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Medtronic study reveals AI-enabled clinician alerts significantly improve evaluation and valve intervention for patients with heart valve disease

Multicenter ALERT Trial demonstrates potential to advance treatment pathway to minimally invasive heart valve therapies for underserved patient populations

March 29, 2026 — Medtronic plc (NYSE: MDT), a global leader in healthcare technology, today released data from the **A**ddressing undertreatment and hea**L**th **E**quity in aortic stenosis and mitral regurgitation using an integrated eh**R** pla**T**form (ALERT) Trial, designed to address health disparities and undertreatment in structural heart care. Results show electronic clinician notifications (ECNs) significantly improve the timely evaluation and treatment of aortic stenosis (AS) and mitral regurgitation (MR), including treatment with transcatheter aortic valve replacement (TAVR). Findings from the study, sponsored by Tempus, were presented at the American College of Cardiology Annual Scientific Sessions in New Orleans and simultaneously published in the Journal of the American College of Cardiology (JACC).

“As clinicians, our priority is to ensure that patients with significant heart valve disease receive timely treatment. Untreated symptomatic severe aortic stenosis carries a high risk of mortality within two years, yet we continue to see significant undertreatment particularly among patients from racial and ethnic minority groups and those with certain hemodynamic profiles. This compromises our ability to scale life-saving valve interventions across health systems,” said Wayne Batchelor, M.D., M.H.S., M.B.A., President of the Medicine Service Line at the Inova Health System and Steering Committee Chair of the ALERT study. “These findings highlight the value of real-time clinical alerts to accelerate diagnosis and specialist referral, helping ensure that more patients—regardless of race, ethnicity, geography, hemodynamics, or other factors—have access to guideline-directed, life-saving care.”

Using 765 clinicians ordering 2,016 echocardiograms across 5 U.S. health systems encompassing 35 hospitals, the study met its primary endpoint, defined as time to surgical or transcatheter valve intervention followed by time to multidisciplinary heart team (MHT) clinic visit within 90 days after the index echocardiogram. The findings revealed that ECNs were 27% more effective at notifying clinicians about patient cardiovascular status than usual care (win ratio, 1.27; 95% CI, 1.05-1.54; P = .007).

Key findings at 90 days include:

- 40% relative increase in valve intervention (13.4% vs. 9.6%; P=0.005)

- 27% increase in MHT evaluations (22.7% vs. 17.9%; P=0.005)

Data suggest white patients represent the majority (90%) of all TAVR procedures – a minimally invasive solution for AS and MR. Conversely, patients who are Black, Hispanic, Asian, or part of other racial groups are not being treated with TAVR at the same rates as

white patients.1 Additionally, women with aortic stenosis continue to experience meaningful disparities in care, as they are less likely to be referred for timely evaluation and valve intervention compared to men, making improved access to minimally invasive options like TAVR especially critical. Existing evidence suggests that this minimally invasive option could result in less time in the hospital and a quicker recovery compared to open heart surgery.

“The ALERT trial reflects how we are building the future of structural heart care — one that is more connected, data-driven, and focused on reaching patients earlier in their disease journey,” said Jorie Soskin, vice president of the Structural Heart business at Medtronic. “By helping clinicians identify patients sooner and connect them to care, technologies like AI-enabled alerts have the potential to ensure more people can benefit from lifesaving therapies like TAVR, regardless of race, geography, or background. This work underscores our commitment to advancing structural heart care and the future of TAVR.”

The study utilized Tempus Next, an AI-enabled care pathway platform that empowers providers to deliver the next step in a patient’s care journey. The software automatically identifies significant AS or MR patients who may meet guideline-indicated therapy criteria, but do not have a treatment plan in place. The study evaluated the impact of electronic health record notifications generated by Tempus Next.

Symptomatic severe aortic stenosis is a common, yet severe form of heart valve disease that impacts approximately 250,000 people annually in the United States and remains undertreated according to AHA/ACC Guidelines criteria. Patients with symptomatic severe aortic stenosis may suffer from chest pain, shortness of breath, fatigue, and dizziness – and if left untreated, it can lead to heart failure. Mitral regurgitation (MR), another prevalent cardiac valvular condition, presents a similar set of challenges in regard to underdiagnosis and undertreatment.

This study is funded by Tempus AI, Inc. (Chicago, IL) and Medtronic, Plc (Minneapolis, MN).

About Medtronic Bold thinking. Bolder actions. We are Medtronic. Medtronic plc, headquartered in Galway, Ireland, is the leading global healthcare technology company that boldly attacks the most challenging health problems facing humanity by searching out and finding solutions. Our Mission — to alleviate pain, restore health, and extend life — unites a global team of 90,000+ passionate people across more than 150 countries. Our technologies and therapies treat 70 health conditions and include cardiac devices, surgical robotics, insulin pumps, surgical tools, patient monitoring systems, and more. Powered by our diverse knowledge, insatiable curiosity, and desire to help all those who need it, we deliver innovative technologies that transform the lives of two people every second, every hour, every day. Expect more from us as we empower insight-driven care, experiences that put people first, and better outcomes for our world. In everything we do, we are engineering the extraordinary. For more information on Medtronic (NYSE: MDT), visit www.Medtronic.com and follow Medtronic on LinkedIn.

About Tempus

Tempus is a technology company advancing precision medicine through the practical application of artificial intelligence in healthcare. With one of the world’s largest libraries of

multimodal data, and an operating system to make that data accessible and useful, Tempus provides AI-enabled precision medicine solutions to physicians to deliver personalized patient care and in parallel facilitates discovery, development and delivery of optimal therapeutics. The goal is for each patient to benefit from the treatment of others who came before by providing physicians with tools that learn as the company gathers more data. For more information, visit tempus.com.

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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*Antia, A., Pius, R., Ndukauba, C., Remenik Zarauz, V., & Olafiranye, O. (2024). Temporal trends in the utilization and outcome of transcatheter aortic valve replacement across racial and ethnic groups: A nationwide analysis. International Journal of Cardiology, 399, 131669.

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