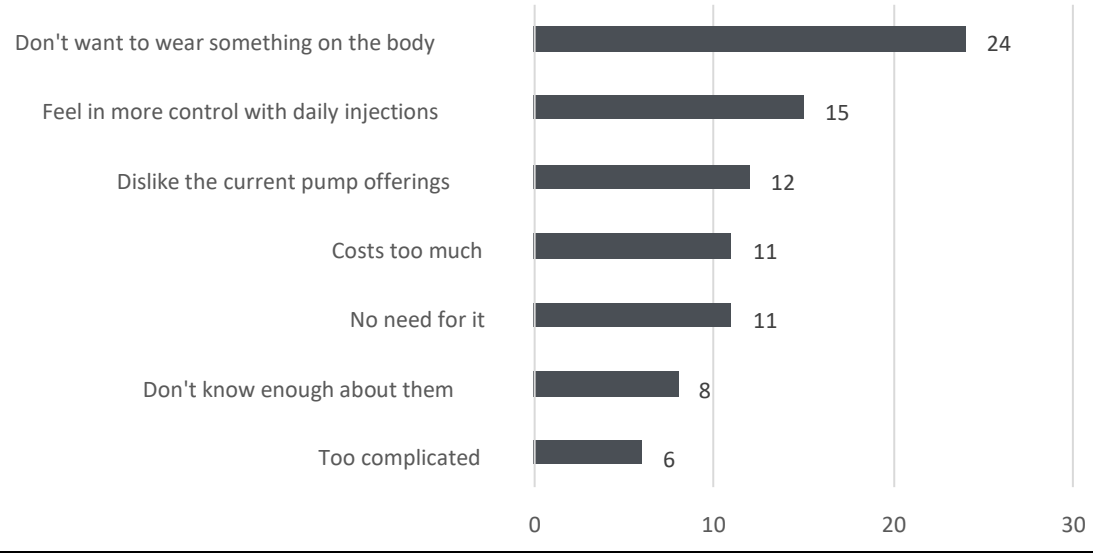


Source: Piper Jaffray & Co and Diabetes In Control Survey

MDIs (daily injectors)

The next line of patients we asked questions of were the non-pumpers (n=45), the ones who chose to stay on daily injections. The first obvious question is why are they not interested in pumps and by far the highest ranked choice was they do not want to wear something on their body, followed by they feel in more control with daily injections. This is why pump penetration will never reach 100% as there is a good chunk of patients (20%-30%) who say they would never want a pump attached to their body.

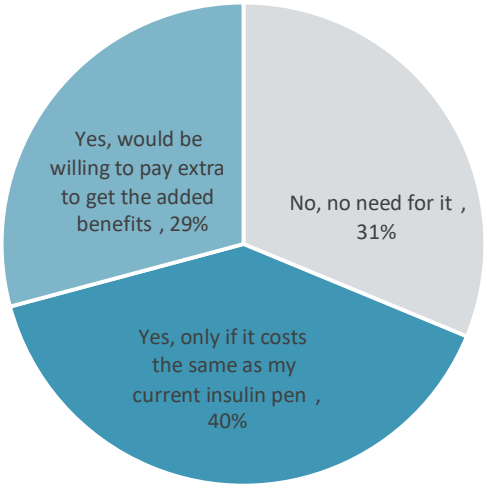
Why are you/theynot interested in insulin pumps? (select all that apply)



Source: Piper Jaffray & Co and Diabetes In Control Survey

So if the patients are not interested in pumps, we then asked them about smart pens. The majority, 69%, would be interested in smart pens. In fact, 40% would be interested in smart pens only if it costs the same as current insulin pens where as 29% would actually be willing to be extra given the added benefits of smart pens. 31% of patients believe there was no need for smart pens. Interestingly, a substantial number of patients (29%) said they were willing to pay extra for the smart pens.

