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New data demonstrates Medtronic LINQ II insertable cardiac monitors and AccuRhythm AI algorithm further reduce false alerts

AHA23: Artificial intelligence (AI) applied to LINQ II™ ICMs reduce AF and pause (syncope) false alerts that can save clinics in the U.S. more than 400 hours per year

Data presented at the American Heart Association's (AHA) Scientific Sessions 2023 demonstrate false alert reductions of more than 91% on Medtronic LINQ II insertable cardiac monitors (ICMs) with AccuRhythm™ AI algorithm enhancements. The LINQ II ICM uses artificial intelligence in the cloud to improve the accuracy of heart rhythm data so physicians can better care for people with abnormal heart rhythms.

Insights from 16,301 LINQ II ICM patients with a mean follow-up of 7 months show AccuRhythm AI algorithm technology further improves atrial fibrillation (AF) false alert reductions from 74.1% (with the first AccuRhythm release) to 88.2% with the second release while preserving 99% of true AF alerts.[i] The total reduction in AF and pause (syncope) false alerts means that clinics will save more than 400 hours annually* in time reviewing cardiac monitoring reports,[ii] thus allowing time for clinicians to focus on more critical patient care activities.

"What this validation dataset suggests is that artificial intelligence algorithms can help device clinics better manage their ICM patients, saving time and minimizing data review burden," said Jagmeet Singh, M.D., professor of medicine at Harvard Medical School, founding director of the Resynchronization and Advanced Cardiac Therapeutics Program at the Massachusetts General Hospital Heart Center, and lead author of the abstract. "When we apply AI, we observed that on average, a LINQ II ICM patient will now have about one false, or non-clinically relevant alert per year related to AF or pause, which is a manageable number for most clinics."

The LINQ II ICM provides continuous, long-term monitoring for patients with increased risk of abnormal heart rhythms who experience infrequent symptoms including dizziness, palpitations, syncope (fainting) and chest pain, or who have had a stroke of unknown cause with atrial fibrillation (AF) suspected as a possible cause. These patients therefore require long-term monitoring for ongoing management.

Health care providers were monitoring about 25% of ICM patients in the dataset for AF, 40% for suspected AF or cryptogenic stroke, 23% for syncope, and 12% for other arrhythmias.

Medtronic introduced the first iteration of AccuRhythm™ AI algorithms in 2022 specific to AF and pause, which

generate approximately 90% of false alerts in the ICM space.[iii] Medtronic applied the latest enhancement to all LINQ II ICMs in July to improve the accuracy of the device while maintaining sensitivity to true alerts.

Medtronic developed the AccuRhythm AI platform and algorithms using its proprietary, diverse and debiased database of more than one million heart rhythm episodes.

To learn more about how Medtronic is harnessing the power of AI and its commitment to the ethical use of artificial intelligence in healthcare, visit: https://www.medtronic.com/us-en/our-company/ai-healthcare-technology.html.

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Contacts:
Joey Lomicky
Public Relations
+1-763-526-2494

Ryan Weispfenning
Investor Relations
+1-763-505-4626

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[i] Radtke A, Hall M. AccuRhythm AI AF & Pause Algorithms White Paper. April 2023. Medtronic data on file.

[ii] Singh, J. et al. Impact of Enhanced Artificial Intelligence on Clinic Burden from False Alerts of Insertable Cardiac Monitors. Abstract presented at: AHA Philadelphia November 2023.

[iii] O'Shea CJ, Middeldorp ME, Hendriks JM, Brooks AG, Harper C, Thomas G, Emami M, Thiyagarajah A, Feigofsky S, Gopinathannair R, Varma N, Campbell K, Lau DH, Sanders P. Remote Monitoring of Implantable Loop Recorders: False-Positive Alert Episode Burden. Circ Arrhythm Electrophysiol. 2021 Nov;14(11): e009635. doi: 10.1161/CIRCEP.121.009635. Epub 2021 Oct 28.

* for every 200 LINQ II patients

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