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Diabetes

Current Awareness Bulletin

April 2026

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New training via MS Teams available from the Academy Library:

- **Bitesize searching databases for evidence: a quick guide to help you develop your literature searching skills**
  45 minutes. Learn how to transform a question into a search strategy, and how to find the best evidence in a database.

  Next sessions: 7th April @ 9am & 13th May @ 10am

- **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: 29th April @ 1pm & 7th May @ 2pm

- **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 April @ 9am & 19th May @ 10am

Book a session today at https://forms.office.com/e/HyiSXfDaYV (these sessions will be held on a monthly basis)

General

Adrenal tumour imaging: clinical, molecular, and radiomics perspectives

Pacak K., Blake M.A., Sweeney A.T., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.62-81.

[Adrenal tumours have become a common incidental finding in the radiological evaluation of patients. Estimates suggest that 1–10% of the general population currently harbours an adrenal tumour, peaking in prevalence in the seventh and eighth decades of life. Advances in CT and MR have contributed to improved characterisation of adrenal masses, and novel radiopharmaceuticals are being developed for molecular characterisation and disease subtyping. As a result, the imaging and management of adrenal tumours have been important subjects of many guidelines and consensus statements. New radiomics approaches, together with machine learning, are now being introduced and are quickly shaping the way that imaging data are analysed and interpreted. Furthermore, the development of theranostics links the molecular biology of functioning tumours to targeted treatment options. In this Review, we summarise up-to-date imaging and follow-up approaches for adrenal tumours to provide patients with the most accurate diagnosis, thereby avoiding unnecessary additional tests or surgery.]

Correction to Lancet Diabetes Endocrinol 2025; published online Nov 19. https://doi.org/10.1016/S2213-8587(25)00289-X

Lancet Diabetes & Endocrinology, 2026, 14(1), e.1.

[*Li M, Dal Maso L, Pizzato M, Rumgay H, Vaccarella S. Thyroid cancer in adolescents and young adults: a population-based study in 185 countries worldwide.* Lancet Diabetes Endocrinol *2025; published online Nov 19. https://doi.org/10.1016/S2213-8587(25)00289-X*.]

Diabetes and cancer in the age of multimorbidity

The Lancet Diabetes & Endocrinology. *Lancet Diabetes & Endocrinology*, 2026, 14(1), p.1.

[Diabetes and cancer are two of the four major non-communicable diseases identified by WHO. Their relationship is multifaceted and complex, involving shared biological mechanisms and overlapping risk factors. At a health-systems level, there are both barriers and opportunities for targeted prevention.]

Impact of diabetes mellitus on dental pulp tissue pathosis – A scoping review

Suresh N., Sherwani O.A.K., Suresh N., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(1): 103361.

[**Background**: Diabetes mellitus alters dental pulp tissue response through complex inflammatory and calcification processes, yet the full scope of these effects remains incompletely mapped.]

The long and winding road to precision diabetology

Roden M. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.3-5.

[There is increasing interest in delineating the heterogeneity of diabetes to develop precision diabetology. [1] In 2018, Ahlqvist and colleagues [2] introduced unbiased phenotype-based clustering to subtype diabetes into five clusters using the Swedish All New Diabetics in Scania 1 (ANDIS1) cohort, which was validated in the German Diabetes Study [3] and replicated in many cohorts worldwide. Now, in *The Lancet Diabetes & Endocrinology*, Olaf Asplund and colleagues [4] report on the follow-up of ANDIS1 (median follow-up 9·63 years [IQR 4·05]) as well as on an additional 10 019 participants with newly diagnosed diabetes in ANDIS2 (median follow-up 2·83 years [2·76]). Asplund and colleagues [4] compare subtype differences in hazard ratios (HRs) for diabetes-related complications using the mild age-related diabetes subtype (MARD) for reference. Although confirming severe insulin-deficient diabetes (SIDD) and severe insulin-resistant diabetes (SIRD) as overall top-risk clusters for kidney failure (SIDD adjusted HR 2·94 [1·69–5·09]; SIRD 3·41 [2·06–5·64]) and myocardial infarction (1·44 [1·13–1·82]; 1·51 [1·22–1·87]), the participants in the SIDD, SIRD, and mild obesity-related diabetes (MOD) subgroups had similarly higher adjusted total mortality than MARD.]

Trajectories of type 2 diabetes and cancer in 330 000 individuals with prediabetes: 20-year observational study in England

Zaccardi F., Ling S., Gillies C., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.41-49.

[**Background**: Higher than normal glucose concentrations have been linked to an increased risk of cancer. We aimed to describe the disease trajectories from prediabetes to cancer, accounting for the possible conversion to type 2 diabetes and risk of death.]

Children With Diabetes

Associations of body weight and COVID-19 with autoimmunity in pediatric new-onset type 1 diabetes: results from the prospective DPV registry

Boettcher C., Holl R., Nagl K., et al. *BMJ Open Diabetes Research and Care* 2026;14: e005349

[**Introduction**: This study analyzed the effects of the COVID-19 pandemic and body weight on islet and endocrine autoimmunity in children with type 1 diabetes (T1D).]

The role of oral alpha-lipoic acid as an adjuvant antioxidant therapy in diabetic nephropathy among children and adolescents with type 1 diabetes: a randomized controlled trial

Elhenawy Y.I., Thabet R.A., Hegazy M.G.A., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109206.

[**Aim**: Evaluate the oxidant-antioxidant balance and the efficacy of Alpha-lipoic acid (ALA) as an adjuvant therapy for diabetic nephropathy (DN) among individuals with type 1 diabetes (T1D).]

Task shifting and task sharing in paediatric type 1 diabetes care: a global survey

Klatman E.L., James S., Maniam J., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.14-17.

[Health outcomes of people living with type 1 diabetes are strongly related to the presence of health-care professionals skilled in type 1 diabetes care, preferably working within a multidisciplinary team. [1] However, this specific expertise and model of care is often scarce in low-income and middle-income countries (LMICs). [2,3]]

Co-Morbidities (Find Here Cardiovascular, Kidney Disease, Neuropathy, Diabetic Retinopathy Etc)

General

Comorbidities and mortality in subgroups of adults with diabetes with up to 14 years follow-up: a prospective cohort study in Sweden

Asplund O., Thangam M., Prasad R.B., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.29-40.

[**Background**: Subgroups of adult-onset diabetes, namely severe autoimmune diabetes (SAID), severe insulin-deficient diabetes (SIDD), severe insulin-resistant diabetes (SIRD), and mild obesity-related diabetes (MOD) or mild age-related (MARD) diabetes, have been defined with clinical variables and a machine-learning approach. Our aim was to describe their long-term outcomes and mortality.]

Cardiovascular Disease

Association between Life's Simple 7 and life's essential 8 with all-cause and cardiovascular mortality in cardiovascular-kidney-metabolic syndrome population

Yin S., Yan S., Yang Z., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113064.

[**Aims**: This study compares the associations of Life's Simple 7 (LS7) and Life's Essential 8 (LE8) with all-cause and cardiovascular mortality in cardiovascular-kidney-metabolic (CKM) syndrome populations.]

Baseline NT-proBNP and incident heart failure in type 1 diabetes: The epidemiology of diabetes complications study

Horton W.B., Mosslemi M., Valenzuela M.S., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109235.

[This study investigated whether NT-proBNP values were associated with long-term heart failure (HF) incidence in people with type 1 diabetes. Our results showed continuous lnNT-proBNP was significantly associated with 10-year HF risk, while the guideline-recommended threshold NT-proBNP ≥125 ng/L was not, in the Epidemiology of Diabetes Complications Study.]

Cardiovascular mortality trends among people with and without diabetes

Anjana R.M. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.2-3.

[Cardiovascular disease (CVD), a composite of coronary heart disease (CHD), cerebrovascular disease, and heart failure, remains the leading cause of morbidity and mortality worldwide. Although mortality due to CHD has shown major decreases in high-income regions, [1] these declines have not been noted in the case of heart failure. Diabetes represents a major risk factor for the development of heart failure, and is also associated with increased risk of progression from asymptomatic to symptomatic heart failure. [2]]

Economic evaluation of NT-proBNP for heart failure risk assessment in patients with type 2 diabetes in China

Yu M., Leng Z., Hou X., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113068.

[**Aims**: Heart failure (HF) affects up to 40 % of patients with type 2 diabetes mellitus (T2DM), imposing significant clinical and economic burdens. N-terminal pro-B-type natriuretic peptide (NT-proBNP) effectively assesses HF risk, but its economic value in China is unclear.]

Effect of early healthcare visits on cardiovascular disease risk in people with newly screened diabetes: emulating a target trial using a large insurance database

Fukaguchi K., Shinozaki T., Narita Z.C., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113020.

[**Aims**: To determine whether healthcare visits within one year after diabetes identification lower 10-year cardiovascular disease (CVD) risk compared with no visits.

Evidence-based validation of cardiovascular benefits from novel MRAs in type 2 diabetes: A meta-analysis of over 30.000 patients

Fan Q., Qin G., Du B., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109236.

[**Aim**: To evaluate the clinical efficacy and explore the potential mechanisms of novel mineralocorticoid receptor antagonists (MRAs) in reducing the risk of major adverse cardiovascular events (MACE) in patients with type 2 diabetes mellitus (T2DM).]

Insulin resistance and abdominal adiposity discriminate early vascular aging (higher vascular risk) in adults with type 1 diabetes without cardiovascular events

Llauradó G., Cano A., Giménez-Palop O., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113010.

[**Aims**: Adults with type 1 diabetes (T1D) and early vascular aging (EVA; higher arterial stiffness) are at increased risk for vascular complications and all-cause mortality. Because insulin resistance (IR) may promote arterial stiffness, we investigated this association and its potential to discriminate EVA.]

Kidney function decline mediates the adverse effects of arterial stiffness on all-cause and cardiovascular disease mortality in Cardiovascular-Kidney-Metabolic syndrome population: A cohort study

Liu S., Man Q., Wang S., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113051.

[**Aids**: Cardiovascular-Kidney-Metabolic (CKM) syndrome links metabolic, renal, and cardiovascular disorders. The prognostic value and mechanisms of estimated pulse wave velocity (ePWV) in CKM syndrome remain unclear.]

Major adverse cardiovascular and limb events caused by tirzepatide in patients with type 2 diabetes at high cardiovascular risk: A comparison with sitagliptin

Iwasaki Y., Shimada T., Kishimori T., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113072.

[**Aims**: To elucidate the overall protective effects of tirzepatide against atherosclerosis-related events, including cardiovascular and lower-extremity events.]

Metabolic syndrome mediates the association between body roundness index and incident stroke risk in Chinese adults aged 45 years and older: Evidence from the CHARLS

Liu H., Ma G., Shi J., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113050.

[**Background**: The body roundness index (BRI) has been identified as a new way to measure visceral fat, yet its relationship with stroke and how metabolic syndrome (MetS) affects this relationship are still ambiguous.]

Metformin and all-cause mortality in older adults with type 2 diabetes mellitus and hypertension: NHANES 1999–2018 evidence for albumin as a mediator

Li H., Li X., Liu F. *Diabetes Research and Clinical Practice* 2026, 231: 113059.

