

Diabetes

Current Awareness Bulletin

August 2026

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45 minutes. Learn how to transform a question into a search strategy, and how to find the best evidence in a database.
Next sessions: 29th September @ 2pm and 7th October @ 3pm
- **Simple and painless evidence into practice (BMJ Best Practice and the LKS Hub)**
30 minutes. Learn about quick and hassle-free ways to seamlessly incorporate evidence into your daily work.
Next sessions: 9th September @ 10am and 29th October @ 11am
- **Quickfire health literacy: communicating with patients more effectively**
30 minutes. Learn about the communication barriers patients may encounter, and ways to ensure they get the most from their care.
Next sessions: 13th October @ 3pm and 25th November @ 4pm

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General

Burden and determinants of diabetes in sub-Saharan Africa

Agyemang C., Tetteh J., Mbaye M.N., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(6), pp.498-511.

[The prevalence of type 2 diabetes is rising rapidly across sub-Saharan Africa; however, its epidemiology, clinical phenotypes, and underlying mechanisms remain insufficiently characterised. This first paper in a Series on diabetes in sub-Saharan Africa synthesises current evidence on the burden, distribution, and determinants of diabetes, including emerging phenotypes and the roles of early life adversity, psychosocial stress, and interactions with infectious disease. We also identify major gaps in surveillance systems, research capacity, prevention, and clinical management across the region. Sub-Saharan Africa is experiencing one of the fastest global increases in diabetes, with the highest proportion of undiagnosed cases and a projected steep rise in intermediate hyperglycaemia and diabetes by 2050. Urbanisation, ageing, obesity, and lifestyle transitions are major contributors; however, a substantial proportion of type 2 diabetes occurs in lean individuals (BMI <25 kg/m²), particularly in rural settings, suggesting distinct metabolic and developmental pathways not captured by models derived from high-income countries. Bidirectional interactions between diabetes and malaria, tuberculosis, HIV, or COVID-19 make disease trajectories complex. Persistent gaps in surveillance, a reliance on modelled estimates, low genomic representation, and constrained access to modern diabetes medications hinder progress. Strengthening health system capacity, improving data

infrastructure, and investing in regionally driven research are essential to develop effective, context-specific interventions and advance precision medicine tailored to sub-Saharan African populations.]

A conceptual framework for modernising and right-sizing global diabetes care

Ali M.K., Carillo-Larco R.M., Hansen T.K., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(6), pp.444-446.

[Diabetes has become a defining health challenge of the 21st century, now affecting one in seven adults worldwide. Diabetes complications—cardiorenal diseases, vision loss, neuropathy, depression, dementia, and limb amputations—diminish quality of life, shorten life expectancy, and strain health-care systems globally. Despite decades of high-quality evidence showing how to prevent or delay diabetes complications, global outcomes have remained poor and only 7–15 countries met each of WHO's Compact Targets in 2021: 80% of people with diabetes being diagnosed and achieving good blood glucose and blood pressure control, and 60% using statins. ^{1,2} The reasons are many, but three domains consistently emerge across different regions: implementation failures, insufficient personalisation in diagnosis and treatments, and limited access to preventive interventions, diagnostics, monitoring tools, and treatments. These challenges interact, reinforce each other, and often create cumulative disadvantage for the very populations most burdened by the disease.]

Diabetes in sub-Saharan Africa: aligning biology, culture, and health systems for improved outcomes

Goff L.M. and Niwaha A.J. *Lancet Diabetes & Endocrinology*, 2026, 14(6), pp.446-448.

[The four paper Series on diabetes in sub-Saharan Africa in *The Lancet Diabetes & Endocrinology* and *eBiomedicine* offers a comprehensive account of a region facing one of the fastest global increases in diabetes prevalence, alongside persistently high rates of undiagnosed disease, early complications, and premature mortality. ^{1,2,3,4} Collectively, the papers show that diabetes in Africa is no longer a marginal non-communicable disease, but a central driver of multimorbidity, unfolding within health systems historically designed for acute, vertically funded care.]

Epigenetic age acceleration in diabetes and its clinical implications

Khan W.A. and Gupta J. *Diabetes Research and Clinical Practice* 2026, 236: 113254.

[Epigenetic age acceleration (EAA), a discrepancy between biological and chronological age based on DNA methylation patterns, has emerged as a critical marker for aging and metabolic health. Individuals with diabetes, particularly type 2 diabetes (T2D), exhibit notable EAA, linking the disease to accelerated biological ageing. This review explores the mechanisms underlying EAA in diabetes, including hyperglycaemia-induced oxidative stress, inflammation, and dysregulated epigenetic pathways. Additionally, we discuss the clinical implications of EAA, emphasizing its potential as a biomarker for diabetes-related complications and a predictor of cardiovascular disease, nephropathy, and premature mortality. Emerging therapeutic strategies targeting epigenetic mechanisms, such as dietary interventions, pharmacological agents, and lifestyle modifications, are also reviewed. Understanding the interplay between EAA and diabetes opens avenues for personalized medicine and innovative treatments aimed at mitigating the accelerated aging phenotype associated with diabetes.]

Implications of microplastics as emerging endocrine disruptors

Bornstein S.R., Guan K., Wuestefeld T., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(6), p.449.

[In recent years, nanoplastic and microplastic particles (NMPs) have emerged as substantial threats to human health, particularly as endocrine disruptors. The endocrine system is especially vulnerable to these particles due to its intricate network of hormonal regulation, in which even minor disturbances can lead to widespread physiological effects. Studies have shown the pervasive presence of NMPs in human tissues, including blood, and their potential to impair metabolic and hormonal health. ¹ This growing body of evidence underscores the urgent need to better understand the mechanisms by which NMPs interfere with endocrine function and to address their effect on public health.]

Natural history of thyroid function in ageing: an individual participant data analysis of 137 488 participants from 31 prospective cohort studies

Xu Y., Hysaj O., Qi X., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(6), pp.485-497.

[**Background:** Evidence regarding thyroid function changes with ageing remains inconsistent and the implications of potential changes are unclear. We aimed to investigate ageing-related thyroid function changes and their associations with mortality.]

Optimizing Elastic Band Resistance Training for Metabolic Syndrome Components in Older Adults: A Systematic Review, Meta-Analysis, and Meta-Regression of Randomized Controlled Trials.

Saez-Berlanga A., Gene-Morales J., Babiloni-Lopez C., et al. *Archives of Physical Medicine and Rehabilitation* 2026;107(6): 1401-1415.

[**Objectives:** To evaluate the effects of elastic band resistance training (EBRT) on metabolic syndrome components in older adults and to explore associations between training parameters and body fat percentage using meta-regression, following Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (International Prospective Register of Systematic Reviews CRD42023466027).]

Sequential metabolic cascade from normal liver to multimorbidity in lean Asian adults: Multistate progression modelling

Hirooka M., Miyake T., Yano R., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(6): 103454.

[**Background:** Metabolic disorders may progress sequentially from fatty liver to hypertension and diabetes, but this cascade has not been well characterised in lean Asian populations. We aimed to quantify this progression and develop practical risk prediction tools in a large longitudinal Japanese cohort.]

Strengthening diabetes care in sub-Saharan Africa: health systems, digital innovations, lifestyle interventions, and socioeconomic dimensions

Cassambai S., Godia P., Bahendeka S., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(6), pp.523-532.

[The prevalence of diabetes, particularly type 2, in sub-Saharan Africa is rising at an alarming rate. This surge has exposed deep structural challenges, including an over-reliance on hospital-based services and strong cultural and faith-based influences that shape health-seeking behaviours. These factors, combined with socioeconomic inequalities and urbanisation, contribute to poor glycaemic control. Several strategies have been proposed to tackle this problem, including task shifting, integrated models that make use of HIV care infrastructure, digital health tools such as SMS reminders, culturally adapted lifestyle and nutrition programmes, community-based and faith-based interventions, and public-private partnerships. Despite these promising approaches, evidence of long-term sustainability, scalability, cost-effectiveness, and the impact of these interventions remains scarce. Additionally, stigma, gender-related barriers, and patient-reported outcomes are insufficiently studied in sub-Saharan Africa. Large-scale, longitudinal research is urgently needed to assess health system strengthening and culturally grounded models. Achieving effective diabetes care will require resilient, inclusive systems that integrate clinical, community, and digital innovations within the sociocultural and economic realities of the region.]

Technology in Diabetes: A Year in Review

Chatterjee S., Pramanik S., Kapoor N., et al. *Diabetes Therapy* 2026, 17(6): 823–837.

[The past year has continued the rapid evolution of diabetes technology across the monitoring, delivery, analytics, and patient-support domains. Improvements in continuous glucose monitoring (CGM) accuracy and wear-time options, widening use and regulatory expansion of automated insulin delivery (AID) systems, growth in connected insulin pens, maturation of digital therapeutics, and an influx of artificial intelligence (AI)-driven decision support tools have together shifted diabetes care toward tighter, more personalized, and more remote models of management. At the same time, device safety events, persistent affordability and access gaps, and data-interoperability and privacy challenges remind clinicians and policymakers that technology alone is not a panacea. This review summarizes the most important developments from last year (2025), highlights evidence from recent trials and regulatory actions, and discusses implications for practice and future directions.]

What is an optimal serum thyroid-stimulating hormone value in older adults?

Pearce E.N. *Lancet Diabetes & Endocrinology*, 2026, 14(6), pp.442-443.

