Medtronic News

Real-World Data from Guardian(TM) Connect and Sugar.IQ(TM) Reveal Improved Diabetes Outcomes

Sugar.IQ Insights Viewed as Helpful and Enable Users to Avoid Diabetes-Related Events up to Four Hours in Advance

DUBLIN and SAN FRANCISCO - June 10, 2019 - Medtronic plc (NYSE:MDT), the global leader in medical technology, today announced real-world data on its Guardian(TM) Connect continuous glucose monitoring (CGM) system and Sugar.IQ(TM) diabetes assistant app presented at the 79th Scientific Sessions of the American Diabetes Association (ADA) Annual Meeting in San Francisco.

The data presented were recorded by users of the Guardian Connect system paired with Sugar.IQ diabetes assistant, a separate first-of-its-kind intelligent app that continually analyzes how an individual's glucose levels respond to food intake, insulin dosages, daily routines and other factors1. The Sugar.IQ app combines data from the Guardian Connect system with artificial intelligence technology from Medtronic's strategic partner, IBM®Watson Health, to detect important patterns and trends for people with diabetes and help them make more informed decisions on how to better manage glucose levels and stay within target range. The Guardian Connect system and Sugar.IQ app empower people using multiple daily injections (MDI) to more proactively manage their diabetes with meaningful, personalized insights.

The data found that people using the Guardian Connect system with the Sugar.IQ app experienced 4.1% more Time in Range (63.4%) compared to Guardian Connect alone (59.3%) which represents about one extra hour per day. Additionally, those who also used the optional Glycemic Assist feature to review their response to specific foods increased Time in Range by an additional 4% compared to those not using that feature. Time in Range is the percentage of time people with diabetes spend in the optimal glycemic range of 70-180 mg/dL. Every 4% change in the Time in Range represent an approximate 0.3% change in A1C2. The goal with diabetes management is to increase time spent in this target range and to minimize high and low glucose levels. The study found that Sugar.IQ users found the insights helpful in managing their diabetes 91% of times.

The study, which collected data from more than 3,100 people with diabetes who used Guardian Connect system for at least five days, also found the overall system's predictive alerts reduced low sensor glucose excursions by almost two-fold and high sensor glucose excursions by four-fold compared to those not using Sugar.IQ. Avoidance of high and low episodes is a critical aspect of diabetes management. These data were shared during a poster presentation on "Real-World Performance of the Guardian Connect System with Sugar.IQ" by Siddharth Arunachalam.

"Sugar.IQ is the first app to use machine-learning to detect glucose level patterns for advanced notification of low and high events associated with diabetes," said Michael Hill, vice president and general manager of the Multiple Daily Injection Solutions business, which is part of the Diabetes Group at Medtronic. "These results suggest the Sugar.IQ diabetes assistant, together with our Guardian Connect system, may help patients better understand glucose trends and increase their Time in Range, aiding in behavior change which may ultimately help improve clinical outcomes."

In addition to these results, IBM Watson Health shared information about its prediction model during its oral presentation, "Machine Learning to Predict Hypoglycemic Events from Continuous Glucose Monitoring Data" on Monday, June 10, 2019 at 2:30 p.m. PDT. The model was trained on anonymized CGM data from more than 10,000 MiniMed(TM) 530G and Guardian Connect users, representing over 10 million patient hours. In this historical data analysis, the machine learning models achieved 90% accuracy in predicting hypoglycemic events within a two-hour window and 85% accuracy in predicting events within a four-hour window. This prediction technique is part of the new Sugar.IQ app IQcast(TM) feature which uses artificial intelligence technology and real-time dynamic data to predict the likelihood of an individual experiencing a low glucose event within a one to four-hour window.

Both the Sugar.IQ and Guardian Connect apps are available for iOS-based mobile devices in the U.S.

Time in Range

Time in Range refers to the percentage of time people with diabetes spend in the optimal glycemic range of 70-180 mg/dL. The goal with diabetes management is to increase time spent in this target range and to minimize high and low sugar levels, which can lead to both immediate and long-term complications such as damage to blood vessels - increasing the risk of coronary artery disease and stroke. Damage to blood vessels can also lead to loss of vision, kidney disease, and nerve damage.

About the Diabetes Group at Medtronic (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), headquartered in Dublin, Ireland, is among the world's largest medical technology, services and solutions companies - alleviating pain, restoring health and extending life for millions of people around the world. Medtronic employs more than 90,000 people worldwide, serving physicians, hospitals and patients in more than 150 countries. The company is focused on collaborating with stakeholders around the world to take healthcare Further, Together.

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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1 Based on information provided by the user.

2 Vigersky RA. *Diab Tech Ther.*2019; 21:81-85

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