# Why patients need better insulin therapies

Kelly Close

Close Concerns, Inc.

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#### **About Us**

# **Closer Look**

7th International Conference on Advanced Technologies & Treatments for Diabetes (ATTD February 5-8, 2014; Vienna, Austria; Day #1; Highlights - Draft

Guten tag from Vienna, Austria, where Day #1 of ATTD 2014 just wrapped up! Today had just a few hours Guten tog from Vienna, Austria, where Day #1 of ATID 2014 just wrapped up! Today had just a few how of sessions, and we heard plenty of updates from all areas of diabetes technology -glucose monitoring. Executive Highlights of sessions, and we heard pienty of updates from all areas of diabetes technology - glucose monitoring regulatory approval, remote monitoring, insulin delivery, closed-loop control, and even smartphone.

A big highlight of the day was Abbott's standing-room-only corporate symposium on its next-generation A big nignight of the day was Abbott's standing-room-only corporate symposium on its next-generation.

While much of the content refreshed civillar sessions at IDE and PACS. Abbott conformed its contention of sensing system, which will be a device in a new product category it is canning "Flash Glucose Monitoring."

While much of the content refreshed similar sessions at IDF and EASD, Abbott confirmed its expectation for Market Market Appearance, should now produce the form a six-lat monitoring feature realization and the form a six-lat monitoring feature realization and the form a six-lat monitoring feature realization and the form a six-lat monitoring feature realization for the feature realization feature realization for the feature realization feature realiz While much of the content refreshed similar sessions at <u>the ana Kashi</u>, Annott confirmed its expectation for the CE and 2014 CB Mark approvat; snared new accuracy and from a six-tot prospective factory cultoration study (MARD of 11% us.fingersticks - crazy great, but maybe not surprising since this is based on the original Navigator traduction, which was submiscrossome for the time); and discussed new design densite function. NAKU of 11% vs., Interesticks - crazy great, but maybe not surprising since this is based on the original value of the chinology, which was uber-accurate for its time); and discussed new design details (we love the chinology). Navigator technology, which was uber-accurate for its time; and asscussed new design details two lands. This continues to be a very exciting and promising new category of glucose monitoring technology.

Also me the continues to be a very exciting and promising new category of glucose monitoring technology. The continues are continued as a continue of during details on Machinenia's non-time facility continues. and). This continues to oe a very exciting and promising new category of glucose monitoring technologis.

Also on the monitoring side, we heard a smattering of design details on Meditronic's next-gen Enlite sensor.

The sensor has lamphed in six European contractor. No accompany data was absented absence. Also on the monitoring side, we heard a smattering of aesign actions on assurronce's next-year nature sensor in the sensor has been added in six European countries. No accuracy data was shared, though we more than the sensor has foundation in implement also next the next absenced natures will impresse the sustem's most notably, the sensor has taunched in six European countries. No accuracy data was shared, though imagine the 80% reduction in implanted size and the new electrode pattern will improve the system's imagine the 80% reduction in implanted size and the new electrode pattern will improve the system's imagine the 80% reduction in implanted size and the new electrode pattern will improve the system's performance. It sure looked good under the glass in the Echibit Hall.

This year's ATTD has a clear focus on the artificial pancreas, which was discussed at length in a conference. This year's ATTD has a clear Jocus on the artificial pancreas, which was asseussed at tength in a conject.

Dening workshop on the EU's 9th Framework Program. Dr. Steve Lane (Commercial Director, Trieg.) opening workshop on the EU's 7<sup>th</sup> Framework Program, Dr. Steve Lane (Commercial Director, 17the 40-Hungerford, UK) provided an update on the progress of the <u>AP@home</u> project. The next step for the tworungerjoru, U.S. provusea an upaare on the progress of the Argenome project. The next step for the time of the design of the Argenome project. The next step for the time of the design of the Argenome project. The next step for the time of the design of the Argenome project. The next step for the time of the design of the Argenome project. The next step for the time of time of the time of time of time of the time of port (separate insutin and CLM sites) approach is an at none, 24/7, two-arm, randomized control fruit of the University of Cambridge's system, which includes a FreeStyle Navigator CCM and a Dana SOOL pump.

The A Problema province is also working on a simple-most control simple site for NAM and insulin infrared in the Army Source of the CAM and insulin infrared in the CAM and insulin infrared in the Army Source of the CAM and insulin infrared in the CAM and insulin infrared the University of Cambriage's system, which includes a precedite National Control and a Lana SVIII. purple

The Afterbound project is also working on a single-port system (single site for CGM and insulin infusion) in

Only the Control in the Control in Charles of this neutrino is control in Charles (National Control in Charles).