[**Background:** Metformin reduces mortality in type 2 diabetes mellitus (T2DM), but its underlying pathways remain incompletely understood. We hypothesize that serum albumin could potentially mediate the effects of metformin on mortality. **Methods:** Participants were drawn from the National Health and Nutrition Examination Survey (NHANES) across ten cycles for this retrospective longitudinal analysis. We employed mediation analysis to assess the impact of metformin on all-cause mortality risk mediated by albumin (ALB). **Results:** In our longitudinal study, all-cause mortality was 40.97 %. Multivariate logistic regression analysis identified a significant correlation between metformin and the likelihood of all-cause mortality (HR = 0.8, 95 %CI = 0.71–0.90, P < 0.001). Mediation analysis indicated that the relationship between metformin and all-cause mortality risk was partially mediated by ALB, accounting for 13.32 % of the association (P < 0.0001). **Conclusion:** ALB mediates the association between metformin use and lower all-cause mortality in older Americans with T2DM and hypertension, underscoring the mortality-reducing importance of nutritional status.]

Nonlinear association of the hemoglobin glycation index with all-cause and cardiovascular mortality: A community-based cohort study

He J., Zhang H., Tan Y., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109212.

[**Background**: The hemoglobin glycation index (HGI) has been increasingly recognized for predicting cardiovascular outcomes. However, its association with all-cause and cardiovascular disease (CVD) mortality in the general population remains underexplored. This study aimed to investigate the nonlinear relationship between the HGI and mortality, identify risk thresholds, and evaluate HGI's clinical utility for individualized risk stratification.]

Predicting potassium trajectories for risk monitoring in outpatients with heart failure, diabetes mellitus or chronic kidney disease.

Scherkl C., Grytzka J., Rottenkolber M., et al. *British Journal of Clinical Pharmacology* 2026;92(1): 246-256.

[**Aim**: To develop a dynamic prediction model for potassium concentration in the outpatient sector for patients with heart failure (HF), chronic kidney disease (CKD) and/or diabetes mellitus (DM).]

Prognostic value of non-alcoholic fatty liver disease, pericoronary fat attenuation index and computed tomography-derived fractional flow reserve in diabetic patients with suspected coronary artery disease

Qin R., Jiang C., Zhang M., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109216.

[**Background**: This study aimed to investigate the predictive value of non-alcoholic fatty liver disease (NAFLD), pericoronary fat attenuation index (FAI), and computed tomography-derived fractional flow reserve (CT-FFR) for major adverse cardiovascular events (MACE) in diabetic patients with suspected coronary artery disease.]

Serum analysis of type 2 diabetes mellitus patients with low, moderate, and high risk of diabetic kidney disease using LC-MS metabolomics approach

Pohan S.D., Sauriasari R., Maggadani B.P., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109202.

[**Objectives**: This study investigated the relationship between serum metabolomic profiles and diabetic kidney disease (DKD) risk in patients with type 2 diabetes mellitus (T2DM) stratified into three KDIGO-defined risk categories.]

Time trends in mortality from heart failure and atherosclerotic cardiovascular disease in people with and without diabetes: a multi-national population-based study

Gong J.Y., Morton J.I., Chen L., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.20-28.

[**Background**: Contemporary trends in cardiovascular disease (CVD) cause-specific mortality by diabetes status are inadequately described. We examined trends by diabetes status in coronary heart disease (CHD), cerebrovascular disease, and heart failure mortality, and mortality rate ratios (people with diabetes versus those without diabetes) across nine high-income jurisdictions.]

UK Resuscitation Advanced Life Support Guidelines: Should the Paradigm be Extended?

Jude E.B., Saluja S., Mannan F., et al. *Diabetes Therapy* 2026, 17(1): 9-18.

[Cardiac arrest continues to be a predominant cause of mortality worldwide, necessitating its rapid identification, and intervention by reversible aetiologies to optimise successful outcomes. The established 4H 4T framework has served as a foundational guide for advanced life support (ALS) protocols since its formal introduction in the 2000 International Guidelines on Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC), effectively targeting critical conditions such as hypoxia, hypothermia, hypo-/hyperkalaemia, hypovolaemia, tension pneumothorax, cardiac tamponade, thrombosis, and exposure to toxins. However, this framework inadequately addresses other significant factors: specifically hypoglycaemia and tachy- and bradyarrhythmias. Hypoglycaemia, a reversible and treatable metabolic state, poses substantial threats to cardiovascular

stability, particularly in people with diabetes and in association with sepsis. It disrupts myocardial repolarisation, prolongs the QT interval, and may instigate the R-on-T phenomenon, which can precipitate life-threatening arrhythmias. Likewise, tachyarrhythmias and bradyarrhythmias often precipitate cardiac arrest, thereby warrant dedicated attention within ALS protocols. This paper advocates expanding the current 4H 4T framework to include hypoglycaemia and tachy- and bradyarrhythmias as critical and reversible causes of cardiac arrest (5H 5T). The rationale for such a paradigm shift is supported by evidence from clinical studies, case reports, and experimental models that demonstrate the adverse effect of these conditions on cardiovascular integrity and alert clinicians to look for these reversible factors. The inclusion of these factors into ALS protocols will necessitate revising resuscitation guidelines, modifying training for healthcare practitioners, and including systematic monitoring of blood glucose alongside routine assessment of cardiac rhythm during resuscitation procedures. Future research should focus on elucidating the pathophysiological mechanisms underlying these conditions, to establish operational thresholds for intervention, and validate their integration into resuscitation frameworks. By expanding the conceptualisation of reversible causes, the proposed 5H/5T framework would offer a more rational and practical approach to the management of cardiac arrest, to improve the survival and recovery of these critically ill patients.]

Diabetic Neuropathy

Effects of benfotiamine treatment over 12 months on morphometric, neurophysiological and clinical measures in type 2 diabetes patients with symptomatic polyneuropathy: a randomized, placebo-controlled, double-blind clinical trial (BOND study)

Ziegler D., Sipola G., Strom A., et al. *BMJ Open Diabetes Research and Care* 2026;14: e005773

[**Introduction**: Shunting of glycolytic intermediates into the pentose phosphate pathway via transketolase activation by benfotiamine has been suggested to protect from hyperglycemia-induced microvascular damage, but the long-term effects of benfotiamine on diabetic sensorimotor polyneuropathy (DSPN) remain unclear.]

Ethnic differences in risk of renal disease progression amongst young-onset type 2 diabetes in New Zealand

Perera K., Baker J., Jayanatha K., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113018.

[**Aim**: Māori and Pacific adults in New Zealand (NZ) with type 2 diabetes are at high risk of Diabetic Kidney Disease (DKD). This study assessed whether the same was true in young-onset type 2 diabetes.

Eye Diseases

Differential gut microbiome profiles in diabetic retinopathy: A comparative study across continental populations

Adhikary P., Maddheshiya A., Takkar B., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113043.

[Gut dysbiosis damages gut barrier, stimulates inflammation, endotoxemia, and breakdown of blood-retina barrier, promoting diabetic retinopathy (DR). Most microbiome studies on DR relied on 16S rRNA gene sequencing, documenting altered microbial richness, diversity, and shifts in dominant phyla and genera, though these findings remain inconsistent across populations. The only shotgun metagenomic study to date identified species *Eubacterium hallii, Firmicutes bacterium* and *Alistipes finegoldii* enriched in DR, with altered metabolic pathways. The β-diversity showed distinct inter-individual variations in diseased individuals compared to healthy controls (HC). The objective of this narrative review is to highlight the key microbial biomarkers, metabolic pathways, and putative microbiota–gut–retina axis integrating both 16S rRNA and shotgun data to compare microbial alterations across HC, T2DM, and DR. The review concludes with a comprehensive understanding of dysbiotic gut taxa associated with DM and DR in different populations showing wide variability in results mostly due to small sample size, geography, antidiabetic medications, lack of demographic and clinical data and limited taxonomic classification by 16S sequencing. This emphasizes the need of a large scale, multi-ethnic shotgun metagenomic sequencing study with systematically collected medical data and dietary information to understand the contributions of gut microbiome in the progression of DR.]

Dipeptidyl peptidase-4 inhibitors and diabetic retinopathy in type 2 diabetes: A network meta-analysis of randomized clinical trials

Ortiz-Seller A., Real J.T., Morcillo E., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109234.

[**Aims**: To update evidence on the relationship between dipeptidyl peptidase-4 (DPP-4) inhibitors and incident diabetic retinopathy (DR) in type 2 diabetes.]

Regulatory roles of non-coding RNAs in ferroptosis during diabetic retinopathy

Tian Q., Guo C., Yuan F., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113062.

[Diabetic retinopathy (DR) is one of the most common and severe microvascular complications of diabetes, characterized by both microvascular damage and neurodegeneration. Despite advances in clinical management, current treatment options remain limited and lack effective therapeutic targets. Recent evidence has revealed that ferroptosis—an iron-dependent form of programmed cell death—plays a crucial role in the onset and progression of DR. Ferroptosis exacerbates DR pathology by disrupting the homeostasis of retinal vascular and neuronal systems. Moreover, accumulating studies have demonstrated that non-coding RNAs (ncRNAs), including microRNAs (miRNAs), long non-coding RNAs (lncRNAs), and circular RNAs (circRNAs), can modulate ferroptosis in DR through direct or indirect regulation of ferroptosis-related proteins and their downstream pathways. Elucidating the molecular mechanisms of ferroptosis regulators and the ncRNAs involved in this process may therefore uncover novel therapeutic strategies and intervention targets for DR. This review systematically summarizes recent advances in understanding the regulatory roles of ncRNAs in ferroptosis during DR progression and discusses future research directions in this emerging field.]

Kidney Disease

Association between Life's Simple 7 and life's essential 8 with all-cause and cardiovascular mortality in cardiovascular-kidney-metabolic syndrome population

Yin S., Yan S., Yang Z., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113064.

[**Aims**: This study compares the associations of Life's Simple 7 (LS7) and Life's Essential 8 (LE8) with all-cause and cardiovascular mortality in cardiovascular-kidney-metabolic (CKM) syndrome populations.]

Combining glucagon-like peptide 1 analogues with sodium-glucose cotransporter 2 inhibitors to treat patients with type 1 diabetes, BMI > 25 kg/m ^{2}, and chronic kidney disease – A randomised, controlled pilot study

Al Ozairi E., Taghadom E., Irshad M., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113066.

[**Aims**: We investigated the safety and efficacy of combining glucagon-like peptide-1 (GLP-1) analogues with sodium-glucose cotransporter 2 inhibitors (SGLT2i) in patients with type 1 diabetes, BMI > 25 kg/m^2, and early chronic kidney disease.]

Disease management, outcomes, and healthcare resource utilization in real-life clinical practice of diabetes and diabetic kidney disease in Finland

Laine M.K., Haapala M., Uusi-Rauva K., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113067.

[**Aims**: A significant number of individuals with diabetes have chronic kidney disease (CKD). Delays in diagnosis and management of CKD hinder treatment initiation and worsen outcomes. The adherence to monitoring and pharmacological treatments is poorly characterized worldwide.]

Effect of Tofogliflozin on Urinary Albumin-to-Creatinine Ratio vs. Metformin in Diabetic Kidney Disease: Rationale and Study Protocol of the TRUTH-DKD Trial.

Kimura K., Takagi Y., Harada M., et al. *Diabetes Therapy* 2026, 17(1): 149-163.