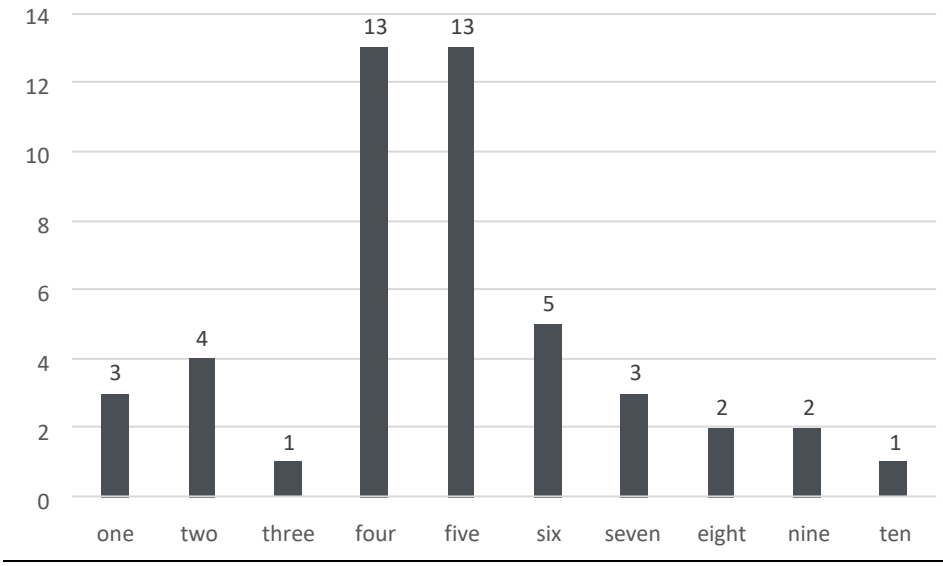
There is increased discussion by companies and experts around smart insulin pens. If a smart pen, defined as a Bluetooth enabled insulin pen that is connected to CGM or BGM that automatically shows insulin on board, the last dose time and amount as well as a built in dose calculator were available, would you/they switch from your/their current insulin pen to a smart pen?



Source: Piper Jaffray & Co and Diabetes In Control Survey

We also wanted to know how many injections people are doing a day. The majority do between 4-5 a day, which are most likely before each meal per day and a few postprandial corrections.

How many times a day do you/they inject insulin?

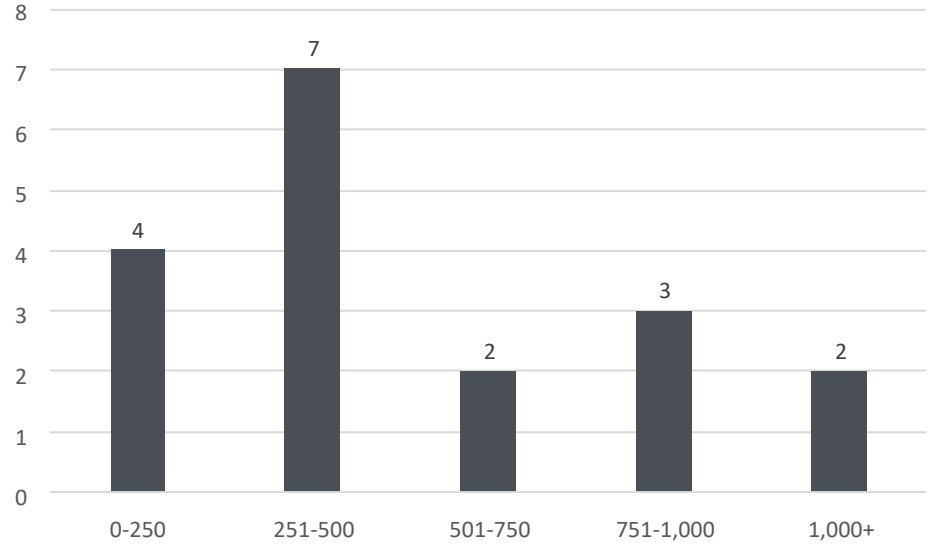


Source: Piper Jaffray & Co and Diabetes In Control Survey

Professional Standpoint

While we captured over 100 patients, we were only able to capture 15-25 physicians, nurses or CDEs for most questions. The majority of the responders see between 250-500 patients a year.

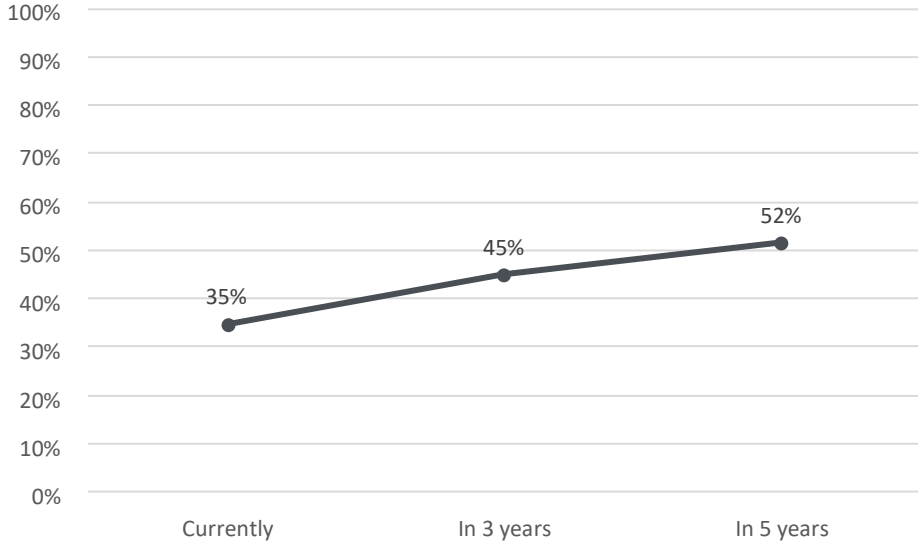
How many patients do you see a year?



