

4th Stage of Insulin Automation in India

TRIVANDRUM, KERALA, INDIA, February 21, 2022 /EINPresswire.com/ -- [Artificial Pancreas](#) (AP) has always been a dream for people living with type 1 diabetes and difficult to treat type 2 diabetes. 100 years after the discovery of insulin, modern medicine has been successful in providing a highly advanced artificial pancreas. Does it require surgery? No, it doesn't require any surgery, it is an advanced insulin pump that works in unison with your smartphone.

"[780G](#) automatically increases the dose of insulin when the glucose is rising and automatically reduces the dose of insulin when glucose is trending low. This happens once every 5 minutes without any intervention from the user. If the meal-related insulin dosage is inadequate, it will also deliver an automated correction dose. The results are amazing. In our first patient, the glucose is remaining within normal range consistently for more than 90% of the time. This is an incredible achievement", said Dr. Jothydev Kesavadev who, along with Dr. Arun Shankar, Gopika Krishnan and Geethu Sanal deployed and trained 780G in a person with type 1 diabetes at Jothydev's Diabetes Hospital and Research Centre, Trivandrum.



Patients with uncontrolled diabetes either develop complications in the heart, kidney, eyes and nerves due to persistently high glucose or can even develop fatal conditions due to dangerously

low glucose levels. Parents of children with type 1 diabetes cannot even sleep peacefully at night since the behaviours of glucose can be unpredictable. Expensive technologies such as 780G is not required in all patients with diabetes. 75 - 80% of type 1 diabetes patients, 90% of those planning pregnancy, 5% of those with type 2 diabetes may badly require them to sustain life and preserve the quality of life.



Team

The 26-year-old person with diabetes who happens to be the first user (18 Jan 2022) at JDC on 780G said, "For several reasons, I haven't slept peacefully for the last 16 years ever since my diagnosis of diabetes. The new [automated insulin delivery](#) device is giving me peaceful sleep and has completely transformed my life for good".

The MiniMed 780G system has three major components; the Guardian™ 4 Sensor, MiniMed™ Mio™ Advance infusion set with a preloaded inserter and a waterproof pump. The sensor measures the glucose levels every 5 minutes and sends the information to the waterproof pump. The pump gets glucose readings from the CGM (Guardian Sensor 4) and transmitter automatically and then delivers a variable rate of insulin, 24 hours a day based on personal needs. It features an advanced level of automation for diabetes management, known as SmartGuard technology. 780G tracks the glucose levels and provides alarms, real-time glucose trends and notifications on the connected smartphone (via the CareLink Connect app).

The SmartGaurd technology and Gaurdian sensor help in achieving a Time in Range goal of >70% and an HbA1c goal of 7.0%. The system requires user-initiated meal announcements for optimal glycemic results. The autocorrection facility helps to cover an occasional missed meal dose. It automatically adjusts insulin delivery based on the CGM values and corrects highs every 5 minutes, 24/7. The MiniMed 780G system includes an Advanced Hybrid Closed Loop (AHCL) algorithm which provides for both basal and correction bolus, automated insulin delivery. This integrated system (a pump and a CGM) helps to stabilize the glucose levels and reduce both high and low glucose levels. It is protected against the effects of being underwater to a depth up to 3.6 meters for up to 24 hours. Although it's designed to be waterproof, drops and bumps that occur over time can make it more vulnerable to damage from water. The sensor and transmitter are water-resistant at 2.4 meters for up to 30 minutes.

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