[Thyroid function test results can shift with increasing age, although studies have reported inconsistent findings. The European Thyroid Association recommends using an age-specific thyroid-stimulating hormone (TSH) reference interval to avoid the misdiagnosis of subclinical thyroid disorders. ¹ Current American Thyroid Association guidelines recommend increasing the target serum TSH to 4–6 mIU/L in thyroid hormone-treated individuals aged 70–80 years, or older. ² However, alterations in TSH and free thyroxine (FT₄) with ageing might differ based on environmental and genetic factors, and the correct interpretation of thyroid function tests in older individuals remains uncertain. ³]

Co-morbidities (find here cardiovascular, kidney disease, neuropathy, diabetic retinopathy etc)

Cardiovascular Disease

Association between chronic low-grade inflammation and metabolic syndrome and their impact on the risk of coronary artery disease in type 1 diabetes

Blomqvist J.M., Eriksson M.I., Harjutsalo V., et al. *Journal of Diabetes and Its Complications*, 2026, 40(6), Article 109331.

[**Aims:** Evaluate the interplay between metabolic syndrome (MS) and chronic low-grade inflammation in type 1 diabetes at different stages of diabetic kidney disease, and to assess whether chronic low-grade inflammation, determined by high-sensitivity C-reactive protein (hs-CRP) increases coronary artery disease risk linked to MS.]

Cardiorenal protective effects of anti-diabetic drugs in early stage Cardiovascular-Kidney-Metabolic Syndrome: A multicenter, time-varying analysis

Hao W.R., Liu J.C., Fang Y.A., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113233.

[**Objectives:** Cardiovascular–kidney–metabolic (CKM) syndrome links metabolic risk factors with cardiorenal complications. However, real-world comparisons of cardiorenal outcomes among different antidiabetic agents (ADAs) in early CKM stages remain limited.]

Cardiovascular benefits of early sodium-glucose cotransporter 2 inhibitor use for diabetics with acute myocardial infarction: A nationwide cohort study.

Wang S.F., Chan T.K., Lee Y.H., et al. *British Journal of Clinical Pharmacology* 2026;92(6): 1584-1594.

[**Aims:** Sodium-glucose cotransporter 2 inhibitors (SGLT2i) have well-documented cardiovascular benefits. However, the cardiovascular benefits of early SGLT2i use in diabetics experiencing acute myocardial infarction (MI) remain unclear.]

Cardiovascular-kidney-metabolic syndrome stages and risk of diverse gastrointestinal diseases: a prospective cohort study and integrative proteomic analysis

Xiang S., Nie H., Wei Z., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113266.

[**Background:** The systemic influence of cardiovascular-kidney-metabolic (CKM) syndrome on gastrointestinal (GI) pathologies remains largely unexplored. We evaluated the impact of CKM stages on incident GI diseases and underlying proteomic mechanisms.]

Cardiovascular outcomes of novel SGLT2 inhibitors in patients with type 2 diabetes: a network meta-analysis of bexagliflozin, ertugliflozin and sotagliflozin

Dao T.P., Lung W.C., Yang Y.Z., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113282.

[We conducted a systematic review and network meta-analysis to examine the overall and comparative cardiovascular outcomes of bexagliflozin, ertugliflozin, and sotagliflozin in type 2 diabetes patients. We included phase 3 or higher randomized controlled trials sourced from four databases: ClinicalTrials.gov, PubMed, Cochrane CENTRAL and Embase. A random-effects model was used to estimate odds ratios (ORs) and 95% confidence intervals (CIs). The primary endpoint was a composite of cardiovascular death or hospitalization for heart failure. The secondary endpoints were cardiovascular death, hospitalization for heart failure and all-cause mortality. Compared with placebo, bexagliflozin, ertugliflozin and sotagliflozin reduced composite cardiovascular death or hospitalization for heart failure (OR, 0.66 [95% CI 0.48–0.89]), hospitalization for heart failure (OR, 0.62 [0.55–0.70]) and acute

coronary syndrome (OR, 0.35 [0.16–0.77]). No significant differences were observed among the three drugs for primary and secondary outcomes, although bexagliflozin (OR, 0.39 [0.16–0.94]) and sotagliflozin (OR, 0.41 [0.23–0.72]) had lower risks of myocardial infarction than did ertugliflozin. In conclusion, bexagliflozin, ertugliflozin, and sotagliflozin reduced the risk of cardiovascular death or hospitalization for heart failure. Bexagliflozin and sotagliflozin may offer additional benefits in preventing the risk of myocardial infarction.]

Cardiovascular outcomes with thiazolidinediones and sodium-glucose cotransporter 2 inhibitors in patients with type 2 diabetes mellitus undergoing peripheral artery revascularization

Roh J.W., Jeon J., Yoo J., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113281.

[**Aims:** The comparative effectiveness of anti-diabetic agents in patients with type 2 diabetes mellitus (T2DM) undergoing peripheral artery revascularization remains unclear.]

The combined estimated glucose disposal rate and frailty index predicts cardiovascular events and mortality: A prospective cohort study from CHARLS

Xie L., Fan H., Luo S., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113258.

[**Background:** Estimated glucose disposal rate (eGDR) and frailty index (FI) captures insulin resistance and multisystem decline, respectively. However, the combined prognostic value of eGDR and FI for cardiovascular diseases (CVD) and mortality remains underexplored.]

Comorbidities/cardiovascular risk factors and acute glycaemic emergencies in patients with type 1 and type 2 diabetes: The Australian National Diabetes Audit

Dawson C., Earnest A., Zomer E., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113241.

[**Aims:** The prevalence of diabetes, ageing and comorbidity is increasing. This analysis explores the relationship between comorbidities, risk factors and acute glycaemic emergencies.]

Comparative effectiveness of tirzepatide versus GLP-1 receptor agonists on cardiovascular–kidney–metabolic stage progression: a real-world cohort study

Wu J.Y., Lee K.W., Huang S.C., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113273.

[**Background:** Cardiovascular–kidney–metabolic (CKM) syndrome represents a progressive disease continuum linking metabolic risk factors with cardiovascular and kidney disease. Patients in early CKM stages (stages 1–2) represent a critical therapeutic window; however, comparative evidence on pharmacologic strategies to prevent progression to advanced CKM stages remains limited. Tirzepatide, a dual glucose-dependent insulinotropic polypeptide and glucagon-like peptide-1 receptor agonist, has demonstrated superior metabolic efficacy compared with conventional GLP-1 receptor agonists (GLP-1 RAs), but its impact on CKM stage progression in real-world practice is unknown.]

GLP-1–based therapies and limb outcomes in PAD: a systematic review and meta-analysis of real-world studies

Boccatonda A., D'Ardes D., Brighenti A., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113271.

[**Aims:** Glucagon-like peptide-1 receptor agonists (GLP-1RAs) and the dual incretin agonist tirzepatide have demonstrated cardiometabolic benefits in cardiovascular outcome trials, but their effects on limb outcomes in peripheral artery disease (PAD) remain unclear. This study evaluated whether GLP-1–based therapies reduce the risk of major adverse limb events (MALE), major adverse cardiovascular events (MACE), and mortality in real-world PAD populations.]

Impact of SGLT2 Inhibitors on Clinical Outcomes in Patients with Diabetes Mellitus Following Heart Transplantation: A Meta-analysis

Wang H., Xie X., Gong G., et al. *Diabetes Therapy* 2026, 17(6): 839–852.

[**Introduction:** In this new era, heart transplantation (HT) is rapidly gaining popularity worldwide. Patients with end-stage heart disease are often candidates for HT. However, studies have shown that more than 30% of patients who undergo HT have pre-existing diabetes mellitus (DM), which is associated with a higher risk of graft failure and death. In this analysis, we aimed to assess the impact of sodium-glucose co-transporter 2 (SGLT2) inhibitors on clinical outcomes in patients with DM following HT.]

Podcast Episode 1: A Pragmatic Overview of Heart Failure in Patients with Diabetes for Endocrinologists, Primary Care Physicians and Noncardiologist Clinicians

Desai N.R., Inzucchi S.E., Wright E.E. *Diabetes Therapy* 2026, 17(6): 799–806.

[Heart failure is a growing major public health concern. Total medical costs for heart failure in the USA are expected to rise to more than US \$70 billion by 2030, and this is expected to rise as the prevalence of heart failure increases owing to an aging population and the concurrent increase in risk factors for heart failure such as obesity, diabetes, and chronic kidney disease. Heart failure affects 22% of patients with type 2 diabetes and is frequently the first presentation of cardiovascular disease in these patients. One of the key challenges in heart failure treatment is early detection and diagnosis. Heart failure can present similarly to chronic obstructive pulmonary disease and is often misdiagnosed. Late diagnosis of heart failure can lead to delays in treatment initiation and poor patient outcomes. Clinicians other than specialist cardiologists, particularly endocrinologists and primary care physicians in the case of patients with diabetes, can play a key role in the early detection and diagnosis of heart failure. In this podcast series of three episodes, a cardiovascular specialist, an endocrinologist, and a primary care physician will provide practical guidance for primary care physicians on optimal identification and management of heart failure in patients with diabetes. In the first episode, we give a pragmatic overview of heart failure and practical guidance on how clinicians can identify patients most at risk of developing heart failure, tips for early detection and screening, and ultimately, how to prevent progression of heart failure in these patients.]

Podcast Episode 2: Heart Failure Management in Patients with Diabetes for Endocrinologists, Primary Care Physicians, and Noncardiologist Clinicians: Focus on SGLT2 Inhibitors

Desai N.R., Inzucchi S.E., Wright E.E. *Diabetes Therapy* 2026, 17(6): 807–814.