[**Introduction**: Metformin is widely recommended as a first-line therapy for patients with type 2 diabetes; however, evidence supporting its effects on cardiovascular outcomes is limited and derived from older studies. Furthermore, there is little direct evidence that demonstrates the protective effect of metformin on renal events. By contrast, sodium-glucose cotransporter 2 (SGLT2) inhibitors have consistently shown benefits in reducing cardiovascular and renal events. This study aims to directly compare the effects of an SGLT2 inhibitor and metformin on the urinary albumin-to-creatinine ratio (UACR), which is a marker of diabetic nephropathy and endothelial dysfunction.]

Efficacy and safety of finerenone in Asian patients with type 2 diabetes and chronic kidney disease: A FIDELITY analysis by baseline kidney function

Katayama S., Anker S.D., Zhu D., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109213.

[**Aims**: Define the effect of finerenone on kidney function within the overall FIDELITY Asian subpopulation.]

The Emerging role of lipoprotein(a) in diabetic kidney disease: possible pathophysiological links and unresolved mechanisms

Yaribeygi H., Maleki M., Karav S., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113040.

[Diabetic kidney disease (DKD) is one of the most serious microvascular complications of diabetes mellitus and a leading cause of end-stage renal disease worldwide. Although hyperglycemia and hypertension are well-established drivers of DKD, accumulating evidence suggests that additional factors, such as lipoprotein(a) [Lp(a)], may contribute to its pathogenesis. Lp(a) is a genetically determined lipoprotein with pro-atherogenic, pro-inflammatory, and pro-thrombotic properties, and elevated circulating levels have been associated with increased cardiovascular and renal risk in diabetic individuals. In this review, we summarize the current understanding of the relationship between Lp(a) and DKD, with a focus on the proposed molecular mechanisms. These include activation of TGF-β/Smad signaling leading to fibrosis, induction of oxidative stress, chronic inflammation, endothelial dysfunction, impaired fibrinolysis, and direct injury to podocytes resulting in proteinuria. While several clinical and experimental studies support the involvement of Lp(a) in these pathways, the precise molecular mediators remain largely undefined. Understanding these mechanisms may offer novel insights into the pathophysiology of DKD and identify new therapeutic targets. This article aims to provide a comprehensive overview of the potential role of Lp(a) in DKD and to highlight areas requiring further investigation.]

Identification of biomarkers to predict renal function decline and its deceleration in patients with type 2 diabetes and diabetic kidney disease

Nishimura M., Yonezawa K., Sawamura M., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109208.

[**Aims**: This study aimed to identify noninvasive biomarkers for predicting the effectiveness of multifactorial management in individual cases of diabetic kidney disease (DKD).]

Kidney function decline mediates the adverse effects of arterial stiffness on all-cause and cardiovascular disease mortality in Cardiovascular-Kidney-Metabolic syndrome population: A cohort study

Liu S., Man Q., Wang S., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113051.

[**Aids**: Cardiovascular-Kidney-Metabolic (CKM) syndrome links metabolic, renal, and cardiovascular disorders. The prognostic value and mechanisms of estimated pulse wave velocity (ePWV) in CKM syndrome remain unclear.]

National access to renal transplantation and post-transplant survival among patients with diabetes: deceased and living donor outcomes

Crest P., Stacey H., Barua S., et al. *BMJ Open Diabetes Research and Care* 2026;14: e005691

[**Introduction**: In the USA, patients with diabetes and end-stage renal disease are less likely to undergo deceased donor kidney transplantation (DDKT) or living donor kidney transplantation (LDKT).

We explored the survival benefit of DDKT and LDKT among patients with diabetes.]

Optimal age, duration of diabetes and frequency of screening for diabetic nephropathy in children and youths with type 1 Diabetes: A systematic review

Passanisi S., Piona C., Mancioppi V., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113042.

[Diabetic nephropathy (DN) is a major complication of type 1 diabetes (T1D) with lifelong health implications. This systematic review evaluated the optimal age, duration of diabetes, and frequency for DN screening in children and adolescents with T1D. A comprehensive literature search (1995–2024) across major databases identified 36 eligible studies, predominantly cross-sectional, encompassing 21,778 participants. Moderate albuminuria prevalence was 9.5 % overall, with most cases occurring after seven years of diabetes duration and in individuals older than 14 years, though rare cases were reported as early as 8.5 years and within two years of diagnosis. Severe albuminuria was less frequent (0.3–14.6 %), while end-stage kidney disease was rare, and no deaths were reported. Higher HbA1c levels (≥9%) were strongly associated with increased nephropathy risk, whereas limited data were available on blood pressure and other risk factors. No randomized trials or direct comparisons of screening strategies were identified, and heterogeneity in definitions and diagnostic methods limited evidence quality. Overall, findings support current international guidelines recommending screening from age 11 or puberty after 2–5 years of T1D duration, with intensified strategies potentially warranted for those with elevated HbA1 levels. High-quality, prospective studies are needed, especially in low- and middle-income countries.]

Predicting potassium trajectories for risk monitoring in outpatients with heart failure, diabetes mellitus or chronic kidney disease.

Scherkl C., Grytzka J., Rottenkolber M., et al. *British Journal of Clinical Pharmacology* 2026;92(1): 246-256.

[**Aim**: To develop a dynamic prediction model for potassium concentration in the outpatient sector for patients with heart failure (HF), chronic kidney disease (CKD) and/or diabetes mellitus (DM).]

The role of oral alpha-lipoic acid as an adjuvant antioxidant therapy in diabetic nephropathy among children and adolescents with type 1 diabetes: a randomized controlled trial

Elhenawy Y.I., Thabet R.A., Hegazy M.G.A., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109206.

[**Aim**: Evaluate the oxidant-antioxidant balance and the efficacy of Alpha-lipoic acid (ALA) as an adjuvant therapy for diabetic nephropathy (DN) among individuals with type 1 diabetes (T1D).]

Soluble Tumor Necrosis Factor Receptors (sTNFRs) as biomarkers for Diabetic Kidney Disease

Moroney E., Niewczas M.A., Ekinci E.I., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109204.

[Multiple biomarkers have been associated with Diabetic Kidney Disease (DKD) progression and its associated exaggerated risk for cardiovascular events and mortality. Chronic inflammation plays an important role in the progression of DKD. Tumor Necrosis Factor alpha (TNF-α) is a central proinflammatory cytokine that binds to its soluble receptor (sTNFR) and has been implicated in the pathogenesis of DKD. sTNFRs are a family of membrane proteins that regulate gene expression and activate cell death pathways. They are involved in the immune system and can bind to cytokines related to TNF. Higher levels of the type 1 (sTNFR1) and type 2 (sTNFR2) receptor have consistently been associated with progressive DKD, notably rapid GFR decline and progression to kidney failure. They offer enhanced risk prediction for progressive DKD over and above established risk markers. Higher levels of sTNFR1 and sTNFR2 also predict incident cardiovascular disease and mortality in people with diabetes. Further studies are required to define the temporal relationship between changes in circulating sTNFR levels and progression of kidney function loss. The influence of medications with kidney protective effects on sTNFR levels also requires further investigation.]

Complications (Find Here Atherosclerosis, Claudication, Diabetic Foot, Ulcers Etc)

Diabetic Foot

Current primary care approaches to diabetic foot prevention and treatment

Ibrahim M., Ba-Essa E.M., Ahmed A., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109231.

[Diabetes-related foot disease is a significant source of morbidity and mortality among people with diabetes, affecting approximately 1.8 % of the global population and leading to many hospital admissions and non-traumatic amputations. Structured multidisciplinary care for the management of diabetes-related foot disease has been shown to reduce complication rates. The role of primary care providers is crucial in the education, recognition, management, and referral of people with diabetes-related foot disease. This evidence-based review article combines expert opinion with research-based consensus to offer comprehensive yet actionable guidance for primary care providers. It discusses the different domains of care for diabetes-related foot disease, including prevention, cardiometabolic biomarkers, education, risk stratification, complication detection, disease staging, treatment options, and management considerations for different geographic populations.]

Frailty, diabetic foot ulceration and mortality in people diagnosed with type 2 diabetes: Multistate analysis of primary care patients in the UK clinical practice research datalink

Neal L., Yates T., Shabnam S., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113058.

[**Aims**: Diabetic foot ulceration (DFU) is a serious complication of diabetes. Frailty is common in individuals with type 2 diabetes and has been associated with a higher mortality risk. We investigated the risk of DFU and mortality in relation to frailty in individuals with type 2 diabetes.]

Limb Salvage: A review of stem cell and growth factor therapies for diabetic foot ulcers

Metwaly A., Ismail S., Nagy Y.M., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113036.

[Diabetic foot ulcers (DFUs) remain a major cause of morbidity, hospitalization, and lower-limb amputation among individuals with diabetes, despite advancements in conventional wound care. Increasing evidence highlights the therapeutic potential of stem cell–based and growth factor–based interventions in correcting impaired angiogenesis, chronic inflammation, and defective extracellular matrix remodeling characteristic of diabetic wounds. This review synthesizes current mechanistic and clinical insights into mesenchymal stem cells, mononuclear cells, pluripotent stem cells, and key growth factors—including EGF, PDGF, VEGF, and PRP—and evaluates their comparative efficacy based on recent randomized trials and network meta -analyses. Findings demonstrate significant improvements in ulcer healing, perfusion indices, and amputation reduction in selected modalities; however, clinical translation remains limited by small sample sizes, methodological heterogeneity, variable delivery techniques, and short-term follow-up. Emerging approaches such as exosome therapy, bioengineered matrices, and combined biologic platforms represent promising future directions. This review underscores the need for standardized protocols and robust multicenter trials to integrate regenerative therapies effectively into DFU management.]

Perspectives on antibiotic management of diabetic foot osteomyelitis: A scoping review on routes of administration

Meddas N., Gachet B., Piraux A., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113035.

[Diabetic foot ulcers can progress to diabetic foot osteomyelitis (DFO). Intravenous (IV) antibiotics are traditionally the standard treatment for DFO, but it might reduce quality of life, increase adverse events and costs. Our objective was to examine the potential advantages and disadvantages of antibiotic administration routes for DFO to support a future patient decision aid tool. We conducted a scoping review using the Joanna Briggs Institute methodological framework to map evidence on antibiotic administration routes for DFO using the quintuple aim for quality of care. Records from databases, reference lists, and grey literature were deduplication in EndNote, screened in Rayyan, and assessed independently by two interdisciplinary reviewers. Of 6814, 25 studies were included, all quantitative and mainly retrospective observational (76 %). The majority (68 %) included adult patients with diabetic foot infection or DFO. Oral and IV antibiotics demonstrated comparable clinical outcomes across studies. Data on patient-reported outcomes and experience, team management, equity factors, and standardized definitions of clinical endpoints were largely scarce across studies. Current data suggest

that oral antibiotic therapy may be a safe and effective alternative to IV therapy in selected patients with DFO, though substantial evidence gaps remain beyond infection management.]

Diabetic Ketoacidosis

Continuous ketone monitoring for people with diabetes: international expert recommendations on the application of a new technology

Dhatariya K., Bergenstal R.M., Al-Sofiani M., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.82-92.