We will become and Revolut A commit inclinity that of this neutrino is control in Charles (National Control in Charles). The <u>APerhome</u> project is also working on a single-port system (single site for CCM and insurin injusion) in collaboration with Dexcom and Roche. A second in-clinic study of this prototype is set to begin in 1Q14. Wou

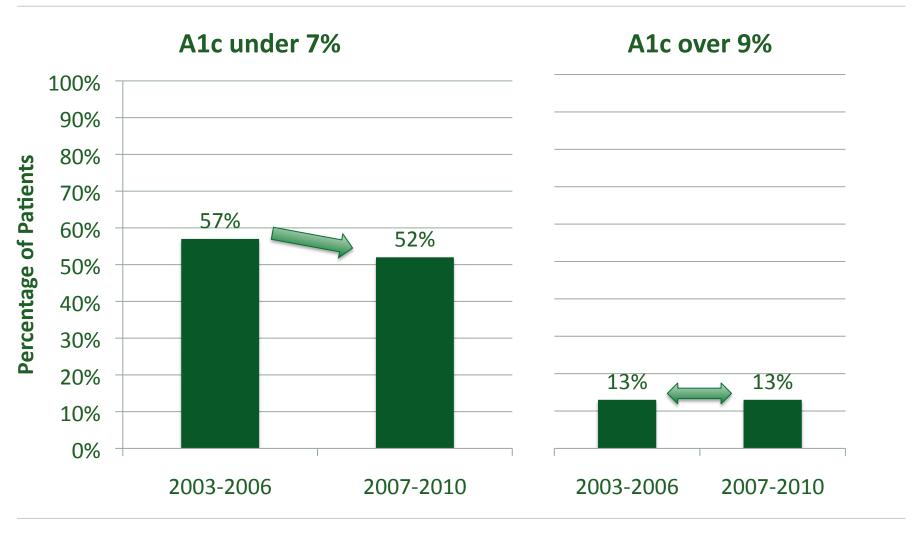
In a late-afternoon session on the artificial pancreas' safety, we heard growing consensus that mandatory is this field moving. We expect very good results from this system In a tate-afternoon session on the artificial pancreas safety, we heard growing consensus that mandatory before monitoring might not be necessary and is likely not practical and in fact, may not even be advocated to the FRA Processor of the Consensus that mandatory and the FRA Processor of the Consensus that mandatory and the FRA Processor of the Consensus that mandatory are the consensus that the consensus remote monutoring might not be necessary and is likely not practical and in fact, may not ever by FFA. Dr. Stacye Beck provided the FFA's perspective on the topic via webcast (budgetary) proposed with the provided many mall shought) proceeding that not all orders without one and in all proposed by the product of the provided many mall shought) proceeding that not all orders without one and in all processors. by FDA. Dr. Stacye Beck proutded the FDA's perspective on the topic via wencast (puagetary constraints, this worked very well thought), pressing that not all safety mitigations used in clinical trials are all the properties of t constraints...this worked very well though!), pressing that not all safety mitigations used in clinical need to be implemented in products that are ultimately brought to market. An example is remote a contract to admin the product of the product need to be implemented in products that are ultimately orought to market. An example is remote monitoring, which she characterized as useful in clinical trials (to ensure safety and to better understand the monitoring, which she characterized as useful in curucal trials (to ensure safety and to better understand in the property of system) out perhaps less necessary once systems are on the market (obviously depending on the results (
Period). Immediately following her comments, Drs. Eran Atlas (Schneider Children's Medical Center,
Period Thomas Leventh and Thomas Pariod Frieder, and Leventh, Period Control of Con the trial). Immediately jouousing ner comments, Drs. Eron Autos (Scaneuser Chiaren's ascence), center, peter Tikvah, Israel) and Thomas Danne (Kinder- und Jugend- Krankenhaus Auf der Bult, Hannover, Chiaren and Petah Tikuah, Israelj and Thomas Danne (Kinder- und Jugend- Krankenhaus Auf der Buit, Hannouer, Germany) debuted whether remote monitoring will be required. As we've come to expect with such debates, the Danne (financia in the Parker) in approximate against page of the province of the period of Vermany) geoatea unetter remote monitoring usu oe required. As we've come to expect usin such debates, of the Dr. Danne flipped to join Dr. Alfas in arguing against remote monitoring. Both contended that the value of the support of the property of the pr Dr. Danne Jupped to Join Dr. Altas in arguing against remote monitoring, Both contended that the value of tended monitoring was in practice much less than is often anticipated, and the effort required to conduct it remote him to the Machalisman and the Machalisman and the second of the product of the prod remore monitoring was in practice much less than is often anticipated, and the effor-is quite high. We believe remote monitoring is extremely useful in trials, nonetheless.

