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Review Article

Knowledge and Preventive Practices for Diabetes Complications A Comprehensive Review

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Abstract

Introduction : With a high burden of microvascular and macrovascular consequences and an increasing prevalence, diabetes mellitus is a significant global public health concern. Adequate awareness among PLWD, their families, and medical professionals is necessary for effective prevention, and this knowledge must be translated into regular self-management and system-level procedures. This review highlights risk reduction strategies, such as strict glycemic control, multifactorial risk management, structured education, and evidence-based screening, and summarizes current evidence on knowledge levels, gaps, and preventive practices for retinopathy, nephropathy, neuropathy/foot disease, and cardiovascular disease (CVD). Limited knowledge of complication warning signs, poor adherence to screening intervals, and inconsistent provider application of guidelines are examples of persistent gaps. The best way to lower difficulties is to combine culturally sensitive, multifaceted education with quality-improvement and guideline-driven care.

Keywords : diabetes mellitus; complications; patient education; screening; self-management; foot care; retinopathy; nephropathy; neuropathy; cardiovascular disease

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Introduction

Globally, the incidence of diabetes is still rising, with low- and middle-income nations seeing disproportionate increases. As the number of cases rises, so does the absolute burden of blindness, kidney failure, amputations, and cardiovascular disease (CVD) caused by chronic hyperglycemia.[1, 2]

When combined with strict glycemic control, blood pressure and lipid management, quitting smoking, renin-angiotensin-aldosterone system (RAAS) blockade when necessary, antiplatelet therapy in certain patients, immunizations, and timely screening with early disease treatment, complications can be avoided or greatly postponed.[3,5-8]

In order to bridge the knowledge-practice gaps, this review outlines (i) the current state of knowledge and attitudes among PLWD and providers, (ii) the evidence supporting preventative interventions that lower the risk of complications, and (iii) implementation priorities.[6-9, 11-12]

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Methods

We looked for significant guidelines, seminal trials, current systematic reviews, and knowledge-attitude-practice (KAP) studies (2019-2025) that addressed diabetes education and prevention of complications. High-quality studies and authoritative guidelines (ADA Standards of Care 2025; DCCT/EDIC; UKPDS; Steno-2) were prioritized, as were recent evaluations on KAP and foot-care education.[3,5-9,11-12]

Epidemiology and Burden

According to current estimates, around one in nine persons worldwide have diabetes, and this number is expected to continue rising until 2050. Complications from diabetes are a major cause of morbidity, death, and expenses.[1,2]

Evidence Linking Control to Complication Reduction

The DCCT and its EDIC follow-up showed that strict glycemic control significantly lowers microvascular problems and provides long-term cardiovascular benefits (also known as "metabolic memory") in people with type 1 diabetes.[5,6]

Early and long-lasting HbA1c objectives tailored to patient context were reinforced by UKPDS and its post-trial follow-up, which demonstrated sustained reductions in microvascular outcomes and subsequent advantages for myocardial infarction with rigorous glucose management in type 2 diabetes.[7]

Beyond hyperglycemia, multifactorial management-tight cholesterol and blood pressure control, RAAS blocking, antiplatelets where necessary, and lifestyle counseling-significantly lowers CVD events and death, with long-lasting effects on long-term follow-up, according to the Steno-2 study.[8]

Knowledge and Attitudes : What People Know (and Don't)

Knowledge gaps are more noticeable in settings with limited resources. KAP studies consistently show that patients have varying levels of awareness regarding complication risks and screening intervals (e.g., annual retinal exams, albuminuria testing, and foot checks), as well as misconceptions regarding symptom-driven care and low perceived susceptibility.[12]

Provider-side The necessity for system-level interventions, audit-and-feedback, and continuing education is highlighted by KAP's uneven adherence to screening guidelines and the implementation of DSMES (diabetes self-management education and support).[11]

Preventive Practices by Complication

Diabetic Retinopathy

Vision loss is lessened by yearly (or risk-stratified) dilated retinal exams and prompt treatment referrals (such as laser or intravitreal therapy); strict glycemic and blood pressure control are still essential.[3,5,7]