[Heart failure is a major complication of type 2 diabetes and patients with type 2 diabetes often have to manage multiple comorbid conditions that increase the risk of heart failure, such as hypertension, obesity, chronic kidney disease, and hyperlipidemia. Therefore, management of cardiovascular risk factors through lifestyle modifications and pharmacological intervention is fundamental to prevent the progression of heart failure in patients with diabetes. Hospitalization is common in patients with heart failure, and hospitalizations represent the largest component of direct medical costs for heart failure. Therapies that reduce the burden of hospitalization for heart failure are greatly needed. In this podcast series of three episodes, a cardiovascular specialist, an endocrinologist, and a primary care physician will provide practical guidance for primary care physicians on optimal identification and management of heart failure in patients with diabetes. In this second episode in the series, we give an overview of the tools available to clinicians to reduce the risk of heart failure progression in patients with early-stage heart failure. This includes the discussion of lifestyle modifications as well as the cardiovascular benefits of sodium-glucose co-transporter 2 inhibitors and other medications used at the intersection of diabetes and heart failure.]

Podcast Episode 3: How Can Physicians Work Collaboratively to Improve Cardiovascular Outcomes in Patients with Type 2 Diabetes?

Desai N.R., Inzucchi S.E., Wright E.E. *Diabetes Therapy* 2026, 17(6): 815–822.

[Heart failure is a common and often underappreciated complication of type 2 diabetes. Patients with type 2 diabetes frequently have multiple interconnected comorbidities, including hypertension, chronic kidney disease, and obesity, which can culminate in cardiovascular-kidney-metabolic syndrome. Effective management of cardiovascular complications in patients with type 2 diabetes requires a comprehensive, coordinated approach to optimize treatment plans and improve overall patient care. Collaborative care models, involving multidisciplinary teams, can significantly improve patient outcomes by enhancing medication adherence, reducing hospitalizations, and preventing the progression of heart failure. This approach provides holistic care to patients and reduces risk from multiple directions. Costs and insurance coverage issues can limit access to collaborative care; however, digital health interventions, virtual collaboration, and community support can help to overcome these barriers for primary care physicians and patients, especially in rural areas. In this podcast series of three episodes, a cardiovascular specialist, an endocrinologist, and a primary care physician will provide practical guidance for primary care physicians on optimal identification and management of heart failure in patients with diabetes. In this, the third episode, we discuss practical approaches for physicians to work collaboratively to improve cardiovascular outcomes in patients with type 2 diabetes, leveraging the

skills of diabetes care and education specialists, dietitians, advanced practice providers, and others. They highlight the importance of patient education and shared decision-making, alongside therapeutic intervention, in enabling patients to manage their conditions effectively.]

Semaglutide and Cardiovascular Outcomes in People with Type 2 Diabetes: A SUSTAIN-6 Post Hoc Analysis by Weight Loss Category

Navas A., Noone J., Laney N., et al. *Diabetes Therapy* 2026, 17(6): 897–910.

[**Introduction:** Type 2 diabetes (T2D) is a known risk factor for cardiovascular (CV) disease. Glucagon-like peptide-1 receptor agonists (GLP-1RAs), such as semaglutide, improve glycemic control and are associated with weight loss, but the impact of weight loss on major adverse cardiovascular events (MACE) when taking semaglutide is not fully understood. This post hoc analysis of the SUSTAIN-6 trial aimed to examine the correlation between weight loss with semaglutide and the occurrence of MACE (nonfatal myocardial infarction, nonfatal ischemic stroke, and CV death).]

Temporal trends in macrovascular complications in young-onset diabetes in Korea: A nationwide population-based study

Kim H.Y., Ji E., Kim J. *Diabetes Research and Clinical Practice* 2026, 236: 113285.

[**Aims:** To examine temporal trends and risk factors for macrovascular complications in individuals with young-onset diabetes.]

Unveiling novel biomarkers for diabetes-related complications through large-scale proteomics analysis: A FIELD sub-study

Francis H., Januszewski A.S., O'Rourke M.B., et al. *Journal of Diabetes and Its Complications*, 2026, 40(6), Article 109330.

[**Background:** Vascular complications of Type 2 diabetes (T2D) significantly contribute to its morbidity and mortality. Identifying robust biomarkers is critical for improving risk prediction, understanding disease mechanisms, and guiding targeted therapies.]

What REDEFINE 5 signals for obesity trials in Asia and beyond

Kang Y.M. and Aroda V.R. *Lancet Diabetes & Endocrinology*, 2026, 14(6), pp.438-439.

[The prevalence of obesity is rising worldwide, and Asia is not exempt from this epidemic. Epidemiological evidence consistently shows that, for a given BMI, many Asian populations have higher cardiometabolic risk than other racial groups. ¹ Accordingly, numerous Asian countries have adopted lower BMI thresholds (23–25 kg/m²) to define obesity based on their local epidemiological evidence. ^{2,3,4} This is particularly important because cardiovascular disease remains the leading cause of death among people living with obesity, ⁵ and the therapeutic landscape is rapidly evolving, particularly with nutrient-stimulated hormone therapies delivering clinically meaningful reductions in adiposity, key cardiometabolic risk factors, and even hard outcomes such as major adverse cardiovascular events. ⁶]

Diabetic Neuropathy

Postural control in type 2 diabetes mellitus: the role of diabetic neuropathy

Madsen M.D., Arulanandam D., Svendsen C.L., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113289.

[**Aim:** To examine postural control in people with type 2 diabetes mellitus (T2DM) with and without diabetic neuropathy (DN) using center of pressure (CoP) measures under varying sensory and cognitive conditions.]

Eye Diseases

Beyond HbA1c: Albumin-corrected fructosamine is associated with diabetic retinopathy in well-controlled type 2 diabetes

Long Q., Liu Z., Kang S., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113280.

[**Aims:** Diabetic retinopathy (DR) can occur in type 2 diabetes (T2DM) despite well-controlled glycaemia (HbA1c <7.0%), indicating that glycation-related factors beyond HbA1c may contribute to its development. Albumin-corrected fructosamine (AlbF) may provide complementary information on

glycaemic exposure relevant to DR risk. **Methods:** This retrospective cross-sectional study included 1,090 T2DM patients. AlbF was calculated as serum fructosamine/albumin ratio. DR was assessed by standardized ophthalmic examination. Multivariable logistic regression examined the association between AlbF and DR, adjusting for demographic, metabolic, and clinical covariates. Subgroup analyses were performed by HbA1c level. **Results:** Higher AlbF was independently associated with DR. In fully adjusted models, each 10 $\mu\text{mol/g}$ increase in AlbF was associated with 65% higher odds of DR (OR 1.65; 95% CI 1.40–1.95). The highest versus lowest AlbF tertile showed nearly fivefold higher odds (OR 4.77; 95% CI 2.99–7.60). The association remained significant in patients with HbA1c <7.0%. Adding AlbF modestly improved discrimination (ΔAUC =0.045; P =0.002), but this improvement should be interpreted cautiously. **Conclusions:** AlbF is independently associated with DR in T2DM, including well-controlled individuals. These findings suggest AlbF may reflect glycaemic aspects not captured by HbA1c. Given the cross-sectional design, results should be interpreted as associations, not prediction or causality.]

Enhancing diabetic retinopathy diagnosis and grading: a retrospective study on AI-assisted decision making and cost analysis.

Xu X., Zhang J., Song X., et al. *British Journal of Ophthalmology* 2026;110(6): 661-668.

[**Background/Aims:** Diabetic retinopathy (DR) is a major ocular complication of diabetes mellitus. While artificial intelligence (AI)-based DR screening tools have gained widespread adoption, most research focuses on comparing AI performance with human, with limited attention to AI's role as assistants. This study evaluates the impact of AI-assisted decision-making on DR diagnosis and grading based on colour fundus photographs (CFP) and ultra-widefield fundus (UWF) images.]

Suvorexant protects from ocular complications of diabetes in db/db mice

Sodhi R.K., Mahajan N., Abhyankar S.D., et al. *BMJ Open Diabetes Research and Care* 2026;14: e005476

[**Introduction:** Orexins, hypothalamic neuropeptides, play a critical role in promoting wakefulness. Suvorexant, a dual orexin receptor antagonist, which is primarily indicated for the treatment of insomnia, also lowers blood glucose. Similarly, in rodent studies, suvorexant has shown beneficial effects on overall glucose homeostasis. Using an animal model of type 2 diabetes (T2D) db/db mice, we hypothesized that suvorexant treatment could improve the ocular complications of T2D.]

Trends in prevalence and incidence of diabetic retinal disease in patients with type 1 and type 2 diabetes mellitus

Caplash S., Wahba J., Yu Y., et al. *Journal of Diabetes and Its Complications*, 2026, 40(6), Article 109318.

[**Purpose:** To assess the prevalence and incidence of diabetic retinal disease (DRD) among patients with Type 1 (T1DM) and Type 2 diabetes mellitus (T2DM).]

Kidney Disease

Cardiorenal protective effects of anti-diabetic drugs in early stage Cardiovascular-Kidney-Metabolic Syndrome: A multicenter, time-varying analysis

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[**Objectives:** Cardiovascular–kidney–metabolic (CKM) syndrome links metabolic risk factors with cardiorenal complications. However, real-world comparisons of cardiorenal outcomes among different antidiabetic agents (ADAs) in early CKM stages remain limited.]

Cardiovascular-kidney-metabolic syndrome stages and risk of diverse gastrointestinal diseases: a prospective cohort study and integrative proteomic analysis

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[**Background:** The systemic influence of cardiovascular-kidney-metabolic (CKM) syndrome on gastrointestinal (GI) pathologies remains largely unexplored. We evaluated the impact of CKM stages on incident GI diseases and underlying proteomic mechanisms.]

Comment on “Effect of combined aerobic and resistance training on kidney health in adults with type 2 diabetes: A randomized controlled trial”

Kumar V., Kshirsagar P., Mishra M., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(6): 103417.

