Top 12 Special Considerations in Children and Young Adults from the KDIGO 2024 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease

Promote participation in high-quality research in CKD across the lifespan

1 CKD definition and classification

CKD is defined as abnormalities of kidney structure or function, present for >3 months, with implications for health. For newborns with clear kidney disease, do not wait 3 months. The definition includes many different markers of kidney damage, not just decreased GFR and ACR and the cause of CKD should be actively sought (Figure 1). CKD is classified according to **C**ause, **G**FR and **A**CR/PCR to establish severity and guide the type and timing of interventions.

2 Estimating eGFR

Estimate GFR in children using validated equations that have been developed or validated in comparable populations (Figure 1). Where more accurate ascertainment of GFR will impact treatment decisions, GFR should be measured. Use a cystatin C-based eGFR estimating equation in children with low muscle mass (e.g., neuromuscular conditions), as creatinine-based questions may give falsely high eGFR values.

3 Accuracy and reliability

Understand the value and limitations of all methods of estimating and measuring GFR and urinary albumin/protein and implement the requisite laboratory standards of care to ensure accuracy and reliability. Laboratories measuring creatinine in infants or small children must ensure their quality control process include the lowest end of the expected range of values for the group of interest.

4 Definition of low eGFRcr in children

An eGFRcr level <90 ml/min per 1.73 m² can be flagged as "low" in children and adolescents over the age of 2 years. This new recommendation acknowledges that children and adolescents should have excellent kidney function. Those with a compromised GFR may deteriorate further, especially during periods of rapid growth.

5 Frequent monitoring during puberty

Children undergoing puberty should be monitored more frequently than the CKD severity-based recommended frequency because puberty constitutes a high-risk period for CKD progression due to the low potential for compromised kidneys to hypertrophy to adapt to the larger body size.

6 When to refer to specialist kidney care services

Refer children and adolescents to specialist kidney care services with sustained ACR of ≥30 mg/g (≥3 mg/mmol) OR a PCR of ≥200 mg/g (≥20 mg/mmol) [when well and with an early morning sample], persistent hematuria, any sustained decrease in eGFR (i.e., greater than expected from variability), hypertension, kidney outflow obstruction or anomalies of the kidney and urinary tract, known or suspected CKD, recurrent urinary tract infection.

7 Genetic cause is more likely than in adults

Children and young people with kidney failure are more likely to have a genetic cause of their disease than adults. In some healthcare settings, genetic testing may be pursued first, obviating the need for kidney biopsy and the associated risks, which may be different in children than adults (Figure 2).

8 Maintain mean arterial blood pressure <50th centile

Use renin-angiotensin system inhibitors (plus other agents as needed) to maintain a mean arterial blood pressure <50th centile on 24 hour ambulatory blood pressure monitoring or systolic BP measured manually at the 50th–75th centile for age, sex and height to slow progression of kidney disease.

9 Do not restrict protein intake

Do not restrict protein intake in children with CKD due to the risk of growth impairment. The target protein and energy intake in children with CKD G2–G5 should be at the upper end of the normal range for healthy children to promote optimal growth. Follow age-based Reference Nutrient Intake (RNI) when counselling about sodium intake.

10 Treat with a comprehensive treatment strategy

Treat children and young adults with CKD with a comprehensive treatment strategy to reduce risks of progression of CKD and its associated complications encompassing education, lifestyle, diet, undertake physical activity aiming for ≥60 minutes daily, smoking cessation, and medications, where indicated (Figure 3).

11 Drug stewardship

Parents and carers should be central to drug stewardship for children with CKD, with increasing involvement from the young person as they move towards transition. Considerations specific to the use of gadolinium preparations in young children and neonates must also be contemplated in addition to the general caution against their use in situations of GFR <30 ml/min per 1.73 m².