[The ability to reduce the risk of developing diabetic ketoacidosis (DKA) remains a major care gap for people with diabetes, particularly those on intensive insulin therapy. The anticipated availability of continuous ketone monitoring (CKM) has the potential to reduce the risk of developing DKA, one of the most life-threatening acute complications of type 1 and type 2 diabetes. International clinical guidelines have established ketone thresholds for suspected and confirmed diagnoses of DKA, based on use of point-of-care testing, as part of a triad of markers with allied thresholds for hyperglycaemia and acidosis. The increasing occurrence of euglycemic DKA, with glucose concentrations below established diagnostic thresholds, makes the availability and use of CKM technology an important addition to the diabetes management toolkit. CKM data could alert the user when the risk of acute DKA is high on sick days in addition to signalling that individuals might be predicted to be at greater overall risk of future DKA on the basis of the distribution and degree of ketone measures in daily life. If widespread use of CKM devices is to be safe and effective in reducing the occurrence of DKA, it is important to establish clear ketone thresholds which notify CKM users when action on their part is required. In defining these thresholds and actions, it was important to ensure that the CKM user is not exposed to avoidable anxiety or suffers alarm fatigue, thus adding to the burden of living with diabetes. In the absence of substantial evidence that can identify appropriate ketone thresholds for CKM use, a panel of international experts in the management of DKA was convened with the aim of developing a number of objective, practical recommendations on how this novel diabetes technology could improve outcomes for individuals at risk of DKA, the results of which we report in this Personal View. These recommendations have been endorsed by the International Society for Pediatric and Adolescent Diabetes (ISPAD).]

Diabetes and Pregnancy

Development and validation of prediction models for gestational diabetes mellitus in first-trimester pregnant women

Liu X., Hu F., Yan R., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113048.

[**Aims**: Early intervention can reduce the risk of gestational diabetes mellitus (GDM) and related adverse pregnancy outcomes. Accordingly, this study aims to develop prediction models for GDM in early pregnant women.]

Does continuous glucose monitoring deliver in gestational diabetes?

Ringholm L. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.7-8.

[Women with gestational diabetes continue to have adverse pregnancy outcomes that are often related to hyperglycaemia. Maternal glucose is the major determinant of increased birthweight and there are strong positive associations of maternal glucose levels with increased birthweight. [1]]

Early Gestational Diabetes Mellitus: A Need for Better Understanding and Wise Navigation.

Gupta Y., Goyal A., Tandon N., et al. *Diabetes Therapy* 2026, 17(1): 1-8.

[Early gestational diabetes mellitus (eGDM) is a condition identified during early pregnancy, characterized by glucose levels that are neither normal nor high enough to meet the criteria for overt diabetes. eGDM is associated with adverse pregnancy and postpartum outcomes, but owing to its heterogeneity, management remains challenging. Women with eGDM can be categorized into distinct phenotypes: mild, moderate, and severe, based on glycemic levels, response to behavioral interventions, and associated risk factors. Additionally, some women with eGDM regress to

normoglycemia, while others with early normoglycemia may develop gestational diabetes later ("potential GDM"). Precision medicine offers a tailored approach to managing eGDM, emphasizing individualized treatment plans to optimize outcomes and minimize harm. Future research should focus on refining diagnostic criteria, identifying phenotypes early, and implementing personalized management strategies. This commentary highlights the need for a nuanced understanding of eGDM to improve maternal and neonatal health.]

Glycaemic control and pregnancy outcomes with real-time continuous glucose monitoring in gestational diabetes (GRACE): an open-label, multicentre, multinational, randomised controlled trial

Linder T., Dressler-Steinbach I., Wegener S., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.50-61.

[**Background**: Data regarding the impact of real-time continuous glucose monitoring (rt-CGM) on reducing adverse pregnancy outcomes in women with gestational diabetes are contradictory. We aimed to assess differences in the proportion of large-for-gestational-age (LGA) newborns between women using rt-CGM versus self-monitoring of blood glucose (SMBG).]

Glycemia, management and outcomes of pregnant women with maturity-onset diabetes of the young – a single-center case series

Jørgensen I.L., Thuesen A.C.B., Clausen T.D., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109206.

[**Aims**: At Rigshospitalet, Copenhagen, Denmark, pregnancy management for women with GCK-MODY is guided by markedly elevated glucose levels and fetal overgrowth, while management for women with HNF1A-MODY follows guidelines for type 1 and type 2 diabetes. We aimed to evaluate current treatment strategies for pregnant women with GCK- or HNF1A-MODY.]

Prediction of gestational diabetes mellitus using continuous glucose monitoring metrics

Chen L.W., Ku C.W., Zheng R.T., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113044.

[**Aims**: We evaluated continuous glucose monitoring (CGM)-derived metrics for predicting gestational diabetes mellitus (GDM).]

Prediction of time to insulin initiation in gestational diabetes mellitus: a secondary analysis of the EMERGE trial

Zhu Y., Alvarez-Iglesias A., Egan A.M., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113070.

[**Aims**: Gestational diabetes mellitus (GDM) is a global health problem. Insulin therapy is recommended when lifestyle management fails to control blood glucose. We aim to predict the time to insulin initiation for women with GDM.]

Prevalence and risk factors of early gestational diabetes mellitus (EGDM) in Indians: The STRiDE study

Hannah W., Deepa M., Ram U., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113023.

[**Aim**: Gestational diabetes mellitus (GDM) is usually diagnosed between 24–28 weeks (late GDM, LGDM). When diagnosed before 20 weeks, it is termed early GDM (EGDM). This study aimed to assess the prevalence and risk factors of EGDM compared to LGDM in Asian Indian women.]

Diabetes Mellitus Type 1

Adult-onset type 1 diabetes: early detection, differential diagnosis, and emerging disease-modifying therapies

Wagner R., Füchtenbusch M., Hummel M., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113047.

[Adult-onset type 1 diabetes (T1D) likely exceeds childhood-onset in absolute numbers, yet many cases are underestimated due to misclassification as type 2 diabetes. This pragmatic review synthesizes current evidence on epidemiology, pathophysiology, diagnosis, and early disease-modifying therapy in adults. Incidence data from 32 countries indicate that adults account for a median 42% of new T1D diagnoses. Autoimmunity follows the pediatric, HLA-restricted paradigm, but β-cell dysfunction appears slower, reflected by measurable C-peptide for years. Misdiagnosis delays insulin initiation, increases ketoacidosis risk, and forfeits opportunities for β-cell–sparing interventions. We present a four-step diagnostic algorithm integrating an islet autoantibody panel with a fasting or random C-peptide–to-glucose ratio, and highlight red-flag scenarios warranting repeat testing. We also propose a hypothetical, risk-enriched four-step pathway to identify presymptomatic T1D in adults that begins with a higher HbA1c trigger, uses enrichment to raise pretest probability, and reserves full autoantibody testing for high-probability individuals. Given low prevalence and false-positive risk, this pathway needs prospective validation before routine care. We review adult and adolescent evidence for targeted immunomodulators, including teplizumab, abatacept, rituximab, low-dose anti-thymocyte globulin, ustekinumab, golimumab, baricitinib and alefacept, as well as β-cell–directed agents such as verapamil and imatinib, and discuss emerging HLA- and autoantibody-defined endotypes that may predict response. Collectively, current evidence supports routine autoimmune diabetes screening in adults with new-onset diabetes.]

Association of genetic variation with age at diagnosis in type 1 diabetes

Vollenbrock C.E., Roshandel D., Lee K.E., et al. *BMJ Open Diabetes Research and Care* 2026;14: e003877

[**Introduction**: Type 1 diabetes is an autoimmune disease with a strong genetic basis. The aim of this study was to identify additional single-nucleotide polymorphisms (SNPs) for type 1 diabetes age at diagnosis and to replicate previously identified loci.]

Associations of body weight and COVID-19 with autoimmunity in pediatric new-onset type 1 diabetes: results from the prospective DPV registry

Boettcher C., Holl R., Nagl K., et al. *BMJ Open Diabetes Research and Care* 2026;14: e005349

[**Introduction**: This study analyzed the effects of the COVID-19 pandemic and body weight on islet and endocrine autoimmunity in children with type 1 diabetes (T1D).]

Chat, Gemini and Claude at the dinner table: assessing general-purpose AI tools for carbohydrate counting in the context of type 1 diabetes

Goncalves S., Coelho C., Pretre L., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113031.

[**Aims**: Carbohydrate counting is a daily challenge for individuals with type 1 diabetes (T1D). While dedicated apps exist, some patients now use general-purpose AI tools, though their accuracy is uncertain. We evaluated the performance of ChatGPT, Gemini, and Claude compared with expert dietitians.]

Combining glucagon-like peptide 1 analogues with sodium-glucose cotransporter 2 inhibitors to treat patients with type 1 diabetes, BMI > 25 kg/m ^{2}, and chronic kidney disease – A randomised, controlled pilot study

Al Ozairi E., Taghadom E., Irshad M., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113066.

[**Aims**: We investigated the safety and efficacy of combining glucagon-like peptide-1 (GLP-1) analogues with sodium-glucose cotransporter 2 inhibitors (SGLT2i) in patients with type 1 diabetes, BMI > 25 kg/m^2, and early chronic kidney disease.]

Diabetic Ketoacidosis and Severe Hypoglycemia Risks with Ipragliflozin/Insulin Versus Insulin in Type 1 Diabetes: A Japanese Real-World Database Study.

Kawamura T., Lee T., Shintani-Tachi M., et al. *Diabetes Therapy* 2026, 17(1): 113-132.

[**Introduction**: Ipragliflozin is a sodium-glucose cotransporter 2 (SGLT2) inhibitor approved in Japan as an adjunct to insulin therapy for the management of type 1 diabetes (T1D). Diabetic ketoacidosis (DKA)

and severe hypoglycemia (SH) have been specified as important identified risks for ipragliflozin; however, real-world data on the incidences of these events are limited. We compared the incidences of initial DKA and SH in patients with T1D newly treated with ipragliflozin in combination with insulin versus those treated with insulin.]

Genetic risk-targeted islet autoantibody screening for presymptomatic type 1 diabetes in adults

Thomas N.J., Long A., Gillespie K., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.11-13.

[The presymptomatic progression of type 1 diabetes is well characterised in children but remains poorly understood in more than 50% of cases that develop in adulthood. [1] This knowledge gap is particularly important following the approval in 2022 from the US Food and Drug Administration (FDA) of teplizumab to slow down early type 1 diabetes progression in children and adults, as well as its subsequent approval by the European Medicines Agency (EMA). Studying type 1 diabetes before symptom development is challenging because islet autoantibody screening is required to identify those at risk and type 1 diabetes is rare, occurring in approximately 1 in 200 people. Therefore, many studies in children focus on islet autoantibody testing in individuals with affected relatives or with individuals with a high type 1 diabetes genetic risk (measured either by HLA typing or a genetic risk score [GRS]). [2,3]]

Global burden of type 1 diabetes in adults aged 40–64: trends from 1990 to 2021 and projections to 2036

Qin L., Ma W., Cui S., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113022.

[**Aims**: This study aims to assess the burden of type 1 diabetes (T1DM) among adults aged 40–64 years and to project future trends.]

Health-related social needs and self-Reported health among adults with type 1 diabetes in the 2022 Behavioral Risk Factor Surveillance System

Wagner J., Bermúdez-Millán A., Feinn R.S. *Diabetes Research and Clinical Practice* 2026, 231: 113077.