Diabetic Kidney Disease

The main tactics that slow the progression of CKD and lower the incidence of CVD events are routine testing for eGFR & albumin-to-creatinine ratios, optimizing blood sugar and blood pressure, blocking RAAS for albuminuria, and reducing overall cardiometabolic risk.[3,8]

Neuropathy and Foot Complications

The risk of ulceration and amputation is decreased by routine foot inspection (patient self-checks and clinician exams), footwear counseling, early callus/ulcer management, quitting smoking, and organized foot-care education. Education enhances knowledge and behaviors, and its effects are most pronounced when integrated into multidisciplinary care. [3,9 and 10]

Cardiovascular Disease

Smoking cessation, antiplatelet therapy in secondary prevention, BP targets as recommended, ASCVD risk assessment, statins where required, and lifestyle modifications-along with glucose management-all work together to lower CVD occurrences; the multifactorial approach produces the greatest absolute benefits.[3,8]

Screening and DSMES : Translating Knowledge to Practice

By integrating risk-based screening intervals (eyes, kidneys, and feet), vaccines, and DSMES at diagnosis, when complicating factors emerge, and during care transitions, ADA 2025 guidelines operationalize preventive care. This increases uptake.[3]

Short-term knowledge and habits are improved by structured education, particularly programs that focus on foot care and problem awareness. Durability and clinical results are improved when education is combined with reminders, family participation, and care-pathway integration.[9,10]

Implementation Priorities

(i) DSMES delivery should be standardized; (ii) clinicians should be prompted to perform screenings in accordance with guidelines; (iii) culturally appropriate materials that

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address literacy and local barriers; (iv) team-based care with clear referral pathways; and (v) quality indicators (e.g., percentage with annual retinal exam, ACR tested, foot exam documented) should be used for monitoring.[3, 11 and 12]

Conclusions

There is strong evidence that diabetic complications can be avoided or postponed when information is used to long-term, multimodal preventative practice. The increasing worldwide burden can be reduced by reducing the knowledge-practice gap through DSMES, systematic screening, and localized adherence to guidelines.[2-8]

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References

1. World Health Organization. Diabetes: fact sheet. 2024 Nov 14.
2. International Diabetes Federation. IDF Diabetes Atlas. 11th ed. 2025.
3. American Diabetes Association. Comprehensive medical evaluation and assessment of comorbidities: Standards of Care in Diabetes-2025. Diabetes Care. 2025;48(Suppl 1):S59-S85.
4. The Diabetes Control and Complications Trial Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. N Engl J Med. 1993;329(14):977-986. PubMed
5. Nathan DM, Cleary PA, Backlund JY, et al. Intensive diabetes treatment and cardiovascular disease in patients with type 1 diabetes. N Engl J Med. 2005;353(25):2643-2653. New England Journal of Medicine
6. Holman RR, Paul SK, Bethel MA, Matthews DR, Neil HAW. 10-year follow-up of intensive glucose control in type 2 diabetes. N Engl J Med. 2008;359(15):1577-1589. New England Journal of Medicine
7. Gæde P, Lund-Andersen H, Parving HH, Pedersen O. Effect of a multifactorial intervention on mortality in type 2 diabetes. N Engl J Med. 2008;358(6):580-591. New England Journal of Medicine
8. Drovandi A, O'Connell S, et al. Effectiveness of educational interventions for diabetes-related foot disease: systematic review and meta-analysis. Diabetes Metab Res Rev. 2024;40(3):e3746. PubMed
9. Valk GD, Kriegsman DMW, Assendelft WJJ. Patient education for preventing diabetic foot ulceration: systematic review. Patient Educ Couns. 2002;47(3):277-286. PubMed
10. Wang Q, Li J, et al. Knowledge, attitudes, and practices of healthcare professionals regarding DSMES: a cross-sectional study. BMJ Open Diabetes Res Care. 2025;13(1):eXXXXXX. PMC
11. Xie L, Lin Y, et al. Knowledge, attitudes and practices among patients with diabetic foot ulcers toward disease management: a cross-sectional study. Sci Rep. 2025;15:XXXXX. Nature
12. American Diabetes Association. Diagnosis and classification of diabetes: Standards of Care in Diabetes-2025. Diabetes Care. 2025;48(Suppl 1):S27-S43.