[We read with great interest this randomized trial evaluating structured combined exercise on renal outcomes in adults with type 2 diabetes ¹. The focus on early kidney preservation within primary care settings is timely and clinically relevant.]

Comparative effectiveness of tirzepatide versus GLP-1 receptor agonists on cardiovascular–kidney–metabolic stage progression: a real-world cohort study

Wu J.Y., Lee K.W., Huang S.C., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113273.

[**Background:** Cardiovascular–kidney–metabolic (CKM) syndrome represents a progressive disease continuum linking metabolic risk factors with cardiovascular and kidney disease. Patients in early CKM stages (stages 1–2) represent a critical therapeutic window; however, comparative evidence on pharmacologic strategies to prevent progression to advanced CKM stages remains limited. Tirzepatide, a dual glucose-dependent insulinotropic polypeptide and glucagon-like peptide-1 receptor agonist, has demonstrated superior metabolic efficacy compared with conventional GLP-1 receptor agonists (GLP-1 RAs), but its impact on CKM stage progression in real-world practice is unknown.]

Diabetes-dependent association between metabolic score for visceral fat and chronic kidney disease: findings from a longitudinal cohort study

Kwon Y.J., Song Y., Lee J.W., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113284.

[**Aims:** Metabolic dysfunction drives chronic kidney disease (CKD). Although the metabolic score for visceral fat (METS-VF) emerged as a novel marker of cardiometabolic health, its association with CKD remains unclear. We investigated the association between METS-VF and incident CKD and determined whether this relationship varies according to diabetes status.]

Metabolic dysfunction-associated fatty liver disease and the risk of incident chronic kidney disease: A 10-year prospective cohort study

Cui H., Xu Y., Zhang J., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113237.

[**Aims:** To investigate the longitudinal associations of MAFLD with CKD risk.]

Renoprotective effects of dapagliflozin in diabetic patients with chronic kidney disease: A retrospective observational study.

Al Lawati S., Al Maskari R., Al Maqbali J., et al. *British Journal of Clinical Pharmacology* 2026;92(6):1902-1910.

[**Aim:** This study aimed to identify the association of dapagliflozin treatment with renal function and safety profile in patients with Type 2 Diabetes Mellitus (T2DM) and chronic kidney disease (CKD) in comparison with patients not treated with dapagliflozin.]

SGLT2 inhibitors and the risk of incident chronic kidney disease in type 2 diabetes: a nationwide emulated target trial in Taiwan

Yen F.S., Wei J.C.C., Hung Y.M., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113267.

[**Objective:** To compare the risk of incident chronic kidney disease (CKD), cardiovascular events, and mortality between users of sodium–glucose cotransporter 2 (SGLT2) inhibitors and non-users in patients with type 2 diabetes (T2D) without preexisting CKD.]

Complications (find here atherosclerosis, claudication, diabetic foot, ulcers etc)

General

Diabetes mellitus complications and their association with patient-reported outcome measures: a longitudinal study of the SwissDiab cohort

Hofer G., Goode S., Renström F., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113263.

[**Background:** Diabetes mellitus leads to microvascular and macrovascular complications that significantly impact quality of life. Previous cross-sectional studies may overestimate complication impacts due to methodological limitations. We performed a longitudinal study to assess within-patient

associations between diabetes complication severity and quality of life in type 1 and 2 diabetes, providing contemporary utility estimates for cost-effectiveness analyses.]

Diabetes-related complications: an evolving spectrum

The Lancet Diabetes & Endocrinology. *Lancet Diabetes & Endocrinology*, 2026, 14(6), p.437.

[The burden of diabetes-related complications continues to rise globally, exerting a huge toll on individuals, health-care systems, and economies, particularly in low-income and middle-income countries (LMICs). This trend is driven largely by the changing epidemiological landscape of diabetes (increasing prevalence, earlier age at diagnosis, longer disease duration, and declining mortality—particularly in high-income countries—resulting in increased life expectancy), the parallel rise in obesity prevalence, and an ageing population. As people with diabetes live longer, the spectrum of diabetes-related complications has expanded beyond traditional microvascular (ie, diabetic nephropathy, retinopathy, and neuropathy) and macrovascular (ie, myocardial infarction, stroke, and peripheral artery disease) complications. Newly recognised complications of diabetes include those linked to obesity (eg, metabolic liver disease and obstructive sleep apnoea) and age-related complications (eg, infections, cancer, dementia, and frailty).]

Diabetes-related complications and multiple long-term conditions in sub-Saharan Africa: determinants and management strategies

Ikhile D., Seidu S., Omodara D., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(6), pp.512-522.

[Saharan Africa is experiencing a rapid increase in the burden of diabetes, accompanied by increasing rates of microvascular, macrovascular, and pregnancy-related complications. This Series paper synthesises current evidence on diabetes-related complications in sub-Saharan Africa and examines shared cardiometabolic risks, mental health comorbidities, and interactions with communicable diseases through a multiple long-term conditions lens. Widespread late diagnosis and inadequate control of key cardiometabolic risk factors (eg, hypertension, dyslipidaemia, obesity, and hyperglycaemia) drive high complication rates—whereas mental health disorders and infectious disease comorbidities further exacerbate susceptibility. Although risk factor reduction is central to preventing diabetes complications in sub-Saharan Africa, progress is impeded by multilevel barriers spanning individual, interpersonal, health system, societal, and policy domains. To address this growing complexity, we identify priorities for research and implementation, including the development of context-specific guidelines, scalable integrated care models, strengthened surveillance systems, and long-term cohorts co-designed with communities, health-care providers, and policy makers.]

Diabetic Foot

Accuracy of deep learning for risk prediction and screening of diabetic foot Ulcers: A systematic review and meta-analysis

Zhao T., Yu J., Deng R., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113262.

[**Background:** This research sought to systematically estimate the accuracy of deep learning (DL) in diagnosing diabetic foot ulcers (DFUs), thereby providing novel insights for the development and updating of artificial intelligence (AI)-assisted tools.]

Branch-chain amino acid accumulation: multiple roles in the pathogenesis of diabetic foot ulcers

Tang M., Feng J., Ni Y., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113255.

[Diabetic foot ulcers (DFUs) are devastating complications of diabetes, defined by impaired healing, high amputation rates, and substantial mortality, with pathogenesis rooted in interconnected metabolic, immune, and vascular dysregulation. Serum metabolomic profiling identifies elevated branched-chain amino acid (BCAA) levels in DFU patients, yet the metabolic mechanisms linking BCAA dysregulation to DFU remain unexplored. This review systematically presents a causal framework: impairment of the BCAA metabolic process (downregulation of BCKDH in skeletal muscle/fat tissue), dysbiosis of the intestinal microbiota leading to systemic accumulation of BCAA, and subsequent activation of the mTORC1/NF- κ B signaling cascade. This triggers insulin resistance, mitochondrial dysfunction, and oxidative stress, causing macrophages to polarize to the pro-inflammatory M1 phenotype, disrupting the functions of NK cells and neutrophils, and inhibiting angiogenesis mediated by HIF-1 α /VEGF forming a self-perpetuating metabolic-immune-vascular vicious cycle, thereby delaying the wound

healing process. This review aims to provide a metabolism-centered framework for understanding the pathogenesis of DFU and for informing future diagnostic and therapeutic research.]

Development and Validation of an Algorithm to Objectively Quantify Adherence to Offloading Interventions.

Yalla S.V., Jhaveri S.N., Negron-Fernandez N.S., et al. *Journal of Foot and Ankle Research* 2026;19(2): e70170.

[**Background:** Diabetic foot ulcers require offloading for healing. However, adherence with removable offloading devices is often poor. Prior objective measures of adherence yielded important behavioral insights, despite substantial methodological limitations. This study sought to address these limitations by developing a method to track offloading adherence during walking and standing paired with tracking contralateral therapeutic footwear (shoe-lift) use.]

One Shoe Doesn't Fit All: A Contextual Approach to Therapeutic Footwear for People at Risk of Diabetes-Related Foot Ulceration.

Jarl G., Lazzarini P.A., Srisawasdi G., et al. *Journal of Foot and Ankle Research* 2026;19(2): e70176.

[**Introduction:** People at risk of diabetes-related foot ulcers are recommended to always use therapeutic footwear when weight-bearing, to help prevent ulcers. These recommendations are supported by good quality evidence, yet adherence by patients to using this footwear is low. One reason may be because these recommendations do not consider that footwear use is highly contextual to the physical or sociocultural environments it is intended to be used. In this paper, we propose and discuss a contextual approach to considering therapeutic footwear solutions.]

Diabetes and pregnancy

The association between adverse childhood experiences (ACEs) and gestational diabetes mellitus (GDM): A systematic review and meta-analysis

Fadhilah S.N., Burton S., Wilson C.A., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113269.

[Gestational diabetes mellitus (GDM) has consequences for maternal and offspring health. Adverse childhood experiences (ACEs) contribute to GDM risk, but findings have been inconsistent. We synthesised evidence using a systematic review and *meta*-analysis of observational studies on ACEs before age 18 and GDM, including dose–response effects. Nine databases were searched from inception to 30 May 2025 based on a PROSPERO-registered protocol (CRD420251035754). Studies without extractable estimates or assessing diabetes not restricted to gestational onset were excluded. Two reviewers independently screened studies, extracted data, and assessed risk of bias using ROBINS-E. Random-effects models pooled adjusted odds ratios (aORs), with dose–response analyses using the Greenland–Longnecker method. Thirteen studies met eligibility criteria, 11 contributed to *meta*-analysis ($n = 326,797$). ACE exposure was associated with higher odds of GDM (aOR 1.15, 95% CI 1.12–1.18; $I^2 = 0\%$). A cumulative dose–response effect was observed, with each additional ACE increasing GDM odds (aOR 1.13, 95% CI 1.08–1.19). This study extends prior work by incorporating dose–response modelling, updated pooled estimates from recent cohorts, a pregnancy-focused risk window, and consideration of mediating and moderating pathways. Overall, ACEs are associated with increased risk of GDM, supporting a life-course approach to maternity care.]