[**Aims**: To examine the association between health-related social needs (HRSNs) and indicators of self-rated health in adults with type 1 diabetes (T1D). Methods: Using data from the 2022 Behavioral Risk Factor Surveillance System (BRFSS), we examined the association between HRSNs and 1) self-reported health (excellent to poor), 2) days of mental health not good, and, 3) days of physical health not good in the past 30 days. Data were from 476 adults with T1D in the U.S. Results: Participants were mostly white (75 %), male (54 %), and over 50 years old (52 %). Factor analysis of the 10 federal HRSN items produced three factors we named Psychosocial, Financial, and Employment. After controlling for age, sex, race/ethnicity, insurance, healthcare access, smoking, binge drinking, and comorbidities, higher Psychosocial HRSN score and Financial HRSN score were associated with lower self-reported health, more days of mental health not good, and more days of physical health not good. Employment HRSN was not associated with any measure of self-reported health. Conclusion: This is the first examination of HRSN and self-rated health in T1D. Screening for HRSNs should be integrated into diabetes care to identify and serve high-risk patients.]

Human factors in the use and efficacy of decision support technologies for type 1 diabetes: evidence from a randomized controlled trial

Pavan J., Nass R., Fabris C., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113049.

[**Aim**: Studies on decision support systems (DSS) for type 1 diabetes show low user engagement and marginal glycemic benefits. This work investigates the interplay between human factors and DSS use and efficacy.]

Impact of technologies on quality of life in relation to glucose control in patients with type 1 diabetes

Briganti S.I., Lanza O., Renzelli V., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109215.

[**Aim**: To assess the effect of insulin delivery and glucose monitoring technologies on quality of life in relation with glucose control in adults with type 1 diabetes (T1D).]

Insulin resistance and abdominal adiposity discriminate early vascular aging (higher vascular risk) in adults with type 1 diabetes without cardiovascular events

Llauradó G., Cano A., Giménez-Palop O., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113010.

[**Aims**: Adults with type 1 diabetes (T1D) and early vascular aging (EVA; higher arterial stiffness) are at increased risk for vascular complications and all-cause mortality. Because insulin resistance (IR) may promote arterial stiffness, we investigated this association and its potential to discriminate EVA.]

When the summer camp ends: Short-term, post-camp deterioration of glycemic control in youth with type 1 diabetes

Sotiriou G., Dimitriadou M., Nemtsa A., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113039.

[**Aims**: To investigate short-term post-camp glycemic deterioration in youth with T1D using sensor-augmented or automated insulin delivery systems and to identify contributing factors.]

Diabetes Mellitus Type 2

Age at type 2 diabetes diagnosis and risk of cancer: Cohort study in over 1 million individuals from the TriNetX US Collaborative Network

Slater T., Ibarburu G.H., Drebert Z., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109210.

[**Aims**: To investigate whether the association between type 2 diabetes diagnosis and relative and absolute risk of obesity-related cancers differs based on age at diabetes diagnosis.]

Associations of modifiable lifestyle and clinical factors with cognitive function in adults with type 2 diabetes

Golchin A., Johnson K.C., Houston D.K., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109227.

[**Aims**: Type 2 diabetes and obesity accelerate cognitive decline. Maintaining salutary levels of multiple lifestyle and clinical risk factors might be expected to protect against this. We examined whether healthier levels of adiposity, cardiorespiratory fitness, physical activity, and diabetes control were associated with better cognitive functioning.]

Can a consumer-grade bioimpedance device accurately estimate sarcopenia in women with type 2 diabetes? A cross-sectional agreement study with dual-energy X-ray absorptiometry

De Lira dos Santos T.B., Maciel G.R., Bandeira F. *Diabetes Research and Clinical Practice* 2026, 231: 113069.

[**Aims**: To evaluate the diagnostic performance of a consumer-grade bioelectrical impedance analyzer (OMRON HBF-514C) against dual-energy X-ray absorptiometry (DXA) for detecting sarcopenia in women with type 2 diabetes (T2DM).

Data-driven subtypes of newly diagnosed youth-onset type 2 diabetes in the USA

Guo J., Li Z., Carrillo-Larco R.M., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109207.

[**Aims**: To identify subtypes of newly diagnosed youth-onset T2D using cluster analysis.]

Deinsulinisation in type 2 Diabetes: Evidence-based strategies for safe treatment simplification "*Approaches to reducing insulin in type 2 diabetes*"

Giorda C.B., Anelli V., Goglia U., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113056.

[Insulin remains a cornerstone in managing advanced type 2 diabetes (T2D), but long-term use poses challenges, including hypoglycemia, weight gain, and treatment burden. The advent of GLP-1 receptor agonists (GLP-1 RAs) and SGLT2 inhibitors (SGLT2i) has enabled the concept of deinsulinisation: reducing or withdrawing insulin in favor of safer, simpler therapies. This narrative review examines current evidence on deinsulinisation strategies, focusing on four key factors: age, HbA1c levels, BMI, and prior insulin regimen. Data from trials, observational studies, and guidelines suggest insulin withdrawal can be safe and effective, particularly in older adults, those with low daily insulin doses, and patients with stable glycemic control. Newer fixed-ratio combinations and once-weekly GLP-1 RAs support improved adherence, fewer hypoglycemic events, and weight loss. Predictors of success include lower insulin requirements, lower HbA1c levels, and shorter diabetes duration, though high-quality evidence is limited. Continuous glucose monitoring (CGM) and structured deprescribing protocols are key to minimizing clinical inertia and avoiding overtreatment. Deinsulinisation aligns with ADA/EASD guidance, especially for frail or elderly patients, emphasizing safety and quality of life. While individualized and closely monitored approaches are essential, deinsulinisation represents a paradigm shift toward more personalized, risk-balance, and patient-centered T2D care.

Gender and socioeconomic inequalities in the cascade of type 2 diabetes care trends among middle-aged and older Chinese

Yi Q., Luo Z., Sun W., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113008.

[**Aims**: Gender and socioeconomic disparities are key determinants influencing the burden and management of type 2 diabetes mellitus (T2DM). This study examined how gender and socioeconomic inequalities influence trends across the T2DM care cascade in China.]

GLP-1 receptor agonist use during immune checkpoint inhibitor therapy is associated with mortality and Immune-Related adverse events across cancer types in People with type 2 Diabetes: A Target-Trial emulation

Chan S.H., Li P.Y., Li P.H., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113073.

[**Aims**: To evaluate whether Glucagon-like peptide-1 receptor agonist (GLP-1 RA) use at immune checkpoint inhibitor (ICI) start is associated with mortality, healthcare use, and immune-related adverse events in adults with type 2 diabetes (T2D).]

Heterogeneity in type 2 diabetes trajectories: informing public health approaches

Pearson-Stuttard J. and Critchley J.A. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.5-6.

[In *The Lancet Diabetes & Endocrinology*, Francesco Zaccardi and colleagues [1] provide a thoughtful analysis of transitions to type 2 diabetes and cancer development and mortality among 330 000 people living with pre-diabetes in England from 1998 to 2018.]

Ketosis-prone type 2 diabetes in Caucasian adults: a follow-up cohort analysis

Kovács A., Teutsch B., Veres D.S., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(1): 103360.

[**Aim**: To assess the prevalence, baseline features, and long-term clinical course of ketosis-prone type 2 diabetes in adult Caucasians presenting with new-onset diabetic ketoacidosis or ketosis.]

Insulin resistance is associated with incident prediabetes and type 2 diabetes in normoglycemic individuals

Louie J.Z., Shiffman D., Meigs J.B., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(1): 103372.

[**Aims**: Testing insulin resistance could help improve physician assessment of patients' risk of prediabetes or type 2 diabetes (T2D), even among normoglycemic individuals.

The miR-200 family in type 2 diabetes: therapeutic and biomarker perspectives

Ajonijebu T.E. and Mazibuko-Mbeje S.E. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109211.

[MicroRNAs (miRNAs) are critical regulators of gene expression and have emerged as promising biomarkers and therapeutic targets in type 2 diabetes (T2D). Among them, the miR-200 family (miR-200a, miR-200b, miR-200c, miR-141, and miR-429) plays key roles in insulin sensitivity, pancreatic β-cell survival, and inflammation. Dysregulation of miR-200a/b and miR-200c has been linked to insulin resistance and β-cell apoptosis, although findings are context dependent, with miR-200c showing both protective and deleterious effects. Therapeutic approaches include the use of antagomiRs to inhibit miR-200a/b (to improve insulin sensitivity) and miR-200c mimics at physiological/ moderate level (to enhance β-cell resilience under oxidative stress). Advances in nanoparticle delivery systems (liposomes, micelles, dendrimers) and chemical modifications such as 2′- O -methyl, 2′-O-methoxyethyl, and locked nucleic acids have improved stability and efficacy, though barriers remain in achieving tissue specificity and minimizing immune activation. In addition to therapy, miR-200 family members are attractive non-invasive biomarkers, with recent studies reporting encouraging sensitivity and specificity for early T2D detection and monitoring of disease progression. However, major challenges persist, including delivery barriers, long-term safety concerns, and limited validation in large, multi-ethnic human cohorts. This review synthesizes current evidence on the dual potential therapeutic strategies of miR-200 inhibition and mimicry, evaluates their biomarker utility, and highlights future directions needed to overcome translational gaps. By addressing these limitations, miR-200-based strategies hold potential to advance toward clinical application in T2D.]

National and regional burden of early-onset type 2 diabetes mellitus in the Americas from 1990 to 2023, attributable to modifiable risk factors, and projections to 2050: a systematic analysis for the global burden of disease study 2023

Liu Z., Li X., Liang L., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113007.

[**Aims**: This study aims to estimate the burden of early-onset type 2 diabetes mellitus (T2DM) attributable to modifiable risk factors (MRFs) in the Americas from 1990 to 2050.]

Predictive value of a body shape index for incident type 2 diabetes and all-cause mortality in adults: Evidence from two long-term cohort studies

Chen S., Zeng L., Fu M., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113032.

[**Aims**: To evaluate the predictive value of A Body Shape Index (ABSI) for incident type 2 diabetes mellitus (T2DM) and subsequent all-cause mortality.]

Preoperative plasma miR-144-3p to predict persistent type 2 diabetes after gastric bypass – a pilot proof-of-concept study

Martinez A.C., Waitzberg D.L., Cruz e Melo N., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113052.

[Although RYGB induces substantial metabolic benefits, remission of type 2 diabetes mellitus (T2DM) is not universal, creating a clinical challenge in identifying patients unlikely to achieve glycemic success. This prospective observational cohort study investigated whether preoperative circulating microRNAs (miRNAs) predict persistent T2DM after Roux-en-Y gastric bypass (RYGB) in women with obesity. Twenty-eight women were assessed preoperatively and at 3, 12, and 60 months after surgery. According to ADA criteria, patients were classified as responders (R; n = 18) or non-responders (NR; n = 10). Plasma collected preoperatively and at 3 months was analyzed for circulating miRNAs. Preoperative screening was conducted using TaqMan Low Density Array (n = 17), followed by RT-qPCR validation in the full cohort (n = 28). In the screening phase, NR patients showed higher preoperative miR-144-3p expression (p = 0.033), which also correlated inversely with plasma insulin (p = 0.018). During validation, elevated preoperative miR-144-3p predicted persistent T2DM with an AUC of 0.771 (p = 0.023) and 100 % specificity. Additionally, a post hoc exploratory analysis showed that R patients who relapsed at 5 years had higher miR-144-3p levels at 3 months than those maintaining remission (p < 0.0001). Overall, these findings identify preoperative miR-144-3p as a candidate biomarker for predicting persistent T2DM after RYGB.]