12 CKD care across the lifespan

Special considerations should be given for CKD care across the lifespan (Figure 4), keeping the child and young person's developmental and psychological needs in mind. Transition clinics may improve the outcomes of young people transitioning from pediatric to adult care (Figure 5). These may be staffed exclusively by pediatric care providers and focus on preparation or may be jointly staffed by pediatric and adult providers. Young people should have the opportunity to visit the adult clinic prior to transfer.

Figure 1

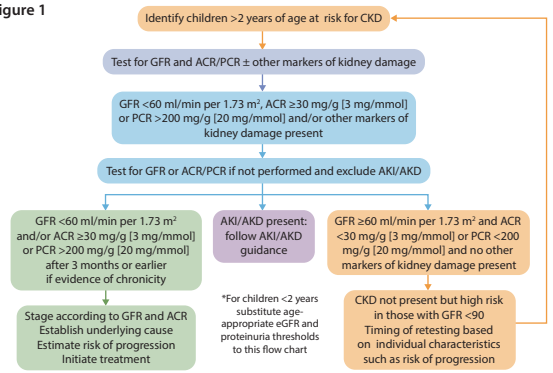


Figure 2

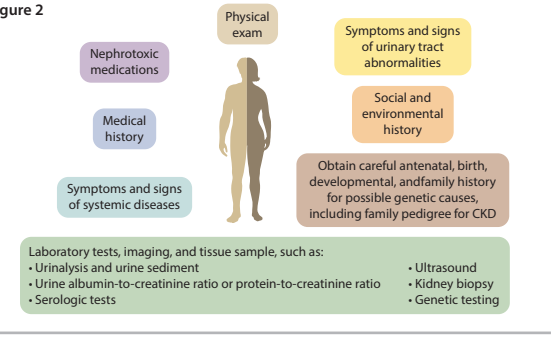


Figure 3

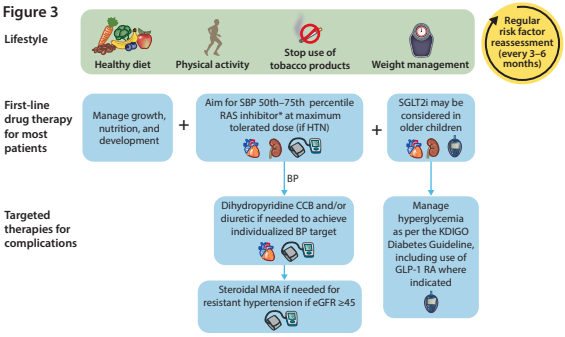


Figure 4

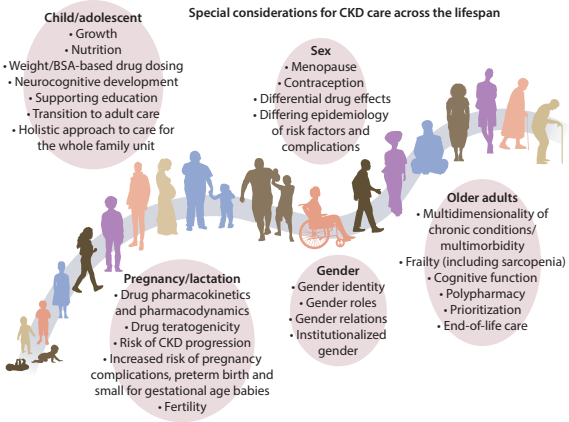
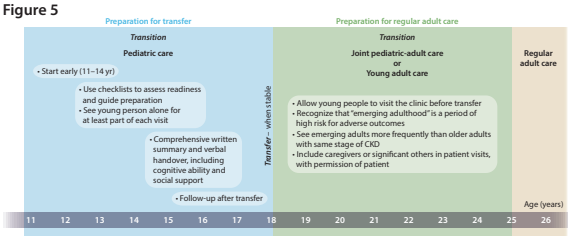


Figure 5



ACR, albumin-creatinine ratio; CKD, chronic kidney disease; cr, creatinine; (e)GFR, (estimated) glomerular filtration rate; PCR, protein-creatinine ratio; RASi, renin-angiotensin system inhibitor(s); SBP, systolic blood pressure.