Association of maternal glucose and body mass index with adverse pregnancy outcomes among women with normal oral glucose tolerance test results

Serup M.S., Palm C.V.B., Dreyer A.F., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(6): 103439.

[**Aims:** The study aims to investigate whether adverse pregnancy outcomes were associated with different glucose and BMI levels, even among women with normal oral glucose tolerance test (OGTT) results.]

Bridging the confidence gap in maternity services: midwives and the rollout of diabetes technology.

Williams A., Fletcher-Salt T., Kelly B. *British Journal of Midwifery* 2026;34(6): 342-348.

[Management of type 1 diabetes in pregnancy is one of the most clinically demanding areas in maternity care, requiring tight glycaemic management to reduce the risk of serious maternal and neonatal complications. The introduction of continuous glucose monitoring and hybrid closed loop systems offers significant clinical benefits, but their successful implementation depends on the preparedness of the maternity workforce. This article discusses findings from a national service evaluation exploring the confidence, training and support needs of diabetes specialist midwives in relation to continuous glucose monitoring and hybrid closed loop systems use during pregnancy. The data suggest a critical mismatch between national policy and frontline readiness. To address this, the authors are calling for targeted investment in structured training pathways, multidisciplinary antenatal protocols and maternity-specific clinical leadership roles. Without such action, the transformative potential of diabetes technology in pregnancy care risks being undermined, particularly for patients from marginalised or digitally excluded groups.]

Gestational diabetes and subsequent risk of type 2 diabetes and metabolic dysfunction-associated steatotic liver disease in a commercially insured U.S. Pregnancy cohort

Liu L., Velasquez E.E., Ananth C.V., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113240.

[**Aims:** Gestational diabetes mellitus (GDM) is a common pregnancy complication and marker of subsequent metabolic risk. Whether GDM increases metabolic dysfunction-associated steatotic liver disease (MASLD) directly or mainly through progression to type 2 diabetes (T2D) remains unclear.]

Higher maternal 3rd trimester insulin resistance is linked to central fat deposition in 7-year-old girls. An Odense Child Cohort study

Serup M.S., Palm C.V.B., Dreyer A.F., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(6): 103450.

[**Aims:** To examine associations between maternal 3rd trimester insulin resistance, glucose status and child body composition at 7 years, including gynoid and android fat deposition in boys and girls.]

Pre-pregnancy body mass index and Gestational Diabetes as key determinants of long-term metabolic risk: insights from a nutritional intervention during pregnancy

López-Plaza B., Larrad-Sainz A., Valerio J., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113264.

[**Aims:** To evaluate the long-term effect of a Mediterranean-based nutritional (MedDiet) intervention during pregnancy on the prevalence of metabolic syndrome (MetS) six years postpartum, and to determine the predictive value of postpartum lifestyle behaviours for MetS prevention.]

Diabetes mellitus Type 1

Alterations in gray matter structure associated with cognitive decline in T1DM patients and mice: A voxel-based morphometry study

Min H., Liu X., Zhao L., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113252.

[**Background:** Gray matter (GM) structural alterations and its correlation with cognitive decline in type 1 diabetes mellitus (T1DM) remain unclear.]

Automated insulin delivery use in children and adolescents with type 1 diabetes across the world

Seget S., Rusak E., Pelicand J., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113253.

[**Aims:** Automated insulin delivery (AID) systems are increasingly used in type 1 diabetes (T1D) management, yet large-scale real-world evidence in pediatric populations remains limited. This study assessed the impact of AID therapy on glycemic outcomes in children and adolescents with T1D using data from the international SWEET registry.]

Epidemiology of coeliac disease in children and adolescents with type 1 diabetes: a 13-year population-based study using secondary data sources

Fontanarosa A., Iommi M., Cesanelli F., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113238.

[**Aims:** To study the epidemiology of Coeliac Disease (CD) in the general paediatric population and among children with Type 1 Diabetes (T1D) in a population of Central Italy, and to assess the temporal trends of these two chronic conditions.]

Evaluation of large language models for carbohydrate counting in type 1 diabetes mellitus: a comparative study with patient estimations

Soyer A.K., Akarsu G.Ç., Yelli B.D., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113279.

[**Aims:** To evaluate large language models (LLMs) accuracy in carbohydrate (CHO) counting (CC) and compare their performance with estimations by patients with type-1 diabetes mellitus (T1DM).]

Impact of sodium–glucose cotransporter-2 inhibitors on clinical outcomes in patients with type 1 diabetes after dialysis-requiring acute kidney injury: a real-world cohort study

Wang C.A., Wang W.J., Chen J.Y., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113277.

[**Aims:** Sodium-glucose cotransporter-2 inhibitors (SGLT-2is) have shown significant cardiovascular and kidney benefits, but their role in T1D with acute kidney disease (AKD) remains uncertain.]

Plasma biomarkers of neurodegeneration and their associations with type 1 diabetes characteristics and glycemia

Delgado N., Chaytor N.S., Beerli M.S., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113256.

[**Aims:** Type 1 diabetes (T1D) is associated with an increased risk of Alzheimer's disease and related dementias (AD/ADRD), although mechanisms remain unclear. This study examined the relationships between blood-based biomarkers of ADRD, diabetes-related factors, and glycemia in adults with T1D.]

A prospective evaluation of attitudes, behaviors, and clinical outcomes among Jordanian children and adolescents with type 1 diabetes who fasted during Ramadan: a comparison of the 2021 and 2026 IDF-DAR risk scores

Odeh R., Murad H., Hani F.B., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113242.

[**Aim:** To describe the ability and fasting behaviors of children and adolescents with type one diabetes, after receiving a pre-Ramadan structured educational program, and correlate their ability to fast with the IDF-DAR risk stratification scores.]

Quality of Life and Humanistic Burden of Adults with Type 1 Diabetes with Recurrent Severe Hypoglycemic Events and Impaired Awareness of Hypoglycemia Using a Continuous Glucose Monitor

Boateng-Kuffour A., Kelly C.S., Nguyen H.T., et al. *Diabetes Therapy* 2026, 17(6): 885–896.

[**Introduction:** This study aimed to examine psychosocial well-being, quality of life (QoL), and productivity in people with type 1 diabetes (pwT1D) who were experiencing recurrent severe hypoglycemic events (SHEs) and impaired awareness of hypoglycemia (IAH), despite using continuous glucose monitors (CGMs).]

(Ultra-)short-acting insulin analogues for adults with type 1 diabetes mellitus on multiple daily injections: a network meta-analysis.

Guo Y., Mei Y., Bongaerts B., et al. *Cochrane Database of Systematic Reviews* 2026;6: CD012161.

[**Rationale:** Ultra-short-acting insulin analogues have the potential to achieve clinical benefits for people with type 1 diabetes, but their relative effects in relation to regular human insulin remain unclear.

Objectives:

Primary objective: To compare the effects of long-term treatment with (ultra-)short-acting insulin analogues to regular human insulin or another (ultra-)short-acting insulin analogue in people with type 1 diabetes on multiple daily injections through a network meta-analysis.

Secondary objective: To obtain an estimate of the relative ranking of these (ultra-)short-acting insulin analogues compared to regular human insulin.]

When technology meets teamwork: transforming complex diabetes care with hybrid closed-loop systems.

Hards K. *British Journal of Community Nursing* 2026;31(6): 286-293.

[Background: Individuals who meet the eligibility criteria for hybrid closed loop technology may not all have equal access, especially those outside conventional acute care pathways. This is particularly the case for people with type 1 diabetes, supported by district nursing services.

Aims: This case study discusses the implementation of hybrid closed loop systems for managing blood glucose levels in type 1 diabetes according to the National Institute for Health and Care Excellence TA 943 guideline.]

Diabetes mellitus Type 2

Adaptive evidence-based medicine in type 2 diabetes: beyond the average effect toward personalised clinical decision-making for a humanised medicine

Corrao S., Scibetta S., Mirarchi L., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113243.

[Introduction: Evidence-based medicine (EBM), originally defined as “the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients,” seeks to harmonise rigorous scientific evidence, clinical judgement, and patient values in guiding medical decisions¹. However, traditional EBM—predominantly reliant on randomised controlled trials (RCTs) and average treatment effects (ATE)—often struggles to account for the considerable heterogeneity observed among real-world patients² (see Fig. 1).]

Age at type 2 diabetes diagnosis, mortality, and health loss in South Asians

Jagannathan R., Oguntade A.S., Deepa M., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113259.

[Objective: We examined associations between age at type 2 diabetes (T2D) diagnosis and long-term mortality and lifetime health loss.]

Alpha cell dysfunction in type 2 diabetes: associations with insulin resistance and reduced insulin secretion

Chang L, Kong L., Yan S., et al. *BMJ Open Diabetes Research and Care* 2026;14: e005653

[Introduction: This study examined how insulin resistance and impaired insulin secretion are associated with hyperglucagonemia during oral glucose tolerance tests (OGTT) in type 2 diabetes mellitus (T2DM).]

Association between grip strength and the diabetes complications severity index (DCSI) in patients with type 2 diabetes mellitus

Iwamoto H., Iwamoto Y., Kimura T., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(6): 103449.

