

## Medtronic Leads Progress Toward an Artificial Pancreas for People with Diabetes

February 18, 2015 3:00 AM CT



*New Data on Future Medtronic Systems and  
Available MiniMed 640G System Accelerate Progress*

**PARIS - February 18, 2015** - Medtronic plc (NYSE:MDT) is advancing the development and commercialization of artificial pancreas technology with new research demonstrating progress toward future innovations and new systems coming to market. The first clinical study results on Medtronic's Hybrid Closed Loop system will be presented at the upcoming Advanced Technologies and Treatments for Diabetes (ATTD) 8th Annual Meeting being held at CNIT Paris La Defense from February 18-21, 2015. In addition, new data on the [MiniMed 640G](#) system is being presented, following the beginning of a global roll out of the system last month.

The most sophisticated integrated insulin pump and continuous glucose monitoring (CGM) system in the world, MiniMed 640G includes SmartGuard® technology and provides advanced protection against hypoglycemia<sup>1</sup> (low blood glucose). The system is the first in the world to both automatically suspend insulin delivery when sensor glucose levels are predicted to approach a low limit and resume insulin delivery once sensor glucose levels recover. The system includes the enhanced Enlite(TM) sensor, which continuously monitors glucose levels with accuracy and comfort<sup>2,3</sup>. It also incorporates a new insulin pump design to provide convenient diabetes management with a simple user interface, full-color screen, waterproofing<sup>4</sup> and remote bolus.

"As a commercially-available product, MiniMed 640G comes closest to mimicking the functions of a healthy pancreas for people with diabetes by shutting off insulin delivery before hypoglycemia occurs," said Francine Kaufman, M.D., chief medical officer and vice president, global medical, clinical & health affairs at Medtronic. "We are focused on continuing to make advances such as SmartGuard and Hybrid Closed Loop Technology so that people with diabetes enjoy even greater freedom and better health."

Medtronic's Hybrid Closed Loop system further builds on the breakthrough technology of the MiniMed 640G system. The Hybrid Closed Loop system is designed to automatically control glucose levels with very little input from patients, who would only need to enter their carbohydrates at mealtime and periodically calibrate the sensor. The system including a next-generation sensor is a critical next step toward a fully automated artificial pancreas.

New data on the performance of the SmartGuard technology will also be presented during Medtronic's Symposium on February 19 at 10:30 in Hall I. In addition, oral presentations highlighting clinical study results on Hybrid Closed Loop include:

- **Hybrid Closed-Loop Control Using the Medtronic MiniMed 670G and Enlite 3 System in Type 1 Diabetes at Diabetes Camp**
  - Reports on patient use of an integrated Hybrid Closed Loop system compared to Threshold Suspend technology alone.
  - Speaker: T. Ly, USA - Friday, February 20, 2015 at 17:30 in Hall II
- **Physiological and Technical Stress Test for Medtronic's Artificial Pancreas System in a Supervised Outpatient Setting**
  - Study results on safety and efficacy of a new hybrid closed-loop system with the introduction of several challenges in a supervised outpatient setting.
  - Speaker: A. Roy, USA - Friday, February 20, 2015 at 17:50 in Hall II
- **Outpatient Day and Night Glucose Control Using a Hybrid Closed Loop System for the Management of Type 1 Diabetes**

- Reports on patient use of the Medtronic Hybrid Closed Loop system compared to Threshold Suspend in children attending a diabetes camp.
- Speaker: M. de Bock, Australia - Friday, February 20, 2015 at 17:00 in Hall II

The research being presented at ATTD on the MiniMed 640G and the Hybrid Closed Loop system represents a critical next phase in the step-by-step development process and commercialization of a fully automated artificial pancreas. Previous milestones include:

- 2006: Medtronic introduced the world's first integrated insulin pump and continuous glucose monitor.
- 2009: Medtronic launched Low Glucose Suspend technology in Europe, and then in 2013 in the U.S. as the MiniMed 530G featuring Threshold Suspend.
- 2015: Medtronic introduced MiniMed 640G, which features SmartGuard technology, in Europe and Australia. Medtronic began a [pivotal trial](#) for this technology in the U.S. in 2014.

#### **About the Diabetes Group at Medtronic ([www.medtronicdiabetes.com](http://www.medtronicdiabetes.com))**

Medtronic is working together with the global community to change the way people manage diabetes. The company aims to transform diabetes care by expanding access, integrating care and improving outcomes, so people living with diabetes can enjoy greater freedom and better health.

#### **About Medtronic**

Medtronic plc ([www.medtronic.com](http://www.medtronic.com)), headquartered in Dublin, Ireland, is the global leader in medical technology - alleviating pain, restoring health and extending life for millions of people around the world.

**Any forward-looking statements are subject to risks and uncertainties such as those described in Medtronic's periodic reports on file with the Securities and Exchange Commission. Actual results may differ materially from anticipated results.**

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<sup>1</sup> Bergenstal RM, Klonoff DC, Garg SK, et al. Threshold-Based Insulin Pump Interruption for Reduction of Hypoglycemia. N Engl J Med 2013; 369:224-232

<sup>2</sup> U.S. Enlite Clinical Study Customer Satisfaction Survey. Data on file, Medtronic MiniMed, Inc., Northridge, CA.

<sup>3</sup> New Generation Enlite sensor shows an improved accuracy vs Enlite 1 with MARD 13.0%, Veeze et.al. ISPAD 2014 Poster 136 Real-life Performance Evaluation of the New Generation Enlite(TM) Glucose Sensor in Patients with Diabetes Mellitus.

<sup>4</sup> MiniMed 640G is waterproof in up to 3.6 meters of water for up to 24 hours. See IFU for care instructions to help maintain waterproof.

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