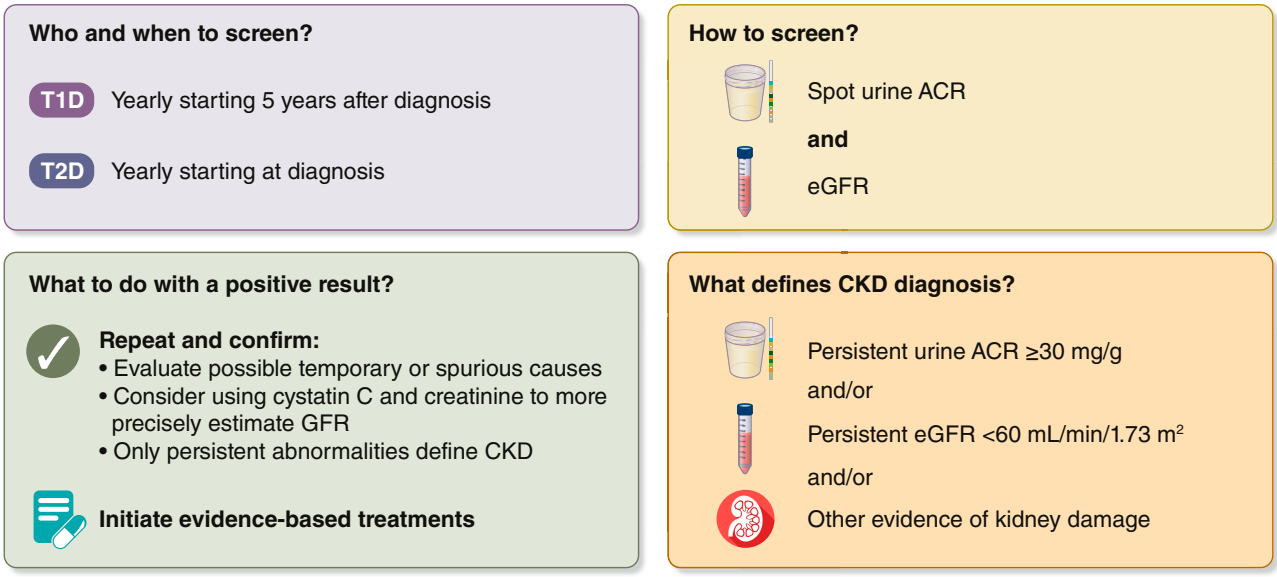

Figure 1—CKD screening and diagnosis for people living with diabetes. Screening includes measurement of both urine albumin and eGFR. Abnormalities should be confirmed. Persistent abnormalities in either urine ACR or eGFR (or both) diagnose CKD and should lead to immediate initiation of evidence-based treatments. ACR, albumin-to-creatinine ratio; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; T1D, type 1 diabetes; T2D, type 2 diabetes.

U.S., less than half of patients with T2D are screened for albuminuria in a given year (19).

Clinical laboratories routinely report eGFR calculated from serum creatinine and demographic data (20–22). The American Society of Nephrology and National Kidney Foundation advocate using the 2021 Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation, which was generated without inclusion of a term for race and calculates eGFR without regard to race, to estimate glomerular filtration rate (GFR) from creatinine, age, and sex (20). Another CKD-EPI equation that additionally incorporates serum cystatin C increases precision and reduces racial and ethnic bias, offering additional value in screening and for confirmation of low eGFR in appropriate cases (23–25).

Calculation of the ACR in single-voided "spot" urine samples is most convenient to measure albuminuria. Early morning urine specimens are ideal, although samples collected any time of day may be used. ACR has marked variability; therefore, a confirmatory urine sample within 3–6 months is recommended (26,27).

KDIGO has codified a CKD classification scheme based on eGFR and albuminuria that is endorsed by the ADA (26). In cohort studies, risks of progressive CKD, cardiovascular events, and mortality all increase with categories of increasing albuminuria or decreasing eGFR. Moreover, CKD stage and corresponding risk category can guide frequency of laboratory monitoring, treatment, and referral to nephrology care (Fig. 2).

A cause of CKD other than diabetes should be considered in the presence of other systemic diseases that cause CKD, when retinopathy is not present (particularly in T1D), or with CKD signs not common to diabetes (e.g., glomerular hematuria, large and abrupt changes in eGFR or albuminuria, or abnormal serology tests). In the absence of such "red flags," CKD is usually attributed to diabetes and treated accordingly. Ongoing research seeks to define CKD subtypes with more granularity and link novel subtypes to precision treatments (28,29).

COMPREHENSIVE CARE

Goals of Comprehensive Care

Multimorbidity is common in patients with diabetes and CKD, who are at high risk of CKD progression, cardiovascular events, and premature mortality. Therefore, both the ADA (1) and KDIGO (2) emphasize the importance of comprehensive, holistic, patient-centered medical care to improve overall patient outcomes.

The goals of comprehensive care are to treat the patient as a "whole" person and incorporate coordinated multidisciplinary treatment, structured education to promote self-management, shared-decision making, and primary and secondary prevention of diabetes-related complications, including CKD, ASCVD, and HF (2). This approach requires treatment directed to optimize lifestyle, pharmacological therapy aimed at preserving organ function, and additional therapies aimed at improving intermediate risk factors such as glycemia, BP, and lipids (Fig. 3).

With multiple interventions ubiquitously needed to optimize the care of people with diabetes and CKD, it is crucial to avoid therapeutic inertia (30). Most patients with diabetes and CKD have high residual risks of CKD progression and cardiovascular disease despite treatment, and increasing options are available for risk mitigation. Patients may need to be seen frequently to identify and implement multiple therapies, some of which may interact. For example, RAS inhibitors, SGLT2i, and the ns-MRA finerenone all cause initial hemodynamic reductions in GFR. When indicated, such medications may need to be added and adjusted sequentially, with frequent assessments to institute and optimize care in a timely manner. Empowering patients and facilitating multidisciplinary care can help institute and titrate multiple treatments expeditiously.

Consensus Statement

- All patients with T1D or T2D and CKD should be treated with a comprehensive plan, outlined and agreed by health