[Aims: This study aimed to clarify the association between grip strength and the Diabetes Complications Severity Index (DCSI) in patients with type 2 diabetes mellitus (T2DM). While grip strength is widely used as an indicator of sarcopenia, its capacity to reflect the accumulation of diabetic complications has not been sufficiently investigated. In this study, we examined the relationship between grip strength and DCSI.]

Association of SGLT2 inhibitors with hematologic malignancies in type 2 diabetes: a target trial emulation study

Tseng Y.T., Tsai C.S., Restinia M., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113236.

[Aims: To investigate the association between sodium-glucose cotransporter 2 inhibitors (SGLT2i) and the risk of hematologic malignancies compared with dipeptidyl peptidase-4 inhibitors (DPP-4i) in patients with type 2 diabetes mellitus.]

Correction to *Lancet Diabetes Endocrinol* 2025; 13: 935–48

Lancet Diabetes & Endocrinology, 2026, 14(6), e.9.

[Lingvay I, Bergenheim SJ, Buse JB, et al. Once-weekly semaglutide 7.2 mg in adults with obesity and type 2 diabetes (STEP UP T2D): a randomised, controlled, phase 3b trial. *Lancet Diabetes Endocrinol* 2025; 13: 935–48]

Discordant high remnant cholesterol with LDL-C increases the metabolic dysfunction-associated steatotic liver disease risk in patients with type 2 diabetes mellitus

Zhao Y., Li Z., Yu T., et al. *BMJ Open Diabetes Research and Care* 2026;14: e005841

[**Introduction:** Type 2 diabetes mellitus (T2DM) and metabolic dysfunction-associated steatotic liver disease (MASLD) frequently coexist in the same individual. Dyslipidemia plays a central role in the pathogenesis of MASLD. Remnant cholesterol (RC) is the cholesterol content carried in triglyceride-rich lipoproteins. We aimed to examine the association of RC, its discordance with low-density lipoprotein cholesterol (LDL-C) in terms of MASLD risk in patients with T2DM.]

The efficacy of behavioral interventions on cardiovascular risk factors in patients with type 2 diabetes: a systematic review and network meta-analysis of randomized trials

Dankoob V., Shahinfar H., Ostevari A., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113260.

[This study aimed to assess, compare, and rank the effects of different behavioral interventions on key cardiovascular risk factors in adults with type 2 diabetes. We searched PubMed, Scopus, and Web of Science up to March 2025. A random-effects network *meta*-analysis with a Frequentist framework was conducted to estimate mean differences (MDs) and 95% confidence intervals (CIs). The certainty of evidence was rated using the GRADE approach. Standard behavioral therapy (SBT) improved short-term glycemic control, reducing HbA1c by 0.24% (95% CI: -0.41, -0.06) at 0–3 months with moderate-certainty evidence. Multicomponent interventions, particularly those combining cognitive behavioral therapy (CBT), SBT, and motivational interviewing (MI), showed the largest and most sustained effects, achieving a 1.84% HbA1c reduction (95% CI: -2.04, -1.63) at 12–36 months compared with SBT alone. SBT also reduced systolic blood pressure and increased HDL cholesterol. Ranking analyses indicated that SBT + mindfulness-based interventions, ACT/DBT-based approaches, and CBT + SBT + MI were most effective for HbA1c reduction. For fasting blood glucose, CBT combined with SBT or MI showed the highest effectiveness, while SBT plus control ranked well at 6–12 months. Overall, multicomponent behavioral strategies appear most effective for sustained HbA1c improvement, although stronger evidence is needed for fasting glucose and adiposity outcomes.]

Experiences of type 2 diabetes stigma in healthcare settings: a mixed-methods systematic review

Ekor E., Manallack S., Garza M., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113283.

[International consensus highlights the urgent need to address diabetes stigma in healthcare. This systematic review synthesised qualitative and quantitative evidence to provide context-specific insights into type 2 diabetes (T2D) stigma in healthcare settings. We searched PubMed, CINAHL, and PsycINFO (from inception to December 2025). Data were analysed thematically using a hybrid deductive–inductive coding approach guided by the Health Stigma and Discrimination Framework (HSDf), examining four key domains of stigma: manifestations, drivers/facilitators, markers, and impacts. Sixty-one articles from 32 countries were included. Individuals with T2D perceived, experienced, anticipated, and internalised T2D stigma, perpetuated through healthcare professionals' (HCPs') communication, attitudes, and practices. T2D stigma was driven by negative emotional reactions, stereotypes, authoritarianism, and lack of knowledge; and facilitated by overly simplistic care models and healthcare-related media misrepresentation. Negative impacts spanned psychosocial well-being, health-seeking behaviours, quality of care, and interpersonal relationships with HCPs. People with T2D called for HCPs and system-level reforms to foster stigma-free T2D healthcare. These findings strengthen the understanding of T2D stigma in healthcare, including its pervasiveness and consequences, and reveal actionable drivers and facilitators, which can be used to develop targeted interventions and guidance towards stigma-free T2D care.]

Freedom through technology: transforming management of type 2 diabetes

Boughton C.K. *Lancet Diabetes & Endocrinology*, 2026, 14(6), pp.439–441.

[Continuous glucose monitoring (CGM) is now the standard of care for people with type 1 diabetes in many countries, but its role in the management of type 2 diabetes is less well established. This is reflected by very limited adoption with health-care policies typically reimbursing only those using multiple daily insulin regimens, for which the risk of hypoglycaemia is higher than in those on non-insulin glucose lowering therapies.^{1,2} Meta-analysis data of randomised controlled trials show benefits

of CGM with reduced HbA_{1c} in people with type 2 diabetes; however, many of these trials were conducted before widespread availability of highly effective glucose-lowering medications such as SGLT2 inhibitors and GLP-1 receptor agonists. ^{3,4]}

From beta-cell failure to islet dysfunction: the emerging role of the alpha cell

Ramírez-Villegas N.E. and Martínez-Sánchez F.D. *BMJ Open Diabetes Research and Care* 2026;14:e006339

[From the triumvirate to the ominous octet and beyond, the pathophysiology of type 2 diabetes (T2D) has been progressively expanded to integrate an increasingly complex network of metabolic abnormalities.¹ Nevertheless, despite these advances and the recognition of numerous additional contributors to dysglycemia, our conceptual framework for T2D in 2026 still rests on two fundamental defects: insulin resistance and progressive β -cell dysfunction. These abnormalities have shaped both our understanding of disease progression and the development of modern glucose-lowering therapies. Yet despite major advances in diabetes care, an important physiological question remains unresolved: why does glucagon secretion remain inappropriately elevated even in the presence of hyperglycemia and hyperinsulinemia?']

Gut microbiota-mediated metabolic dysregulation in type 2 diabetes and metabolic syndrome: emerging therapeutic targets beyond glycaemic control

Sharma H., Tyagi S., Verma S., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113291.

[Metabolic diseases, particularly type 2 diabetes mellitus (T2DM) and obesity, have been traditionally understood through glucose-centric models. However, hyperglycaemia is a downstream consequence of systemic immune–metabolic dysregulation, with the gut microbiota acting as a central upstream regulator through defined molecular signalling pathways. This review examines four principal microbiota–host signalling axes through which ecological disruption drives systemic metabolic disease: short-chain fatty acid (SCFA) depletion impairing free fatty acid receptor (FFAR2/FFAR3) and AMP-activated protein kinase (AMPK) signalling; altered bile acid (BA) biotransformation perturbing farnesoid X receptor (FXR) and TGR5 signalling; increased intestinal permeability facilitating lipopolysaccharide (LPS) translocation and Toll-like receptor 4 (TLR4)–nuclear factor kappa B (NF- κ B) activation; and diminished indole production reducing aryl hydrocarbon receptor (AhR)–driven interleukin-22 (IL-22) secretion. Therapeutic strategies targeting these pathways, including SCFA prodrugs, FXR modulators, TGR5 agonists, and next-generation probiotics, offer disease-modifying potential beyond glycaemic lowering and highlight the need for a multidimensional clinical endpoint framework spanning inflammatory, hepatic, and barrier biomarkers to enable comprehensive translational evaluation of microbiota-directed therapies.]

High prevalence of fatty pancreas disease in type 2 diabetes mellitus: a meta-analysis

Ahmad S., Sul H.H., Danpanichkul P., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113149.

[High intrapancreatic fat deposition (IPFD), or fatty pancreas disease (FPD), has been increasingly recognized as a major driver in the pathogenesis of type 2 diabetes mellitus (T2DM). This *meta*-analysis aims to quantify the prevalence of FPD in people with T2DM. We searched PubMed and Embase databases until October 27, 2025, for observational studies that reported data on FPD prevalence in people with T2DM. A generalized linear mixed model was used to estimate pooled prevalence. In total, 12 studies (6,369 individuals) were included. The pooled prevalence of FPD in T2DM was 54.28% (95% CI 37.70 to 69.96). Subgroup analyses indicated that the prevalence of FPD tended to be lower in Asian than European studies (42.85% vs. 69.19%, $p = 0.06$) and was higher in smaller studies (<100 individuals: 67.55%) and in clinic/hospital-based settings (57.90%). No significant differences were observed in the prevalence of FPD when stratified by IPFD measurement method or median study year of enrollment. Approximately half of patients with T2DM have concomitant FPD, indicating a substantial yet underrecognized metabolic burden. These findings call for multidisciplinary efforts to better define the role of IPFD within the T2DM phenotype and to develop strategies for the prevention and monitoring of FPD in this population.]

PERsonalised Medicine for Intensification of Treatment (PERMIT) in type 2 diabetes mellitus: a target trial emulation from routine data.

Lugo-Palacios D.G., Bidulka P., Charlton P., et al. *Health Technology Assessment* 2026;30(47):1-28.