Source: Piper Jaffray & Co and Diabetes In Control Survey

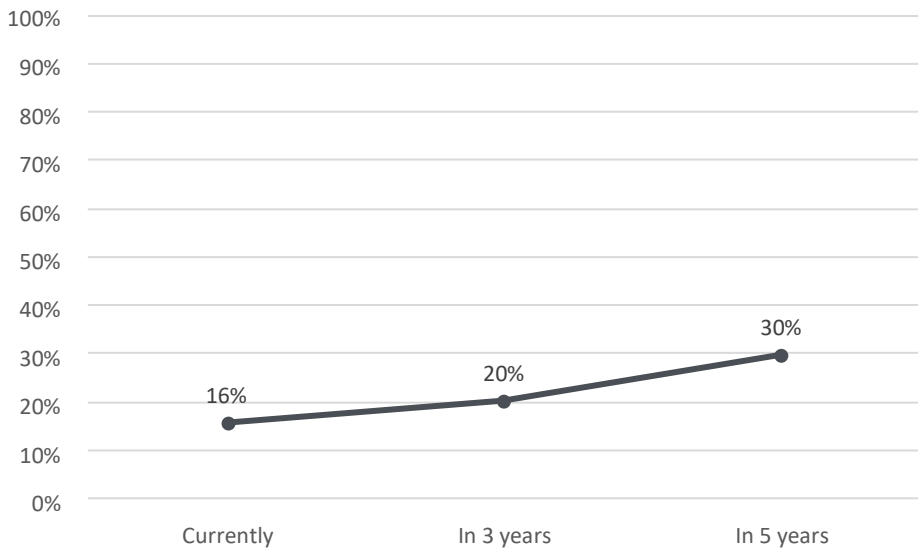
Since this is a pump-focused survey, we asked what percent of their Type 1 patients were on insulin pumps and how they see that trending over the next 3 and 5 years. The results (n=25) suggest that pump penetration is at 35%, trending to 45% in 3 years and 52% in 5 years.

What percent of your Type 1 patients are on insulin pumps and how do you see that trending in the future?



Source: Piper Jaffray & Co and Diabetes In Control Survey

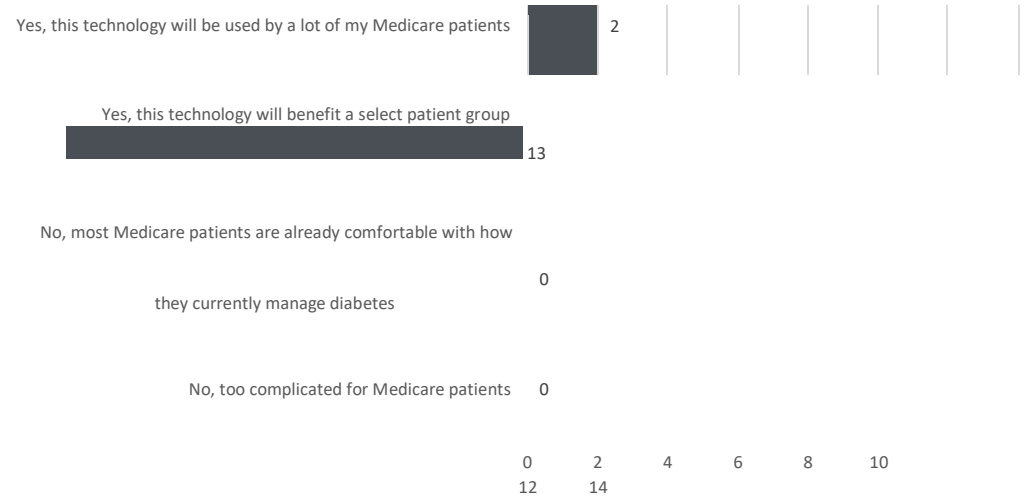
What percent of your Type 2 patients are on insulin pumps and how do you see that trending in the future?



