



## NHMRC Guideline Summary

### Prevention and management of CKD in people with Type 2 diabetes

#### Recommendations\*

Perform Annual screening for:	What's the test?	When is it a problem?	What next?	What now?
<b>1. Albuminuria</b>	Albumin excretion rate (AER) (timed urine collection)  <b>OR</b>	<b>Microalbuminuria</b> AER 30-300 mg/24 hrs or AER 20-200 µg/min in timed collection <b>Macroalbuminuria:</b> AER >300 mg/24 hrs or AER >200 µg/min in timed collection	<b>Microalbuminuria</b> Retest: At least 2 of 3 tests positive in 3mths <b>Macroalbuminuria:</b> If +ve – 24hr urine collection for quantitation of protein excretion	Blood glucose control HbA1c target ≤ 7%.  Use of ARB or ACEi Antihypertensives - slow progression to CKD
	Albumin: creatinine ratio (ACR) (spot urine sample)	<b>Microalbuminuria</b> ACR 2.5 - 25 mg/mmol in males ACR 3.5 - 35 mg/mmol in females <b>Macroalbuminuria</b> ACR >25 mg/mmol in males ACR >35 mg/mmol in females	<b>Microalbuminuria</b> Retest: At least 2 of 3 tests positive in 3mths <b>Macroalbuminuria:</b> If +ve – 24hr urine collection for quantitation of protein excretion	Maintain blood pressure within the target range‡  Inform pt that smoking increases the risk of CKD  Avoid nephrotoxins
<b>2. eGFR</b>	Estimated Glomerular filtration rate (blood test for serum creatinine)	eGFR <30 ml/min/1.73m <sup>2</sup> indicates severe kidney dysfunction (Stage 4-5 CKD).	Test for albuminuria And measure BP	Prompt referral to a nephrologist.
		eGFR 30-60 ml/min/1.73m <sup>2</sup> may indicate moderate kidney dysfunction (Stage 3 CKD).	Test for albuminuria and measure BP	Referral to a nephrologist considered.

## Practice points<sup>†</sup>

- Albumin: Creatinine Ratio (ACR) should be measured using a morning urine sample; however random urine samples can be used.
- Measurement of urinary albumin can be influenced by a number of factors including:
  - urinary tract infection
  - high dietary protein intake
  - congestive heart failure
  - acute febrile illness
  - menstruation or vaginal discharge
  - water loading
  - drugs (NSAIDs, ACEi)
- Tests such as albumin concentration > 20 µg/litre or a dipstick test for albuminuria are semi-quantitative and should be confirmed by ACR or AER measurements.
- GFR is most commonly estimated using the MDRD equation which is based on serum creatinine, age and sex. The MDRD formula tends to underestimate GFR at levels greater than 60 ml/min but has acceptable accuracy at lower levels.
- The HbA1c target may need to be individualised taking in to account history of hypoglycaemia and co-morbidities. refer to “Blood Glucose Control in Type 2 Diabetes” guidelines)
- ‡ In type 2 diabetes, the target blood pressure should be:
  - below 130/80 mmHg or
  - below 125/75mmHg in people with proteinuria exceeding 1g/day (see blood pressure control in type 2 diabetes guideline for more details)
- Systolic blood pressure (SBP) appears to be the best indicator of the risk of CKD in type 2 diabetes. However, an optimum and safest lower limit of SBP has not been clearly defined.
- Due to potential renoprotective effects, the use of ACEi or ARB should be considered for the small subgroup of people with normal blood pressure who have type 2 diabetes and microalbuminuria.
- As there is limited evidence relating to effects of lipid treatment on the progression of CKD in people with type 2 diabetes, blood lipid profiles should be managed in accordance with guidelines for prevention and management of cardiovascular diseases

**Data Sources:** Medline; Cochrane Library; Embase; Cinahl; HTA :DARE

**Study Selection and Assessment:** Studies were rated for levels of evidence, quality, magnitude of effect and relevance and assigned a grade according to the NHMRC standards and procedures for development of guidelines <http://www.nhmrc.gov.au/publications/synopses/nh56syn.htm>

**Full guideline recommendations:**

<http://www.nhmrc.gov.au/files/nhmrc/file/publications/synopses/di18-diabetes-kidney-disease.pdf>

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**Guideline Author:** NHMRC and CARI guidelines

\*Grade A & B evidence, †Grade C & D evidence