[Background: Evidence is required on the relative effectiveness of sulphonylureas, dipeptidyl peptidase-4 inhibitors or sodium–glucose cotransporter 2 inhibitors added to metformin for people with type 2 diabetes mellitus.

Objectives:

1. To assess disparities in the initiation of second-line antidiabetic treatments prescribed among people with type 2 diabetes mellitus in England according to ethnicity and social deprivation.
2. To compare the effectiveness of sulphonylureas, dipeptidyl peptidase-4 inhibitors and sodium–glucose cotransporter 2 inhibitors added to metformin for people with type 2 diabetes mellitus who require second-line treatment in routine clinical practice.
3. To examine heterogeneity in the comparative short-term (12 months) effectiveness of sulphonylureas versus dipeptidyl peptidase-4 inhibitors combined with metformin on levels of glycated haemoglobin across the entire target population and subpopulations of decision-making relevance.
4. To assess the comparative effectiveness of sulphonylureas, dipeptidyl peptidase-4 inhibitors or sodium–glucose cotransporter 2 inhibitors added to metformin according to individual risk-factor profiles of multiple long-term conditions.
5. To calibrate the RAPIDS microsimulation model to UK data and then use the resultant RAPIDS-UK model to predict probabilities of long-term complications for people with type 2 diabetes mellitus in England after second-line treatment with sulphonylureas, dipeptidyl peptidase-4 inhibitors or sodium–glucose cotransporter 2 inhibitors added to metformin.]

Reduced circulating Mig-6 levels are associated with dysglycemia in metabolic dysfunction associated steatotic liver disease (MASLD)

Mukherjee B., Chiranjit Bose C., Pramanik S., et al. *BMJ Open Diabetes Research and Care* 2026;14: e005947

[Introduction: Type 2 diabetes mellitus (T2D) accelerates the progression of metabolic dysfunction-associated steatotic liver disease (MASLD) to hepatic fibrosis, and a subset of MASLD subjects has T2D. Identification of molecular mediators linking T2D and MASLD progression remains unmet. Studies revealed patients with steatohepatitis have lower hepatic Mitogen inducible gene-6 (Mig-6) expression, and Mig-6 gene silencing causes hyperglycemia in a preclinical study. However, the relationship between Mig-6 and dysglycemia in MASLD, including its association with pancreatic β -cell dysfunction, is unknown. We assessed serum Mig-6 level in MASLD with or without dysglycemia, and its association with Homeostasis Model Assessment of β -cell function (HOMA- β).]

Untargeted metabolomics and mendelian randomization analysis identify adrenic acid as a novel biomarker of Type 2 diabetes mellitus

Wang F., Li X., Yan S., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113287.

[Purpose: Given the differences between Chinese T2DM patients and those of other ethnicities, understanding the metabolic contributions in this population is essential. This study aimed to identify T2DM-associated metabolic biomarkers through clinical untargeted metabolomics and mendelian randomization (MR).]

Urinary albumin-to-creatinine ratio and incident type 2 diabetes: a 13.8-year cohort study of 411,389 UK biobank participants

Yang X.H., Liu Y., Du J.X., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113265.

[Aims: Microalbuminuria, common in diabetes, lacks clarity as a predictor of diabetes onset. This study examines its association with incident type 2 diabetes (T2DM) and clinical implications.]

Diagnosis

Monogenic diabetes in Japan and India: A call for broader screening

Hasebe M., Radha V., Amutha A., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113268.

[Nationwide cohorts from Japan and India show monogenic diabetes is present in a considerable proportion of young, non-obese individuals with diabetes. Clinical presentations are heterogeneous; notably, only up to ~ 70% of cases had three-generation family history. These findings call for broader genetic testing in Asia beyond classical clinical screening criteria.]

Glucose monitoring and control

Continuous glucose monitoring for cystic fibrosis-related diabetes: impact on quality of life and glycaemic control

Martini R., Samm D., Routley A., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113274.

[**Background/aims:** Data for the use of continuous glucose monitoring (CGM) in cystic fibrosis related diabetes (CFRD) is lacking. The aim of this study is to establish efficacy and safety of CGM in CFRD to improve glycemic control and quality of life.]

Continuous glucose monitoring versus self-monitoring of blood glucose in individuals with type 2 diabetes: a randomised, multicentre, open-label, superiority trial

Wilmot E.G., Moore P., Sathyapalan T., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(6), pp.463-474.

[**Background:** Type 2 diabetes is the most common metabolic disorder worldwide, accounting for about 90% of people living with diabetes. Glycated haemoglobin (HbA_{1c}), a measure of chronic glycaemic exposure, correlates with the risk of long-term complications, which can result in substantial morbidity for people with diabetes and major costs to health-care systems. The value of continuous glucose monitoring (CGM) in people with type 2 diabetes managed with basal insulin and modern therapies remains unclear. FreeDM2 aimed to evaluate the effectiveness of real-time CGM in adults with type 2 diabetes.]

Disparities in GLP-1 and GIP responses to small intestinal glucose infusion in individuals with well- and poorly-controlled type 2 diabetes

Sun Y., Xie C., Bound M., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113235.

[**Aims:** Glucagon-like peptide-1 (GLP-1) and glucose-dependent insulintropic polypeptide (GIP) are key regulators of glucose homeostasis in health and type 2 diabetes (T2D). Whether their secretion is influenced by antecedent glycaemic control in T2D remains unclear. This study compared GLP-1 and GIP responses to intraduodenal glucose infusion between individuals with well- and poorly-controlled T2D.]

Effects of Glucose-Lowering Medications on Intrapancreatic Fat Deposition: A Systematic Review and Meta-Analysis of Randomized Controlled Trials.

Agon H.C., Shen Y., Petrov M.S. *Obesity Reviews* 2026;27(6): e70087.

[**Background:** The pancreas is a key metabolic organ, and excessive intrapancreatic fat deposition (IPFD) has been implicated in the pathogenesis of Type 2 diabetes. Although IPFD is believed to be reversible, it remains unclear whether glucose-lowering medications can reduce it. This study aimed to perform a field-wide systematic review of randomized controlled trials (RCTs) investigating the effects of such medications on IPFD.]

Hyperglycaemia

Factors associated with hypoglycemic or hyperglycemic events during Ramadan among persons with diabetes in Qatar

Tag Z.M., Abu-Raddad L.J., Mustafa A.A., et al. *BMJ Open Diabetes Research and Care* 2026;14: e006076

[**Background:** Despite the high prevalence of diabetes in Qatar, Ramadan-related glycemic events remain inadequately characterized. This study examined sociodemographic, clinical and behavioral factors independently associated with hypoglycemic or hyperglycemic events among patients with diabetes during Ramadan in Qatar.]

Hyperosmolar hyperglycaemic state: a systematic review and meta-analysis

French J., Bompfrey L., Manta A., et al. *BMJ Open Diabetes Research and Care* 2026;14: e005765

[Current knowledge of hyperosmolar hyperglycaemic state (HHS) is drawn from case series and small observational cohorts, limiting applicability to broader clinical practice. There is a lack of robust, large-scale studies exploring triggers of HHS and associated mortality. This absence of reliable data impedes prevention strategies, tailored clinical guidelines, and equitable resource allocation. We conducted this systematic review to aggregate all relevant HHS cases, explore precipitating factors and outcomes, and

how these vary by region. Searches across Ovid, PubMed, EMBASE, MEDLINE, Scopus, Web of Science, and Cochrane Library followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Studies reporting HHS cases from database inception to February 2025 were selected. Data on demographics, biochemical results, precipitants, outcomes, and complications were collected. 27 studies with a total of 63 935 cases were included. The median age was 63.8 years (IQR: 56.1–72.0). Common precipitants were non-infective illness (49.5%), infection (44.0%), and new diabetes diagnosis (31.7%). Intensive treatment unit admission was 40.8%, with the highest rate in North America (70.0%). Median hospital stay was 7.5 days, longest in Asia (17.5 days) and shortest in North and South America (4.0 days). Overall mortality was 21.1%, highest in Africa (40.0%), followed by Asia (18.2%), and lowest in North America (4.8%). Complications were acute kidney injury (7.6%), pulmonary oedema (4.8%), and acute coronary syndrome (3.9%). HHS presents with similar biochemistry globally, but outcomes vary significantly. Reducing mortality requires better diabetes diagnosis, harmonised protocols, and resource-adapted management to reduce gaps and inform prevention guidelines.]

Hypoglycaemia

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[**Background:** Despite the high prevalence of diabetes in Qatar, Ramadan-related glycemic events remain inadequately characterized. This study examined sociodemographic, clinical and behavioral factors independently associated with hypoglycemic or hyperglycemic events among patients with diabetes during Ramadan in Qatar.]

Quality of Life and Humanistic Burden of Adults with Type 1 Diabetes with Recurrent Severe Hypoglycemic Events and Impaired Awareness of Hypoglycemia Using a Continuous Glucose Monitor

Boateng-Kuffour A., Kelly C.S., Nguyen H.T., et al. *Diabetes Therapy* 2026, 17(6): 885–896.

[**Introduction:** This study aimed to examine psychosocial well-being, quality of life (QoL), and productivity in people with type 1 diabetes (pwT1D) who were experiencing recurrent severe hypoglycemic events (SHEs) and impaired awareness of hypoglycemia (IAH), despite using continuous glucose monitors (CGMs).]

Management of diabetes (diet, exercise, lifestyle)

AIGC-driven virtual patients for diabetes: a systematic review

Tang Y., Wen G., Wu H. *Diabetes Research and Clinical Practice* 2026, 236: 113261.