Source: Piper Jaffray & Co and Diabetes In Control Survey

We then asked them about OmniPod for Medicare as the company will more broadly roll out to Medicare patients starting in 2019. We asked if they believe that Medicare patients will be interested in using the OmniPod technology: 87% said yes this technology will benefit a select patient group and 12% said it will be used by a lot of Medicare patients. Importantly, zero people answered no. In our view, Medicare will prove to be a nice tailwind in 2019 for PODD given the low starting base of Medicare patients.

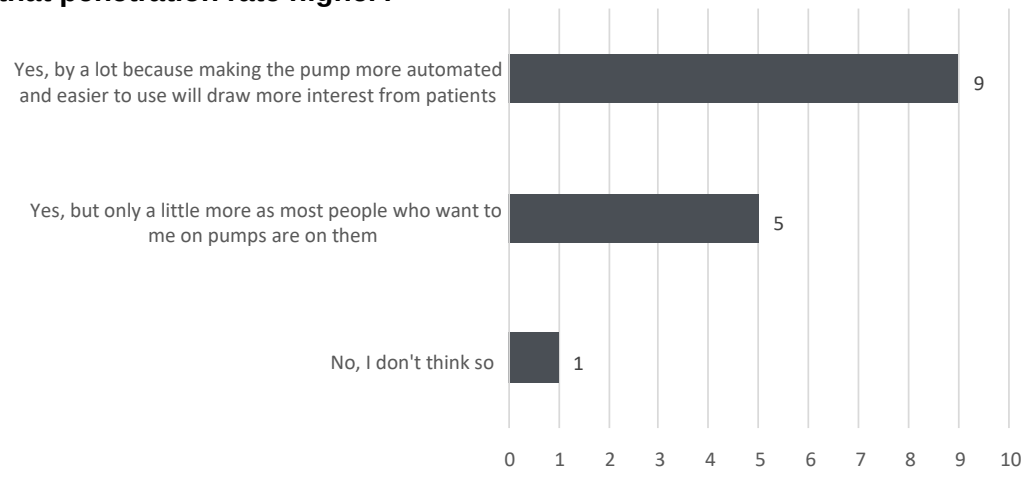
When comparing the following pump companies, please select which company ranks best in the following categories.



Source: Piper Jaffray & Co and Diabetes In Control Survey

Rounding out the survey, the key question to the insulin pump market over the next 3-5 years is whether AID systems can jump-start pump penetration which has been stuck at 30% for the last several years. Only 1 person believes that AID systems won't increase penetration. The remaining 14 respondents, or 93% of people, believe it will expand penetration. Of the 14 who said yes, 5 believe it will improve penetration by only a little and 9 believe it will expand it by a lot. This supports our prior questions that pump penetration is set to accelerate from 30% today to somewhere in the range of 40%-45%.

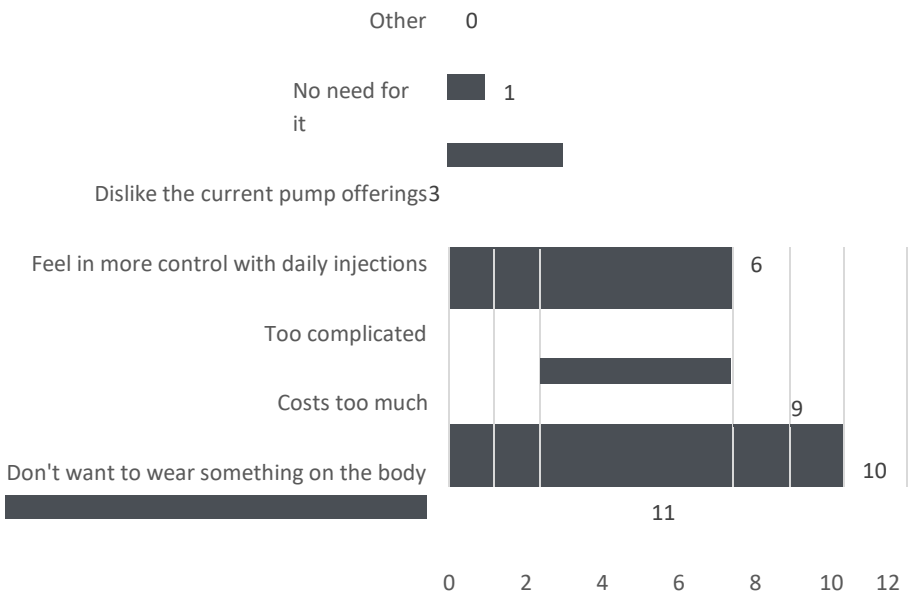
Insulin pumps of the future are moving towards AID systems (automated insulin deliver) where by the pump is connected with CGM and can vary both basal rate and provide auto correction boluses although the patient will still need to bolus for meals. The overall pump market has been stuck at 30% penetration for the last several years. Will the introduction of AID systems move that penetration rate higher?