Pros and Cons of Early Treatment with GLP-1 Receptor Agonist and SGLT-2 Inhibitors for Youth with Type 2 Diabetes: A Narrative Review.

DeLacey S.E., Dieguez A.C., Bensignor M.O. *Diabetes Therapy* 2026, 17(1): 41-54.

[The incidence of youth-onset type 2 diabetes (Y-T2D) has been increasing over the last two decades in line with the growing rate of childhood obesity. Prior to 2019, the only United States Food and Drug Administration (FDA)-approved therapies for Y-T2D were metformin and insulin, and the current consensus guidelines recommend these therapies as first-line treatment. While metformin has a known safety profile and early efficacy for glycemic control, it has not been shown to prevent β-cell dysfunction or exogenous insulin requirements. Insulin is effective in treating hyperglycemia, but can result in hypoglycemia and further weight gain, worsening insulin resistance in Y-T2D. Furthermore, longitudinal data from participants treated early in their disease course with metformin and insulin demonstrate a cumulative incidence of at least one diabetes complication in most participants within 13 years of diagnosis. Over the last five years, glucagon-like peptide-1 receptor agonists (GLP-1RAs) and sodium-glucose co-transporter 2 inhibitors (SGLT-2is) have been added to the management toolbox for Y-T2D. However, further research is needed to determine the best timing and use for these medications for Y-T2D. The goal of this narrative review is to describe the current evidence for treatment with SGLT-2is and GLP-1RAs for Y-T2D within the first 1-2 years of the disease process.]

Risk-Benefit Trade-offs of GLP-1RAs and SGLT-2is in Type 2 Diabetes Mellitus (T2D): Systematic Review, Meta-Analysis, and Net Benefit Modeling.

Ghosal S. and Ghosal A. *Diabetes Therapy* 2026, 17(1): 55-72.

[**Introduction**: While glucagon-like peptide-1 receptor agonists (GLP-1RAs) and sodium-glucose cotransporter-2 inhibitors (SGLT-2is) are established for cardiorenal benefits in type 2 diabetes mellitus (T2DM), prior meta-analyses have not fully integrated cross-class comparisons or net benefit analyses with updated cardiovascular outcome trials (CVOTs).]

Staging prediabetes and type 2 diabetes: the time to start is now

Shah V.N., Battelino T., Bergenstal R.M., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.8-10.

[Impaired glucose tolerance and impaired fasting glucose have long been recognised as risk factors for type 2 diabetes development. The term prediabetes was introduced by the American Diabetes Association (ADA) [1] in 2011, with the intention to recognise intermediate glucose values between normal and diabetes as a risk factor for development of type 2 diabetes and to encourage clinicians to recommend lifestyle modifications to delay progression to type 2 diabetes. Over the past decade, strong associations have been shown between prediabetes and risk for cardiovascular diseases, chronic kidney disease, early-onset dementia, and some cancers, such as colorectal, breast, and pancreatic cancer, [2,3] suggesting that prediabetes is a disease with broader implications on health. Moreover, there is no regulatory guidance by the US Food and Drug Administration (FDA) or European Medicines Agency for drug approval for prediabetes. Although many therapies (such as metformin, pioglitazone, and GLP-1 receptor agonists) have been shown to delay the progression to type 2 diabetes and reduce cardiovascular risk, [4,5] none have been approved by the regulatory agencies for management of prediabetes. The assumptions that people with prediabetes will develop type 2 diabetes and people without meeting prediabetes criteria are unlikely to develop diabetes are incorrect. Many diabetes experts have suggested altering the terminology prediabetes, as it has remained problematic in promoting the health of people with prediabetes. [6,7] The International Diabetes Federation advocates for use of the term intermediate hyperglycaemia over prediabetes for the same reason. [8]]

Trajectories of type 2 diabetes and cancer in 330 000 individuals with prediabetes: 20-year observational study in England.

Zaccardi F. *The Lancet Diabetes & Endocrinology* 2025;14(1):41-49.

[The trajectories of type 2 diabetes and cancer following a diagnosis of prediabetes varied substantially by age at prediabetes diagnosis and, to a lesser extent, other sociodemographic and lifestyle factors, with most younger individuals (aged <55 years) remaining in the prediabetes state. Strategies to improve the prevention and early identification of type 2 diabetes and cancer in individuals with prediabetes should be tailored to the age at which prediabetes is diagnosed.]

Diagnosis

Diabetes with low body mass index in India: A secondary analysis of NFHS-5 data

Basu S. and Maheshwari V. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(1): 103371.

[**Background**: The International Diabetes Federation (IDF) recently recognized “Type 5 Diabetes” (“T5DM”) as a distinct entity. Proponents estimate a burden of 6 million cases in India. However, the applicability of this classification in the Indian context, which is dominated by Lean Type 2 Diabetes (T2D), remains debated.]

Digital twin paradigm in diabetes prediction and management

Olawade D.B., Owhonda R.C., Alabi J.O., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113075.

[Traditional diabetes management employs reactive strategies with therapeutic adjustments after adverse glycaemic events rather than proactive prevention, resulting in suboptimal control and increased complications. Digital twin (DT) technology creates virtual replicas through computational modelling and real time data integration as a transformative approach. However, questions remain regarding clinical validation, implementation feasibility, and generalisability. This review examines current applications, challenges, and future potential of digital twin technology in diabetes prediction and management. PubMed, Scopus, Web of Science, and IEEE Xplore databases were searched for peer reviewed articles (2015–2024) on DT applications in diabetes care, predictive modelling, and therapeutic optimisation. Critical synthesis compared methodological approaches, performance metrics, and implementation challenges. DT demonstrate variable but promising potential through glucose prediction, personalised insulin dosing, dietary optimisation, and complication risk assessment, integrating continuous glucose monitoring, wearable sensors, and machine learning algorithms. Evidence quality varies substantially, with most studies representing proof-of-concept or pilot implementations. Implementation faces data privacy concerns, validation requirements, and integration complexities. Critical gaps exist in long-term effectiveness, algorithmic bias mitigation, and generalisability to underserved populations. DT technology represents an evolving paradigm towards precision diabetes care. However, rigorous clinical validation, addressing equity concerns, and establishing sustainable implementation frameworks remain essential for widespread adoption.]

Glucose Monitoring and Control

Comparison of efficacy of different glucose control strategies in critically ill adults: a network *meta*-analysis of randomized controlled trials

Xia Z., Meng J., Mei L., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113034.

[**Aims**: This network *meta*-analysis aimed to compare the efficacy and safety of four glucose control strategies—strict (≤110 mg/dL), intermediate strict (≤150 mg/dL), liberal (≤180 mg/dL), and very liberal (≤252 mg/dL) among critically ill adults in the intensive care unit (ICU).]

Cost-Utility Analysis of FreeStyle Libre Systems in People with Type 2 Diabetes Mellitus on Treatment with Basal Insulin and Poor Glycemic Control in Spain.

Robles-Plaza M., Gómez-Peralta F., Bellido V., et al. *Diabetes Therapy* 2026, 17(1): 73-92.

[**Introduction**: FreeStyle Libre (FSL) systems are effective and user-friendly glucose monitoring devices. This cost-effectiveness analysis compared FSL vs. self-blood glucose monitoring (SBGM) in patients with poorly controlled [hemoglobin A1c (HbA1c) > 8%] type 2 diabetes (T2DM) on basal insulin, from the Spanish National Health System perspective.]

Does continuous glucose monitoring deliver in gestational diabetes?

Ringholm L. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.7-8.

[Women with gestational diabetes continue to have adverse pregnancy outcomes that are often related to hyperglycaemia. Maternal glucose is the major determinant of increased birthweight and there are strong positive associations of maternal glucose levels with increased birthweight. [1]]

Effects of millet consumption on metabolic homeostasis (glycemic control and lipid profiles) in adults: A systematic review

Naik N.S., Nadiger N., Mukhopadhyay A., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(1): 103359.

[**Objective**: The aim of the study was to systematically review the literature to analyze the effect of millet consumption on metabolic homeostasis in adults.]

Glycaemic control and pregnancy outcomes with real-time continuous glucose monitoring in gestational diabetes (GRACE): an open-label, multicentre, multinational, randomised controlled trial

Linder T., Dressler-Steinbach I., Wegener S., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(1), pp.50-61.

[**Background**: Data regarding the impact of real-time continuous glucose monitoring (rt-CGM) on reducing adverse pregnancy outcomes in women with gestational diabetes are contradictory. We aimed to assess differences in the proportion of large-for-gestational-age (LGA) newborns between women using rt-CGM versus self-monitoring of blood glucose (SMBG).]

Glycemic variability before and during Ramadan fasting among adults with type 2 diabetes and hepatic cirrhosis: a prospective paired cohort using real-time CGM

Firdausa S., Hasan I., Tahapary D.L., et al. *Diabetes Research and Clinical Practice* 2026, 231: 112955.

[**Aims**: To compare glycemic variability and continuous glucose monitoring (CGM)-derived metrics before and during Ramadan fasting among adults with type 2 diabetes and cirrhosis.]

Impact of technologies on quality of life in relation to glucose control in patients with type 1 diabetes

Briganti S.I., Lanza O., Renzelli V., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109215.

[**Aim**: To assess the effect of insulin delivery and glucose monitoring technologies on quality of life in relation with glucose control in adults with type 1 diabetes (T1D).]

Reply to [DIAB-D-25-04607: "1-hour plasma glucose in referred populations: functional marker or overstated risk?"]

Mu Y., Nie Q., Jin X., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113021.

[To the Editor, We thank Dr. Li and colleagues for their interest in our work and for the opportunity to clarify two key issues.]

When the summer camp ends: Short-term, post-camp deterioration of glycemic control in youth with type 1 diabetes

Sotiriou G., Dimitriadou M., Nemtsa A., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113039.

[**Aims**: To investigate short-term post-camp glycemic deterioration in youth with T1D using sensor-augmented or automated insulin delivery systems and to identify contributing factors.]

Reports

Can an intensive food-as-medicine programme enhance preventive care engagement without improving glycaemic control in patients with T2DM?

Magon A. and Caruso R. *Evidence-Based Nursing* 2026;29(1): 9-10.

[**Context**: Type 2 diabetes mellitus (T2DM) is a significant public health issue, with diet playing a crucial role in its management.[1] Food insecurity, defined as the lack of consistent access to enough food for an active, healthy life, exacerbates this condition, making effective dietary interventions critical.[2] Food-as-medicine programmes, which provide medically tailored meals and nutritional education, aim to improve health outcomes for individuals with chronic diseases.[2] The study by Doyle *et al* examines the impact of such an intensive programme on glycaemic control and healthcare use among food-insecure patients with T2DM.[3] Understanding the efficacy of these programmes could inform public health

strategies and improve chronic disease management. As food-as-medicine programmes are sensitive to nursing interventions, this evidence particularly interests nurses.]

Hyperglycaemia

One-hour post-load plasma glucose thresholds for intermediate hyperglycemia and type 2 diabetes mellitus diagnosis in the Chinese population

Wang Y., Wu Q., Wang X., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113033.

[**Aims**: To define the optimal 1-h PG cutoff values for intermediate hyperglycemia (IH) and type 2 diabetes mellitus (T2DM) in the Chinese population.]

Hypoglycaemia

Acute hypoglycemia attenuates serum matrix metalloproteinases and tissue inhibitors of metalloproteinases in type 2 diabetes

Moin A.S.M., Darwish R., Sathyapalan T., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113076.

