Renal Care and Monitoring in Diabetes

All diabetic patients (Types 1 & 2)
annual office dipstick for protein

- negative or trace protein
  - random daytime urine for
    - alb/creat ratio (preferable) or
    - microalbumin level
    - elevated* or not elevated*
    - confirm on 2 out of 3 measurements over 3 months¹
      - if still elevated
        - 1) Treat BP to goal (<130/80)
        - 2) Treat HbA_{1c} to goal (<7%)
        - 3) Consider ACEI or possibly ARB therapy²
          (monitor SCr & K⁺ at 1 week; if higher**, refer to nephrologist)

- positive or greater than trace protein
  - 24 hour urine for creatinine clearance, protein quantification, and:
    - alb/creat ratio
    - elevated* or not elevated*
    - (greatly elevated overt proteinuria*³)
    - refer to nephrologist

¹ If albumin/creatinine ratios are borderline or uncertain, confirm extent of proteinuria with 24 hour urine for microalbumin
² ACEI therapy for these patients is recommended on the following evidence (1998 CDA guidelines):
  - Type 1 DM: Grade A, Level 1
  - Type 2 DM: Grade B, Level 1
  *Preliminary studies (N Engl J Med. 2001 Sep 20) suggest ARBs are also effective.
³ All patients with overt proteinuria should have twice-yearly monitoring of serum creatinine and potassium, and 24 hour urine collection for creatinine clearance and protein quantification

* Definitions:
  - Elevated albumin/creatinine ratio: > 2.8 (females); > 2.0 (males)
  - Elevated microalbumin: 30 – 299 mg/24 h or 20 – 200 ug/min
  - Overt proteinuria: ≥ 300 ug/24 h (0.3 g/24 h) or ≥ 201 ug/min

** higher K⁺ (e.g. >5.8); higher SCr (e.g. a rise of >20% over baseline)

ACEI = angiotensin converting enzyme inhibitor  ARB = angiotensin receptor blocker