

Yada Yada: January 2015



Support, Information and a Voice for the Type 1 Community

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Welcome to the first edition of Yada Yada for 2015.

We hope the new year has started well for you and you had a relaxing break over the holiday period.

As well as Yada, T1DN has plenty of discussion and information on the [Facebook page](#), which now has over 2400 likes, and also at the [Reality Check forums](#). Be sure to check them out.

Enjoy!



[**Media jump the gun on artificial pancreas**](#)

The headline "[Four-year-old Perth boy receives world's first artificial pancreas](#)" certainly got our attention last week. However, it's not quite as the hype suggests.

Xavier Hames was fitted with an insulin pump and CGMS. It is NOT an artificial pancreas, although the combination does include a predictive algorithm that suspends insulin delivery if BGLs are trending down and restarts the basal once the trend reverses - which is an increased level of sophistication from current pump/CGMS systems. The pump also stops giving insulin up to 30 minutes before a hypo is predicted to occur.

The device is now being made commercially available after five years of clinical trials at Perth's Princess Margaret Hospital and hospitals around Australia.

After 50 years with type 1 diabetes, Jane, who is also a moderator on the Reality Check forums, is the first adult to receive the system - you can read her story [on this thread](#) and in the [Newcastle Herald](#).

From an [ABC article](#) about the new device, "The hospital's researchers said this was the first step in their efforts to create a fully automatic device that can constantly monitor blood sugar and adjust insulin levels accordingly, reducing the need for patients to conduct finger pricks to self-assess their glucose levels." In other words, although it's not an artificial pancreas, it's a positive step towards that goal.

'Temporary tattoo' measures glucose levels

In another new technology, this one still very much in the research phase, scientists at the [Center for Wearable Sensors at University of California](#) have developed a clear patch that continuously monitors glucose levels. Because of the way the patch is stuck onto the skin, it is described as a 'temporary tattoo' and it measures glucose in interstitial fluid (the fluid between cells), which is the same as current CGMS systems.



The temporary tattoo patch -
Image from [UCSD Jacobs School of Engineering](#)

The patch works by passing a tiny electric current between two electrodes. The current brings interstitial fluid to the surface of the skin, where glucose reacts with an enzyme and the result is measured by a sensor. The sensor only lasts a day, but should only cost a few cents to produce, so the patch itself could be inexpensive. However, a wearable device to generate the electric current, and collect and display the blood sugar level has yet to be developed.

The research was published in [Analytical Chemistry](#).

People with diabetes hack their own bionic pancreas

[A recent article in Wired](#) described a parent who had written a software program to send the results from his child's CGMS to his phone. This has now been repeated by many others - but there is not yet an official app approved by pump or CGMS manufacturers.

Scott Leibrand, a network engineer at Twitter, and his partner Dana Lewis went one step further and developed what they call a '[do-it-yourself pancreas system](#)' that provides alerts for predicted highs and lows, and also recommends insulin doses. Last month, they '[closed the loop](#)', meaning that the CGMS talks to the pump and delivers insulin without input from the user. In other words, a bionic pancreas.

We don't suggest you try this at home, but it's great to see someone taking technology to new places and fantastic as another proof of concept that a closed loop system can work!

Insulin still produced years after T1 diagnosis

We've talked about similar research in previous editions of Yada, but it is still interesting that there is [further research evidence](#) that many people with T1 continue producing some level of insulin even decades after diagnosis.

Researchers in Seattle looked at samples from over 900 people with type 1 aged 3 to 88. In people who had T1 for 3-5 years, C-peptide, a marker of insulin production, was found in three-quarters diagnosed as adults and just under half of those diagnosed before age 18, suggesting a possible difference between T1 acquired as a child and that diagnosed later in life. It should be noted that the level of insulin production is very low - but it's not zero.

For people who have had T1 for a long time - 4 decades or more - 16% of those diagnosed as adults and 6% diagnosed as children still had some residual insulin production.

8% of people showed a level of C-peptide high enough that it is correlated with lower risk of hypos and complications.

This information may be important to help lower the number of people who are incorrectly diagnosed as type 2 as adults because they have some level of insulin production remaining.

The research was published in [Diabetes Care](#).

Thanks for reading, and don't forget you can always send us your feedback and comments by replying to this email or commenting on our [Facebook page](#). We'll see you next time!

***From everyone at
The Type 1 Diabetes Network***

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