SOUTH AFRICAN RENAL SOCIETY RECOMMENDATIONS FOR EARLY DETECTION AND MANAGEMENT OF CHRONIC KIDNEY DISEASE

CKD is a major public health problem in South Africa and is associated with significant morbidity, mortality and high medical expenditures. Early detection and optimal management can prevent premature death, and prevent or delay the need for dialysis/transplantation. CKD may be present in more than 10 % of the adult population, particularly in high-risk groups.[1,2]

Definition

Glomerular Filtration Rate (GFR) < 60 ml/min or markers of kidney disease present for more than 3 months.
Such markers include:

- Proteinuria
- Haematuria
- Abnormal renal imaging eg. Sonar

NB: *Serum creatinine alone may not accurately reflect kidney function and therefore the GFR should be estimated from the serum creatinine using prediction equations. For example this modified* ***Cockroft-Gault*** *formula:*

$$GFR = \frac{[140\text{-age (years)}] \times \text{weight (kg)}}{\text{Serum creatinine (µmol/l)}} \quad (\times 0{,}85 \text{ if female})$$

Schwartz Formula for Children

$$GFR = \frac{K \times \text{height (cm)}}{\text{Serum creatinine (µmol/l)}}$$

Where K is:

- Low birth weight infant	30
- Normal infants 0 – 18 months	40
- Girls 2 – 16 yrs	49
- Boys 2 – 13 yrs	49
- Boys 13 – 16 yrs	60

Risk factors for Chronic Kidney Disease

- Diabetes Mellitus
- Hypertension/CVS disease
- Age > 50 years
- Family history of kidney disease
- HIV/AIDS

In Children include:

- Glomerulonephritis
- UTI's
- Congenital abnormalities
- Kidney stones

How to screen for CKD

- Urine dipstix and blood pressure measurement at least on an annual basis
- In diabetics, perform a microalbumin dipstix or a spot urine albumin:creatinine ratio (ACR) at least annually
- Patients with detected abnormalities should have a serum creatinine test performed, urine protein:creatinine ratio and a creatinine clearance calculated as suggested above

Consider referring the following patients for an opinion:

- Proteinuria or persistent haematuria
- GFR < 60 ml/min or creatinine > 150 µmol/l (lower in children)
- Familial kidney disease e.g. Polycystic kidney disease
- All children with renal problems should be referred immediately

Why investigate or refer patients with kidney disease?

- Establish a specific diagnosis and treat reversible diseases
- Identify co-morbid conditions, prevent and manage further complications of CKD
- Optimise management to slow progression of CKD; most effective when instituted early in the disease
- Plan renal replacement therapy well before end-stage kidney disease is reached

Recommendations to preserve renal function in patients with CKD:

• *Lifestyle modification*	Weight loss, aerobic exercise and smoking cessation Healthy balanced diet, lipid control and salt restriction
• *Blood pressure control*[3]	Blood pressure target < 130/80 mm Hg – lower in children, diabetics or proteinuria ACE inhibitors and ARBs are the first line antihypertensive agents Combination therapy is often required to achieve targets
• *In Diabetics*	BP control is paramount Optimal glycemic control - HbA1c < 7 %
• *Proteinuria*	Reduce proteinuria using ACE inhibitors and/or ARBs – target < 1 g/day
• *Nephrotoxic drugs*	Avoid NSAIDS and COXIBS, aminoglycoside antibiotics and contrast agents
• *Calcium and Phosphate*	Maintain normal calcium and phosphate levels, monitor PTH levels, especially in children
• *Anaemia*[4]	Develops early in CKD and requires therapy to maintain an Hb of 11-12 g/dl

References:

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3. Levey AS, Mulrow CD.An editorial update: what level of blood pressure control in chronic kidney disease? *Ann Intern Med.* 2005;**143**(1):79-81.
4. Eknoyan G.Meeting the challenges of the new K/DOQI guidelines. *Am J Kidney Dis.* 2003;**41**(5 Suppl):3-10.

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