Source: Piper Jaffray & Co and Diabetes In Control Survey

We asked the doctors, nurses and CDEs the biggest reasons patients do not want an insulin pump. As in the patient portion of the survey, the most responses were that people don't want to wear something on the body followed by cost and too complicated. The patient portion of the survey rated cost and too complicated much lower than the professionals, but we get the sense that some patients do not want to admit to either. That said, both physicians and patients feel the biggest pushback is not wanting to wear something on the body.

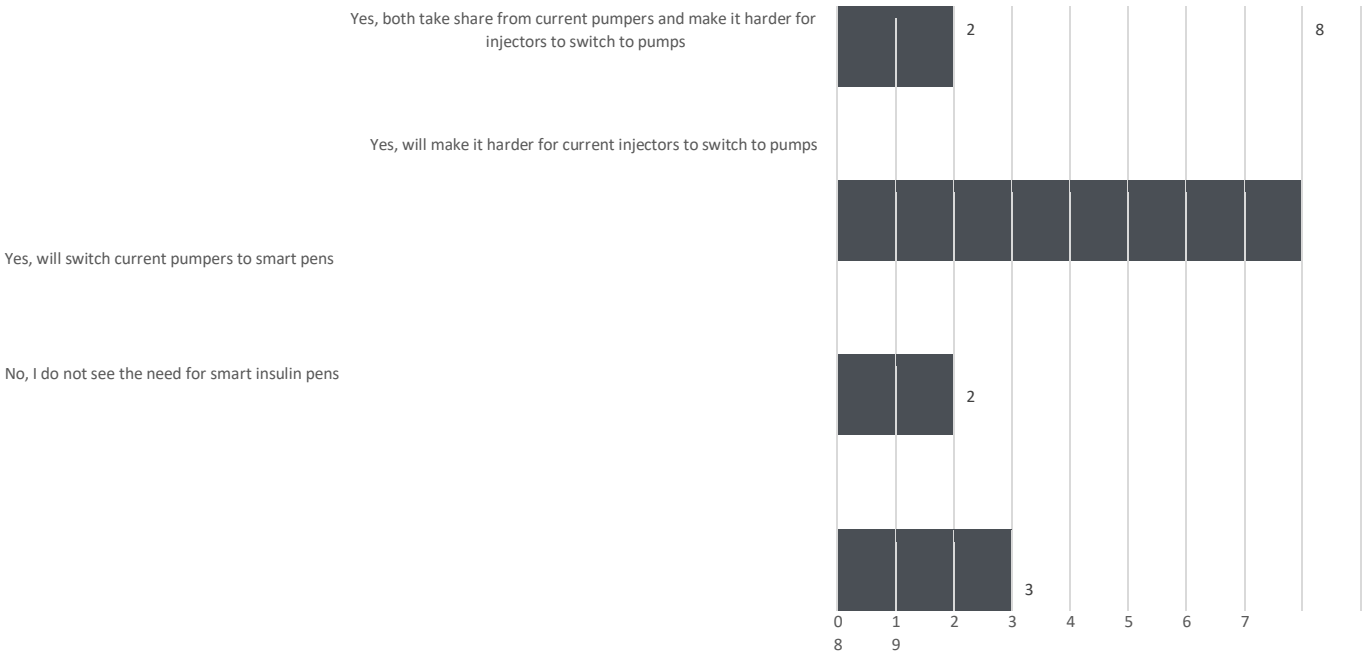
What are the biggest reasons why patients do not want an insulin pump? (select all that apply)



Source: Piper Jaffray & Co and Diabetes In Control Survey

Our last question for the professionals was to get their opinion on smart pens. We asked if smart pens have a role in the market and what the impact will be to current pumpers. The majority of responders believe that smart pens will make it harder for current injectors to switch to pumps while only 2 said it will switch current pumpers and 2 said take share and make it harder to convert MDT. Three people believe there is no need for smart insulin pens in the market.

Do you believe that smart insulin pens have a role in the market? Will they impact the pump market either by switching current pumpers to a smart pen or by keeping more people on pens so less convert to pumps overtime? We define a smart pen as a Bluetooth enabled insulin pen that is connected to CGM or BGM that automatically shows insulin on board, the last dose time and amount as well as a built in dose calculator.



Source: Piper Jaffray & Co and Diabetes In Control Survey