[This systematic review (SR) examines the application of Artificial Intelligence-Generated Content (AIGC) in developing virtual patients (VPs) for diabetes management. Through structured analysis of current literature, the study demonstrates how AIGC methodologies address key clinical challenges: generative adversarial networks (GANs) create synthetic continuous glucose monitoring trajectories to overcome data scarcity; reinforcement learning (RL) optimizes personalized insulin regimens through simulated treatment responses; and multimodal fusion techniques generate detailed models for diabetic complications. These approaches demonstrate technical feasibility in retrospective analyses and experimental settings for medical education and clinical decision support. However, their translation to clinical practice awaits rigorous prospective validation with diabetes-specific endpoints. However, validation remains primarily retrospective, with limited prospective trials reporting diabetes-specific endpoints like time-in-range and hypoglycemia metrics. Critical implementation barriers include data privacy concerns, model generalizability across diabetes subtypes, and clinical workflow integration. An empirical mapping of included studies onto a three-dimensional maturity framework reveals that while 92% of studies achieve technical validation, none demonstrate implementation maturity and only one has prospective evidence of clinical efficacy. Future progress hinges on interdisciplinary collaboration to develop robust validation frameworks aligned with regulatory standards

and to proactively mitigate algorithmic biases, thereby bridging the gap between technical innovation and dependable clinical application.]

Effects of a peer-support lifestyle intervention on diabetes incidence in India (K-DPP): 9-year follow-up of a cluster-randomised, controlled trial.

Jeemon P., Haregu T., Sivasubramanian S., et al. *The Lancet Global Health* 2026;14(6): 103927.

[**Background:** Evidence on the long-term effectiveness of lifestyle interventions for diabetes prevention in low-income and middle-income countries is scarce. We aimed to evaluate the 9-year effect of a peer-support lifestyle intervention on the incidence of diabetes in India.]

Effects of added-sugar warning labels on restaurant menus in the USA: an online randomised controlled trial.

Huang Y., Lemmon B., Musicus A.A., et al. *The Lancet Public Health* 2026;11(6): e375-e385.

[This online randomised controlled trial aimed to test the extent to which two sugar warning labels and two policy-relevant labelling thresholds can influence consumer behaviour. The analytical sample included 10 456 participants. For dinner and breakfast orders, both warning label designs reduced added sugar ordered compared with the control. Mandating noticeable added-sugar warning labels for restaurant menus is a promising policy option for reducing added sugar ordered from restaurants.]

Mental health and diabetes

Meeting time in range and time below range targets is not associated with psychological outcomes in type 1 or insulin-treated type 2 diabetes in the Hypo-METRICS study

McCarthy A., Zaremba N., Thomas J., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113220.

[Meeting the composite target of time in range (TIR) >70% and time below range (TBR) <4% was not associated with differences in diabetes distress, fear of hypoglycaemia, depression, or anxiety in participants with type 1 (T1D) or insulin-treated type 2 diabetes (T2D) in the Hypo-METRICS study. >50% of all participants reported moderate-to-high diabetes distress, highlighting the need for routine screening.]

Oral semaglutide reduces diabetes-related distress in adults with type 2 diabetes mellitus switching from DPP-4 inhibitors. The DOORS prospective real-world Italian study

Giaccari A., Borroni F., Dauriz M., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113244.

[**Aims:** To evaluate glycemic control, weight management, and patient-reported outcomes (PROs) in adults with type 2 diabetes mellitus who transitioned to oral semaglutide (OS) after inadequate glycemic control on dipeptidyl peptidase-4 inhibitors (DPP-4i).]

Type 2 diabetes outcomes in patients with Posttraumatic stress disorder and psychiatric comorbidity

Maldonado A.I., Salas J., Schnurr P.P., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113257.

[**Aims:** Posttraumatic stress disorder (PTSD) is associated with type 2 diabetes (T2D). However, no studies have determined if risk for adverse T2D outcomes vary among different PTSD comorbidity patterns.]

Pharmacological management of diabetes

Cardiorenal outcomes of empagliflozin versus dapagliflozin in primary prevention among patients with type 2 diabetes: A nationwide cohort study

Park S., Jung J., Jeong J., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113239.

[**Aims:** While both empagliflozin and dapagliflozin have demonstrated cardiorenal benefits in patients with type 2 diabetes, their comparative effectiveness in patients without established cardiovascular or renal disease remains uncertain.]

Comparative effects of SGLT2 inhibitors on Erythropoiesis: A systematic review and network meta-analysis

Sridharan K. and Sivaramakrishnan G. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(6): 103452.

[Background and aims: Sodium glucose cotransporter-2 inhibitors (SGLT2is) may influence erythropoiesis, but intra-class differences and evidence certainty remain unclear. We evaluated the comparative effects of individual drugs on hematological parameters.]

Efficacy and safety of anagliptin added to metformin and empagliflozin 25 mg in patients with type 2 diabetes: a 24-week randomized, double-blind, placebo-controlled phase 3 trial with 28-week open-label extension

Moon J.S., Han K.A., Yu J.M., et al. *Diabetes Research and Clinical Practice* 2026, 236: 113272.

[Aims: This study evaluated the efficacy and safety of anagliptin added to metformin and empagliflozin in patients with type 2 diabetes (T2DM) inadequately controlled on dual therapy.]

Efficacy and safety of co-administered cagrilintide and semaglutide versus semaglutide alone in adults with overweight or obesity with or without type 2 diabetes in Japan and Taiwan (REDEFINE 5): a multicentre, randomised, active-controlled, phase 3a trial

Yamauchi T., Becker N.P., Hagemann C.A., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(6), pp.450-462.

[Background: The combination of cagrilintide and semaglutide has been shown in global studies to induce reductions in bodyweight. We assessed the efficacy and safety of a fixed-dose combination of cagrilintide 2·4 mg and semaglutide 2·4 mg versus semaglutide 2·4 mg for weight management in an east Asian population.]

Integrated Evidence from VigiBase and Clinical Trials: A Comprehensive Pharmacovigilance Analysis of Seven Glucagon-Like Peptide 1 Receptor Agonists (GLP-1 RAs)

Li J., Liang J., Zhang W., et al. *Diabetes Therapy* 2026, 17(6): 853–872.

[Introduction: Glucagon-like peptide 1 receptor agonists (GLP-1 RAs) are key therapies for type 2 diabetes and obesity, regulating blood glucose by mimicking endogenous GLP-1. Despite efficacy, GLP-1 RAs are associated with adverse reactions across multiple organ systems. To address the gap in class-wide comparative safety analyses beyond previous studies limited to single drugs or organ systems, this study systematically evaluated adverse events for all approved GLP-1 RAs to identify hidden risks and support clinical decision-making.]

Nutrition Strategies for Next-Generation Incretin Therapies: A Systematic Scoping Review of the Current Evidence.

Spreckley M., Ruggiero C.F., Brown A. *Obesity Reviews* 2026;27(6): e70079.

[Next-generation incretin therapies, including semaglutide and tirzepatide, have transformed obesity and Type 2 diabetes management. However, evidence-based nutritional strategies to support safe and effective use of these agents remain limited. To address this gap, we conducted a systematic scoping review across five databases of studies published between January 2015 and April 2025 to map and appraise clinical trials incorporating nutritional interventions or dietary assessments during semaglutide or tirzepatide therapy in adults with obesity or Type 2 diabetes. Eligible studies included adults receiving semaglutide or tirzepatide with either an active dietary intervention or measured nutrition-related outcomes. Study quality was assessed using established tools. Twelve studies were included: 10 randomized controlled trials, one non-randomized comparative study, and one cross-sectional observational study. Interventions ranged from structured very-low-energy or ketogenic diets to general lifestyle counseling and observational dietary assessments. Across studies, energy intake decreased by 24% to 39%, but lean tissue loss accounted for up to 40% of total weight reduction. Only three studies involved nutrition professionals, and systematic assessment of protein or micronutrient intake was rare. One observational study found widespread nutrient inadequacies and limited access to dietetic support. Despite the effectiveness of semaglutide and tirzepatide for weight loss, evidence on optimal dietary strategies is sparse. Early dietitian involvement, high-protein, nutrient-dense diets, and routine nutritional monitoring should be prioritized. Robust trials are needed to define best practice for integrating dietary care alongside pharmacotherapy.]

Persistence-Dependent Effectiveness of Tirzepatide on the Cardio-Metabolic-Kidney Syndrome Outcomes in Obesity: Real-World Evidence from the United Arab Emirates

Rangraze I.R., El-Tanani M., Janez A., et al. *Diabetes Therapy* 2026, 17(6): 873–884.

[Introduction: Tirzepatide has been associated with significant reductions in body weight in randomized clinical trials. However, real-world evidence evaluating the multisystemic effects of tirzepatide across the cardio-metabolic-kidney (CKM) continuum remains limited. The aim of this study was to assess the real-world persistence-driven cumulative benefits of tirzepatide beyond weight reduction in adults with obesity but without type 2 diabetes mellitus (T2DM).]

Reports

Paternal use of metformin and risk of major congenital malformations: A meta-analysis of 4 studies.

Damkier P., Van Gelder M.M.H.J., Huybrechts K.F., et al. *British Journal of Clinical Pharmacology* 2026;92(6): 1940-1943.

[Metformin is the first-line drug for the treatment of Type 2 diabetes. In 2022, a Danish registry-based study reported a 40% increased risk of major congenital malformations following paternal exposure during spermatogenesis. This raised widespread concern about the use of metformin in males of reproductive age. Three subsequent studies were unable to replicate this finding. We performed a meta-analysis of four observational studies with data from five countries covering more than 11 000 live-born children whose fathers used metformin during spermatogenesis. The pooled risk ratio from an inverse variance-weighted random effects model was 1.03 (95% CI 0.88–1.21). We conclude that paternal exposure to metformin does not confer a meaningfully increased risk of major congenital malformations.]