[**Background**: Extracellular matrix (ECM) remodeling by matrix metalloproteinases (MMPs) and their inhibitors (TIMPs) contributes to vascular complications in type 2 diabetes (T2D), but the impact of acute insulin-induced hypoglycemia on this axis is unclear.

Objective: Assess whether hypoglycemia alters circulating MMP/TIMP levels in T2D versus controls.]

Diabetic Ketoacidosis and Severe Hypoglycemia Risks with Ipragliflozin/Insulin Versus Insulin in Type 1 Diabetes: A Japanese Real-World Database Study.

Kawamura T., Lee T., Shintani-Tachi M., et al. *Diabetes Therapy* 2026, 17(1): 113-132.

[**Introduction**: Ipragliflozin is a sodium-glucose cotransporter 2 (SGLT2) inhibitor approved in Japan as an adjunct to insulin therapy for the management of type 1 diabetes (T1D). Diabetic ketoacidosis (DKA) and severe hypoglycemia (SH) have been specified as important identified risks for ipragliflozin; however, real-world data on the incidences of these events are limited. We compared the incidences of initial DKA and SH in patients with T1D newly treated with ipragliflozin in combination with insulin versus those treated with insulin.]

Insulin Therapies

Cost-Utility Analysis of FreeStyle Libre Systems in People with Type 2 Diabetes Mellitus on Treatment with Basal Insulin and Poor Glycemic Control in Spain.

Robles-Plaza M., Gómez-Peralta F., Bellido V., et al. *Diabetes Therapy* 2026, 17(1): 73-92.

[**Introduction**: FreeStyle Libre (FSL) systems are effective and user-friendly glucose monitoring devices. This cost-effectiveness analysis compared FSL vs. self-blood glucose monitoring (SBGM) in patients with poorly controlled [hemoglobin A1c (HbA1c) > 8%] type 2 diabetes (T2DM) on basal insulin, from the Spanish National Health System perspective.]

Disparities of adiposity explained ethnic differences in insulin sensitivity and secretion traits in adolescents with normoglycaemia

Zhang Y., Tam C.H.T., Shi M., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113000.

[**Aims**: Excessive adiposity contributes to impaired insulin sensitivity and insulin secretion among different ethnic groups. We aim to investigate whether disparities in adiposity can explain the ethnic differences in insulin sensitivity and secretion traits within a multi-ethnic cohort of normoglycaemic adolescents.]

Metabolic and reproductive roles of irisin in polycystic ovary syndrome: from mechanistic insights to therapeutic perspectives

Liu H.R., Jin Q., Hong L., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113037.

[Polycystic ovary syndrome is a prevalent endocrine disorder associated with metabolic dysfunction, impaired ovarian function, and infertility. Irisin is a myokine released by skeletal muscle during exercise that has recently been identified as having potential connections to lifestyle interventions and reproductive outcomes. Current evidence suggests that irisin may influence insulin resistance, inflammation, and oxidative stress, all of which are involved in the pathophysiology of polycystic ovary syndrome. Emerging data also indicate that irisin may affect the ovarian microenvironment and oocyte quality, providing novel insights into the mechanistic link between metabolism and fertility. This review evaluates recent research findings on the role of irisin in metabolic dysfunction and reproductive health in women with polycystic ovary syndrome, explores the potential of irisin as both a biomarker and therapeutic target, and aims to provide more precise strategies for treating polycystic ovary syndrome-related infertility.]

A phase 1b, randomized, open-label study of once-weekly insulin GZR4 in patients with type 2 diabetes mellitus

Wang X., Hu Y., Tang C., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113061.

[**Aims**: To investigate the safety, tolerability, pharmacokinetics, and pharmacodynamics of multiple ascending doses of GZR4 in patients with type 2 diabetes mellitus (T2DM).]

Real-World Effectiveness of Insulin Glargine 300 U/ml in People with Type 2 Diabetes Previously Treated with Tirzepatide: The DELIVER-T Study.

Ritzel R., Davies M.J., Hao L., et al. *Diabetes Therapy* 2026, 17(1): 133-147.

[**Introduction**: Tirzepatide is recommended as a first-line injectable for people with type 2 diabetes (T2D), but there is a paucity of data on the use of basal insulin after tirzepatide in this population. This study aimed to evaluate glycemic control in people with T2D newly intensified with insulin glargine 300 U/ml (Gla-300) who had suboptimal HbA1c after treatment with tirzepatide.]

Serum soluble ASGR1 concentration is elevated in patients with metabolic dysfunction-associated steatotic liver disease and is associated with adiponectin

Wang J.M., Jiang L.Y., Deng Y.T., et al. *BMJ Open Diabetes Research and Care* 2026;14: e005638

[**Introduction**: Current studies have shown that the asialoglycoprotein receptor 1 (ASGR1) is involved in glycolipid metabolism and is associated with systemic insulin resistance. This study aims to explore the correlation between serum soluble ASGR1 (sASGR1) levels and metabolic dysfunction-associated steatotic liver disease (MASLD) by assessing the relationship between sASGR1 concentrations and various biomarker levels.]

Therapeutic equivalence and switching between biosimilar and reference insulins: A systematic review and meta-analysis of randomised controlled trials.

Xing X., Zhao L., Wang K., et al. *Diabetes, Obesity and Metabolism* 2026;:doi: 10.1111/dom.70328.
[**Aims**: To comprehensively evaluate the therapeutic equivalence and switching between biosimilar insulins and reference insulins in efficacy, safety and immunogenicity in diabetes.]

Reports

Impact of missed insulin doses on glycaemic parameters in people with diabetes using smart insulin pens.

Varma M. and Campbell D.J.T. *Evidence-Based Nursing* 2026;29(1): 48.
[**Context**: Diabetes is a widespread chronic disease, with steadily rising prevalence in most countries. In 2019, the global prevalence of diabetes was estimated at 9.3%, affecting 463 million people. This figure is projected to rise to 10.2% by 2030 and 10.9% by 2045.[2] All people with type 1 diabetes and many people living with type 2 diabetes require insulin, by injection or subcutaneous infusion, to keep blood glucose levels in the physiologic range. Adherence to insulin therapy is a crucial contributor to long-term glycaemia and ultimately microvascular and macrovascular complications. Smart insulin pens facilitate precise timing and tracking of insulin delivery and are often paired with continuous glucose monitoring (CGM) systems, providing real-time glucose insights. In this issue of *Diabetes Care,* Danne *et al* present a study which highlights the impact of even single missed doses of insulin on time in range (TIR) and the impact of engagement with smart insulin pens on glycaemia.[1]]

Management of Diabetes (Diet, Exercise, Lifestyle)

The effects of a 12-week lifestyle intervention on incretin response during an oral glucose tolerance test in Latino youth with obesity and impaired glucose tolerance

Rosenberg J., Williams A., Gano A., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109228.

[Gastric inhibitory polypeptide (GIP) and glucagon-like peptide-1 (GLP-1), the two incretin hormones, play an important pathophysiological role in glucose homeostasis with insulinotropic effects on the pancreatic β-cells. While two previous studies in youth have examined the effects of a lifestyle intervention on incretin concentrations, neither study focused on improvements in glycemic status or oral glucose tolerance test (OGTT)-derived biomarkers. Therefore, we aimed to examine changes in the incretin responses during an OGTT before and after a 12-week lifestyle intervention in Latino youth with obesity and impaired glucose tolerance (IGT). A total of 9 Latino youth with obesity and IGT underwent a two-hour OGTT with 30-min blood samples collected for the measurement of glucose, insulin, and incretin hormones before and after the lifestyle intervention (nutrition education and 180 min of moderate-vigorous exercise weekly for a total of 12 weeks). From pre- to post-intervention, a trend towards reduction was observed in the total GIP area under the curve (AUC) during the OGTT (5499.1 ± 715.3 vs. 4085.2 ± 389.5 pg/mL, p = 0.059), with no change in GLP-1. Moreover, BMI%, glucose AUC, and two-hour glucose concentrations were significantly reduced after the intervention. Our data suggest that a lifestyle intervention in Latino youth with obesity and IGT could influence incretin and glucose metabolism. Future studies should examine if the GIP response to a lifestyle intervention is mediated by baseline glycemic status.]

Effect of the PPARG rs1801282 polymorphism on weight reduction and metabolic syndrome outcomes in obese individuals undergoing a partial meal replacement hypocaloric diet

De Luis D., Izaola O., Primo D., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109209.

[**Background and aims**: No studies to date have specifically evaluated the effect of the *rs1801282* polymorphism on body weight loss. This study evaluates the role of the PPARG *rs1801282* polymorphism in modulating body weight loss and cardiovascular risk factor improvements in response to a partial meal replacement (pMR) hypocaloric diet among Caucasian patients with obesity.]

Getting smart about the food we eat

Burki T. *Lancet Diabetes & Endocrinology*, 2026, 14(1), p.19.

[In April 2025, Kevin Hall took early retirement from the US National Institutes of Health (NIH). “My life's work has been to scientifically study how our food environment affects what we eat, and how what we eat affects our physiology. Lately, I've focused on unravelling the reasons why diets high in ultra-processed food are linked to epidemic proportions of chronic diseases such as diabetes and obesity”, explained Hall, in a post to social media. “Recent events have made me question whether NIH continues to be a place where I can freely conduct unbiased science. Specifically, I experienced censorship in the reporting of our research”.]

Mental Health and Diabetes

Association between “urological age” with metabolic syndrome in non-pregnant adult women: potential mediating role of depression

Gou R., Liang X., Qin S., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113005.

[**Background**: Metabolic syndrome (MetS) represents a growing threat to the standard of living and lifespan of human beings. Urological age (UA) and urological age acceleration (UAA), recently proposed indicators for assessing biological age from the urological point of view, demonstrate an unclear correlation with MetS.]

Association of GLP-1 receptor agonist use with psychiatric outcomes in adults with type 2 diabetes: a target trial emulation

Tang H., Lu Y., Zhang B., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113038.

[In a real-world target trial emulation, GLP-1 receptor agonist initiation was not associated with increased risk of most psychiatric disorders compared with SGLT2i or DPP4i use, though a modest association with anxiety disorder was observed. Findings suggest the psychiatric safety of GLP-1RAs warrants further investigation.]

Association of sodium-glucose cotransporter 2 inhibitors with the risk of incident anxiety and insomnia: a retrospective cohort study using the TriNetX database

Chang C.I., Lin J.F., Chen I.C., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(1): 103373.

[**Aim**: Patients with type 2 diabetes have a higher prevalence of anxiety and insomnia. Comparative evidence on mental health outcomes of antihyperglycemic agents remains limited.]

Pharmacological Management of Diabetes

Effect of metformin on central arterial stiffness in individuals with type 2 diabetes mellitus: a systematic review and meta-analysis

Weningtyas A., Hose V.A.G., Ramadhiani R., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113057.

