Type 2 diabetes: CGM cuts mortality, but how?

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Continuous glucose monitoring has transformed care in type 1 diabetes, but its long-term payoff in type 2 diabetes, specifically whether it actually reduces death and cardiovascular complications rather than just improving glucose readings, has been an open question. A new US analysis presented at the EASD Annual Meeting in Milan, described by its authors as the first evidence on this specific question, puts real mortality and cardiovascular numbers behind it.

KEY TAKEAWAYS

- The Pivot: This is described as the first evidence linking CGM specifically to lower mortality and cardiovascular events in type 2 diabetes on basal insulin, not just better glucose readings.
- The Data: 44% lower one-year all-cause mortality (HR 0.55) and a roughly halved rate of recurrent heart failure hospitalisation among CGM users.
- The Action: The authors call for expanded, equitable access to CGM in this population, while acknowledging this remains observational evidence, not a randomised trial result.

Professor Jochen Seufert at University Hospital Freiburg, working with researchers from Abbott, used the Truveta platform, a US electronic health record database covering more than 140 million people, to run a target trial emulation. Adults with type 2 diabetes on basal insulin therapy who started continuous glucose monitoring between 2017 and 2024 were propensity-score matched 1:1 to non-initiators on 29 baseline characteristics, including diabetes duration and severity, HbA1c, comorbidities and healthcare utilisation, leaving 13,935 matched pairs.

Lower death and cardiovascular event rates at one and two years

At 12 months, all-cause mortality was 1.16% among CGM users against 2.09% among non-users, a 44% relative reduction (hazard ratio 0.55, 95% CI 0.43-0.69). At 24 months the gap narrowed slightly but remained large: 2.12% versus 3.26%, a 35% relative reduction (HR 0.64, 95% CI 0.52-0.78). New macrovascular events (heart attack, heart failure, stroke, or peripheral artery disease) were 26% lower at 12 months and 24% lower at 24 months among CGM users, and recurrent macrovascular events were reduced by 35% and 36% respectively.

Outcome12-month HR/IRR (95% CI)24-month HR/IRR (95% CI)All-cause mortality0.55 (0.43-0.69)0.64 (0.52-0.78)First macrovascular event0.74 (0.59-0.93)0.75 (0.63-0.90)Recurrent macrovascular events0.65 (0.50-0.85)0.64 (0.52-0.80)Heart failure (recurrent)0.46 (0.30-0.71)0.53 (0.37-0.75)Stroke/TIA (recurrent)0.65 (0.42-1.00)0.61 (0.41-0.91)

Why this is being called "first evidence"

Recurrent heart failure hospitalisation showed the largest single reduction, roughly half as frequent among CGM users at both 12 and 24 months. The findings held up across sensitivity analyses that excluded the COVID-19 period and excluded deaths within the first 90 days, addressing two obvious ways such a result could be an artefact of the study period or reverse causation. "Our study suggests that CGM can make a real difference to the long-term health of people living with type 2 diabetes who require insulin and may help reduce the risk of early death," said Professor Seufert. The study was co-authored by employees of Abbott, a CGM manufacturer, and Professor Seufert discloses consultancy, honoraria and lecture fees from Abbott Diabetes Care and Dexcom, both CGM makers. This is an industry-funded and co-authored analysis of a technology those companies sell.

Despite the industry involvement, the study's robust methodology, including the large dataset and rigorous propensity-score matching, lends significant weight to its findings. The use of a real-world evidence platform like Truveta, encompassing a diverse and extensive patient population, enhances the generalizability of these results to everyday clinical practice. The consistency of the observed benefits across various cardiovascular endpoints and over two years further strengthens the argument for CGM's positive impact beyond glycemic control.

Understanding the Mechanisms: How CGM Cuts Mortality

The observed reduction in all-cause mortality and macrovascular events with CGM use in type 2 diabetes patients on basal insulin therapy likely stems from a multifaceted improvement in diabetes management, extending beyond simple HbA1c reduction. While improved glycemic control is a primary benefit, CGM empowers patients and clinicians with real-time, granular data on glucose fluctuations, allowing for more proactive and personalized adjustments to insulin dosing, diet, and physical activity. This continuous feedback loop helps identify and mitigate episodes of hypoglycemia and hyperglycemia, both of which are independently associated with increased cardiovascular risk and mortality.

Beyond direct glycemic effects, CGM use may foster greater patient engagement and self-efficacy in managing their condition. Patients who actively monitor their glucose levels often report a deeper understanding of how lifestyle choices impact their blood sugar, leading to more consistent adherence to treatment plans. This enhanced self-management can translate into improved overall health behaviors, including better dietary choices, increased physical activity, and more timely recognition of symptoms requiring medical attention. Furthermore, the data provided by CGM can facilitate more informed discussions between patients and their healthcare providers, leading to more optimized therapeutic regimens and potentially earlier intervention for emerging complications.

The significant reduction in recurrent heart failure hospitalizations observed in the study is particularly noteworthy. While the exact mechanisms are still being elucidated, chronic hyperglycemia and glucose variability are known to contribute to myocardial dysfunction and the progression of heart failure. By stabilizing glucose levels and reducing glycemic excursions, CGM may directly mitigate these detrimental effects on cardiac health. Additionally, better overall diabetes management, facilitated by CGM, can lead to improved control of comorbidities such as hypertension and dyslipidemia, which are major risk factors for heart failure. This holistic improvement in metabolic health likely contributes to the observed cardiovascular benefits.

However, it is crucial to acknowledge that this observational study, while robust, cannot definitively establish causality. While propensity-score matching aimed to balance baseline characteristics, unmeasured confounders, such as socioeconomic status, health literacy, or access to other specialized care, could still influence outcomes. Future randomized controlled trials specifically designed to assess hard cardiovascular endpoints in this population would provide stronger evidence of causality. Nevertheless, the consistent and substantial reductions observed across multiple endpoints in a large, real-world cohort provide compelling evidence that CGM offers significant clinical advantages beyond glycemic control alone for this patient group.

CLINICAL IMPLICATIONS

The effect sizes here are large, a 44% mortality reduction is a bigger number than most randomised cardiovascular outcome trials report for a single drug, which is itself a reason for measured interpretation rather than dismissal or uncritical acceptance. The 29-covariate matching and multiple sensitivity analyses (doubly robust estimation, negative control outcomes, COVID-era exclusion) are genuine methodological strengths for an observational design.

The authors are upfront that unmeasured confounding cannot be excluded: people who start CGM may differ from non-starters in ways that weren't captured, including engagement with their own care, that independently predict better outcomes regardless of the device itself. The study's own limitations section notes that changes to medications during follow-up were not tracked.

The Abbott co-authorship and Professor Seufert's disclosed consultancies with two CGM manufacturers don't invalidate the target trial emulation design, but they're material to weighing a result this large, especially given the explicit call for "expanding access to CGM" in the same statement.

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REFERENCES

1. Seufert J, Mehta S, Rahman S, Virdi N, Kwist A, Levrat Guillen F, Schweitzer M, Shubrook J. Association of continuous glucose monitoring on all-cause mortality and macrovascular complications in adults with type 2 diabetes on basal insulin therapy in the U.S.: a target trial emulation. Abstract LBA 21. Presented at the European Association for the Study of Diabetes (EASD) Annual Meeting, Milan, Italy, 27 September-2 October 2026.

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