In insulin delivery, Ms. Leslie Lilly (CeQur, Marlborough, MA) presented new human factors data on In insunin activery, Ms. Lesne Liting (LeQur, Marthorough, MA) presented new human factors data of CeQur's PaQ insulin delivery device - the study showed positive results regarding patients' happiness with a consolidation and wafets. We also appropriately control to the completion and wafets. We also appropriately control to the completion and wafets. CeQur's PaQ insulin delivery device - the study showed positive results regarding patients' happiness with ease of task completion and safety. We also appreciated seeing time-in-range data on PaQ, which clearly has some real potential to improve outcomes. See below for more, including Roche's handling study of the

- Close Concerns: founded in 2002 as a healthcare information company focused exclusively on diabetes
- Our mission: to improve patient outcomes by making everyone smarter about diabetes and obesity
- **Providing a platform for young healthcare leaders** is also incredibly important to us.



# Patients in the US are NOT improving over time...



Source: Ali et al., NEJM 2013



#### Insulin's narrow therapeutic index $\rightarrow$ Hypoglycemia, a SERIOUS problem

JAMA Internal Medicine - March 10, 2014

**97,648** emergency department (ED) visits for insulin-related hypoglycemia and errors (IHEs) occur annually in the US

29% resulted in hospitalization

An estimated cost of \$640 million

At \$1,387 per ED visit and \$17,654 per hospitalization, per Quilliam et al., AJMC 2011.



### Hypoglycemia is a COSTLY problem

Oral Abstract #279 at ADA 2013

**20,839** hospitalizations in 2009 due to hypoglycemia in patients with type 1 diabetes

A total cost of \$1 billion

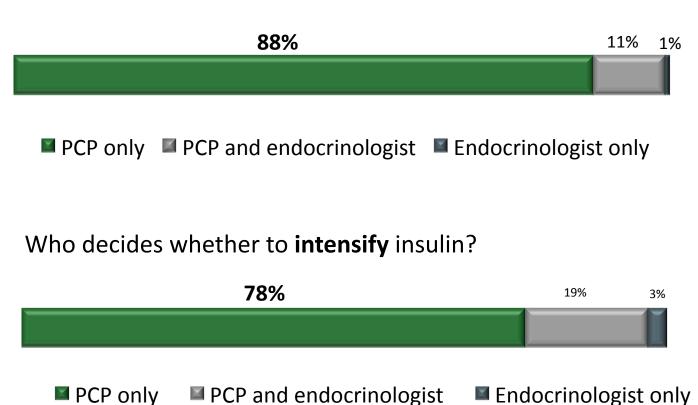
Leading to 284 deaths

"While aggressive euglycemic control remains important for T1DM patients, the clinical and financial implications of severe hypoglycemia are considerable."



### Primary care providers are the front line for insulin use

Who decides whether to **start** insulin?





# And primary care providers have little time with patients

Average primary care visit length in 2005: **21 minutes** 

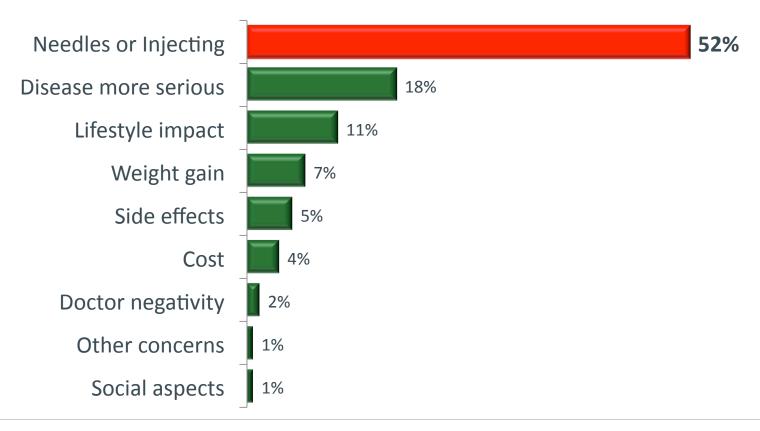
In a study of patients with type 2 diabetes, medical residents spent an average of **Only 5 minutes** during visits discussing diabetes!

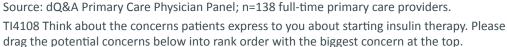
"Overall, there appear to be only **One-half** the endocrinologists required to fill the needed positions in the U.S."



# PCPs cite many challenges associated with starting insulin

Think about the concerns patients express to you about starting insulin therapy.







# Appreciation abounds, for listening to patients

THANK YOU to the EMDAC panel. Your legacy is to improve prospects for people with diabetes. We thank you for taking on this enormous task and for your work on balancing risk and benefit.