[Type 2 diabetes mellitus (T2DM) is a global health problem linked to hyperglycemia and cardiovascular complications, including central arterial stiffness. Metformin, the first-line therapy for T2DM, has been suggested to provide vascular protection, although evidence on arterial stiffness is inconsistent. This study investigated the effect of metformin on central arterial stiffness through systematic searches of PubMed/MEDLINE, ScienceDirect, Cochrane, and Google Scholar. Three reviewers independently performed data extraction and quality assessment, and pooled analyses were conducted in RevMan 5.4.1 (PROSPERO 1135002). Results showed no significant difference in pulse wave velocity (PWV) between metformin (8.9–11.2 m/s) and comparison groups (8.0–11.8 m/s), with a pooled mean difference (MD) of 0.09 m/s (95 % CI–0.06 to 0.25; p = 0.23; I 2 = 0 %). However, metformin was associated with significantly higher central systolic blood pressure (cSBP) compared with controls (MD 3.30 mmHg, 95 % CI 0.60 to 6.00; p = 0.02; I 2 = 0 %). In conclusion, metformin does not significantly affect PWV but is linked to a modest increase in cSBP, highlighting the need for larger studies to clarify its vascular implications.]

Effectiveness and Safety of Once-Weekly Semaglutide in Japanese Patients with Type 2 Diabetes: A Retrospective Observational Multicenter Study (ORIGAMI Study).

Iwata Y., Yoshikawa F., Saito M., et al. *Diabetes Therapy* 2026, 17(1): 93-111.

[**Introduction**: Once-weekly semaglutide has proven to be a safe and effective treatment for type 2 diabetes; however, clinical trial data on Asian populations are limited, warranting real-world data (RWD). In this study we assessed the effectiveness and safety of semaglutide in Japanese patients with type 2 diabetes using RWD.]

Efficacy and safety of glucagon-like peptide 1 receptor agonists across all health outcomes in type 2 diabetes: An umbrella review and evidence map of randomised controlled trials.

Yeo D., Jo Y., Jeong J., et al. *Diabetes, Obesity and Metabolism* 2025;:doi: 10.1111/dom.70298.

[**Aim**: Glucagon-like peptide 1 receptor agonists (GLP-1RAs) have been established as effective treatments for type 2 diabetes, offering benefits beyond glycaemic control; however, their associations across multiple health outcomes remain insufficiently assessed. Thus, we conducted an umbrella review of meta-analyses of randomised controlled trials (RCTs) to comprehensively evaluate the broad spectrum of their effects.]

Empagliflozin versus metformin for glucose variability and metabolic outcomes in drug-naïve type 2 diabetes: The EMPA-FIT study

Lim S., Park C.Y., Jeong I.K., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109214.

[**Aims**: Sodium-glucose cotransporter-2 (SGLT2) inhibitors offer cardiovascular and renal benefits beyond glycemic control. However, their effect on glucose variability (GV) in drug-naïve individuals with type 2 diabetes (T2D) is not well established. This study compared the effects of empagliflozin versus metformin on GV and metabolic outcomes.]

GLP-1 agonist-associated presentations to unscheduled care: An opportunistic pilot study.

Thomas O. and Coulson J.M. *British Journal of Clinical Pharmacology* 2026;92(1): 312-316.

[The impact of GLP-1 or GIP/GLP-1 receptor agonist use on unscheduled care is not well-described. We conducted a prospective, observational study using opportunistic screening by clinicians as a first step to understanding the effect of GLP-1 or GIP/GLP-1 agonists on Emergency Department presentations and to guide future studies. Data were collected from April to August 2025 at a single centre for any nontrauma adult patient who self-reported GLP-1 or GIP/GLP-1 agonist exposure. Fifty-six cases were identified, 51 reported tirzepatide use, three subcutaneous semaglutide, one oral semaglutide and one dulaglutide. In 79% of cases (CI95% 66% to 88%), the presenting features were due to GLP-1 or agonist use. Presentations were greatest in the lowest and highest deprivation quintiles and a significant number had coexisting depression. There is a need for formal observational studies to assess the impact of GLP-1 or GIP/GLP-1 agonists on unscheduled care and explore these tentative associations.]

Insights into the Mechanism of Action of Tirzepatide: A Narrative Review.

Galindo R.J., Cheng A.Y.Y., Longuet C., et al. *Diabetes Therapy* 2026, 17(1): 19-40.

[Tirzepatide is the first dual long-acting glucose-dependent insulinotropic polypeptide receptor and glucagon-like peptide-1 receptor agonist indicated for the treatment of type 2 diabetes in adults, for reducing excess body weight and maintaining long-term weight reduction in adults with obesity or overweight and at least one weight-related comorbid condition, and for treating obstructive sleep apnea in adults with obesity. Recent studies found beneficial effects on heart failure with preserved ejection fraction and on metabolic dysfunction-associated steatohepatitis; its effects on cardiovascular outcomes in people with type 2 diabetes, as well as on reducing morbidity and mortality in people with obesity/overweight, remain under investigation. Here, we review the mechanistic activity of tirzepatide and its effect on glycemic control, body weight, the cardiorenal system, and lipid metabolism.]

Regenerative medicine approaches for treating diabetes: Current advances and future directions

Medenica S., Abazovic D., Vukovic J., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109232.

[Diabetes mellitus, a chronic metabolic disorder characterized by hyperglycemia, has become a global health issue. The disease primarily presents as type 1 diabetes (T1D), caused by autoimmune β-cell destruction; type 2 diabetes (T2D), driven by insulin resistance and β-cell dysfunction; and monogenic diabetes, resulting from single-gene mutations affecting insulin production or β-cell function. Chronic hyperglycemia increases the risk of severe complications, including cardiovascular disease, neuropathy, and kidney failure. Despite advancements in insulin therapy and glucose monitoring, no cure currently exists for diabetes, with treatments mainly focused on managing symptoms rather than addressing the underlying β-cell loss. Regenerative medicine offers new hope, particularly through β-cell replacement strategies such as islet and stem cell-derived β-cell transplantation. Advances in generating hypoimmunogenic stem cell-derived pancreatic β-cells may help overcome immune rejection and donor shortages. These therapies have shown promise in clinical trials for both T1D and T2D. Furthermore, pharmacological strategies targeting β-cell regeneration show promise in enhancing β-cell proliferation and function. This review highlights the significant advancements in regenerative approaches for diabetes, underscoring the potential for long-term management and, ultimately, a cure for diabetes in the future.]

Risk for Cancer With Glucagon-Like Peptide-1 Receptor Agonists and Dual Agonists : A Systematic Review and Meta-analysis.

Ko A., Chang Y.C., Bahar F., et al. *Annals of Internal Medicine* 2026;:doi: 10.7326/ANNALS-25-02237.

[**Background**: Glucagon-like peptide-1 receptor agonists (GLP-1RAs) are used for type 2 diabetes mellitus (T2DM) and overweight or obesity, but their association with cancer is unclear.

Purpose: To investigate the risk for obesity-related cancer associated with GLP-1RAs.]

Semaglutide use is associated with neuromuscular junction degradation in older adults with type II diabetes mellitus.

Qaisar R., Khan I.U., Ur Rehman A., et al. *British Journal of Clinical Pharmacology* 2026;92(1): 149-161.

[**Aims**: Older men with type 2 diabetes mellitus (T2DM) face a heightened risk of sarcopenia. This study aimed to compare the longitudinal effects of semaglutide, a glucagon-like peptide-1 receptor agonist and sitagliptin as the control group on sarcopenia indicators and biomarkers of neuromuscular junction and neuronal health in patients with T2DM over 1 year.]

Weight loss from glucagon-like peptide-1 receptor agonists by genetic factors in adults with type 2 diabetes

Zheng Y., Guo Z., Jeong E., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113041.

[**Aims**: To identify whether genetic predisposition to obesity influences the weight loss effect of glucagon-like peptide-1 receptor agonists (GLP-1RAs) among adults with type 2 diabetes (T2D).]

Zero Dollar Drug Copay program improves antidiabetic medication adherence and medication use patterns among Blue Cross and Blue Shield of Louisiana members with diabetes in Louisiana

Tang T., Stoecker C., Winberg D., et al. *BMJ Open Diabetes Research and Care* 2026;14: e005146

[**Objective**: Blue Cross and Blue Shield of Louisiana (BCBSLA) launched a zero-dollar co-pay (ZDC) pharmacy benefit on July 1, 2020, to reduce cost-related barriers to diabetes medications. This study evaluated the program's effect on antidiabetic medication adherence and use patterns.]

Prevention Of Diabetes (Diet, Exercise, Lifestyle)

Economic evaluation of diabetes prevention interventions in Bangladesh: A modelling study

Mohebbi D., Shaha S.K., Kuddus A., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(1): 103370.

[**Aim**: To model the long-term cost-effectiveness of scaling up two prevention interventions against type 2 diabetes mellitus (T2DM), i.e. community mobilisation through participatory learning and action (PLA) and mHealth mobile phone messaging, implemented in rural Bangladesh as part of the "DMagic" trial.]

Impact of lifestyle changes on prediabetes remission: Results from the Pakistan diabetes prevention trial

Ahmed A., Ahmed S., Shah W.H., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113019.

[**Background**: This study evaluated the effectiveness of a culturally adapted lifestyle intervention in prediabetes remission to normoglycemia and reducing diabetes progression.]

Teenagers With Diabetes

Optimal age, duration of diabetes and frequency of screening for diabetic nephropathy in children and youths with type 1 Diabetes: A systematic review

Passanisi S., Piona C., Mancioppi V., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113042.

[Diabetic nephropathy (DN) is a major complication of type 1 diabetes (T1D) with lifelong health implications. This systematic review evaluated the optimal age, duration of diabetes, and frequency for DN screening in children and adolescents with T1D. A comprehensive literature search (1995–2024) across major databases identified 36 eligible studies, predominantly cross-sectional, encompassing 21,778 participants. Moderate albuminuria prevalence was 9.5 % overall, with most cases occurring after seven years of diabetes duration and in individuals older than 14 years, though rare cases were reported as early as 8.5 years and within two years of diagnosis. Severe albuminuria was less frequent (0.3–14.6 %), while end-stage kidney disease was rare, and no deaths were reported. Higher HbA1c

levels (≥9%) were strongly associated with increased nephropathy risk, whereas limited data were available on blood pressure and other risk factors. No randomized trials or direct comparisons of screening strategies were identified, and heterogeneity in definitions and diagnostic methods limited evidence quality. Overall, findings support current international guidelines recommending screening from age 11 or puberty after 2–5 years of T1D duration, with intensified strategies potentially warranted for those with elevated HbA1 levels. High-quality, prospective studies are needed, especially in low- and middle-income countries.]

Prevalence of metabolic syndrome among adolescents in Cape Town, South Africa: a cross-sectional analysis comparing five diagnostic criteria to explore suitability

Wentzel A., Nguyen K.A., Von Philipsborn P., et al. *Diabetes Research and Clinical Practice* 2026, 231: 113053.

[**Background**: Metabolic syndrome (MetS) among adolescents is a growing public health concern globally, yet data from sub-Saharan Africa remain scarce. Variability in diagnostic criteria further complicates surveillance efforts. This study aimed to estimate the prevalence of MetS among adolescents in Cape Town, South Africa, using five diagnostic criteria, to assess the agreement between definitions and explore criteria suitability.

The role of oral alpha-lipoic acid as an adjuvant antioxidant therapy in diabetic nephropathy among children and adolescents with type 1 diabetes: a randomized controlled trial

Elhenawy Y.I., Thabet R.A., Hegazy M.G.A., et al. *Journal of Diabetes and Its Complications*, 2026, 40(1), Article 109206.

[**Aim**: Evaluate the oxidant-antioxidant balance and the efficacy of Alpha-lipoic acid (ALA) as an adjuvant therapy for diabetic nephropathy (DN) among individuals with type 1 diabetes (T1D).]
