

Optimising management of Chronic Kidney Disease in adults with Type 2 Diabetes and/or persistent proteinuria (ACR $\geq 3\text{mg}/\text{mmol}$)^{1,2}

Check Creatinine/eGFR and visible/non-visible haematuria
Ensure infection treated/ruled out

If Haematuria present -
Consider Urology referral

1. **ACE inhibitor**¹ (or ARB) Titrated to highest dose tolerated
2. **SGLT2 inhibitor**^{2,3} – Dapagliflozin 10mg OD can be initiated down to eGFR 25mls/min for patients with diabetes or uACR $\geq 22.6\text{mmol}/\text{L}$ ^{2,4,5} – currently the only SGLT2i licensed for treatment of CKD (emerging evidence that Empagliflozin is also beneficial for CKD patients⁶) other SGLT2i are licensed for diabetes control and can usually be continued, please check SPC, consider switch to dapagliflozin given observed benefits for CKD patients^{5,7,8}
NB there may be a small drop in eGFR (with rise in creatinine) on initiation of SGLT2i (which will then plateau) however additional monitoring not required – experts suggest waiting 1 month after initiation before rechecking renal function.
3. **BP control** – initial target $<130/80\text{mmHg}$ ^{1,9}
4. Address **other CVD risk factors** - smoking, diet, exercise, cholesterol – Atorvastatin 20mg titrated up as needed¹⁰
5. Optimise **glycaemic control** - target HbA1c 48-58mmol/mol – consider referral to community diabetes nurses if not achieving targets
6. **Review medications.** Avoid NSAIDs (risk of progressive CKD)
7. **Check kidney function** during acute illness and advise patients regarding 'Sick day Rules' (appendix 2)
Hold ACEi/ARB and SGLT2i when unwell with GI symptoms and/or poor oral intake until fully recovered

Review (BP, U&E, urine ACR) if stable;

- Annually if eGFR $>60\text{ml}/\text{min}$
- 6 monthly if eGFR 30-60ml/min
- At least 6 monthly if eGFR $\leq 30\text{ml}/\text{min}$ and patient stable

Refer to Nephrologist for review if they have any of the following¹

- 5-year risk of needing renal replacement therapy $>5\%$ (using 4-variable Kidney Failure Risk Equation) (appendix 1)
 - ACR $\geq 70\text{mg}/\text{mmol}$, unless known to be caused by diabetes and already appropriately treated (see above)
 - ACR $>30\text{mg}/\text{mmol}$ with haematuria
 - Sustained decrease in eGFR $\geq 25\%$ and a change in eGFR category within 12 months (appendix 1)
 - A sustained decrease in eGFR of $15\text{ml}/\text{min}/1.73\text{m}^2$ or more per year
 - Hypertension that remains poorly controlled despite use of at least 4 antihypertensive medications at therapeutic doses
 - Known or suspected rare or genetic causes of CKD
 - Suspected renal artery stenosis
- ❖ Consider Ultrasound KUB to exclude obstructive cause whilst awaiting review
- ❖ Repeat Kidney blood tests every 4-8 weeks until seen by specialist

Urgent Referral to Nephrology if

- Nephrotic syndrome – ACR $>200\text{mg}/\text{mmol}$ or PCR $>300\text{mg}/\text{mmol}$
 - eGFR $< 15\text{ml}/\text{min}$ or sudden, unexplained, rapid decline in eGFR
- Consider urgent admission to hospital if patient unwell

1. NICE Guidelines NG 203 Chronic Kidney Disease: Assessment and Management (see sections 1.5 and 1.6)
<https://www.nice.org.uk/guidance/ng203/chapter/Recommendations>
2. NICE Technology Appraisal Guidance TA775: Dapagliflozin for treating Chronic Kidney Disease; <https://www.nice.org.uk/guidance/ta775/chapter/1-Recommendations>
3. NICE Guidelines NG28 Type 2 diabetes in adults (see sections 1.8.12 – 1.8.15)
<https://www.nice.org.uk/guidance/ng28/chapter/recommendations#chronic-kidney-disease>
4. Dapagliflozin SmPC (see section 4.2, 4.4) <https://www.medicines.org.uk/emc/product/7607/smpc>
5. Dapagliflozin (*Forxiga*) official website including visual representation of trial data <https://www.forxiga.co.uk/ckd.html>
6. Empa-Kidney trial stopped early due to evidence of efficacy; <https://www.empakidney.org/news/empa-kidney-trial-stops-early-due-to-evidence-of-efficacy>
7. SGLT2 inhibitors for non-diabetic kidney disease, *Fernandez et al*; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7577767/>
8. Dapagliflozin in chronic kidney disease patients (DAPA-CKD trial), *Heerspink et al*;
<https://www.nejm.org/doi/pdf/10.1056/NEJMoa2024816?articleTools=true>
9. Commentary on NICE guideline (NG136) ‘Hypertension in adults: diagnosis and management’ including proposals for blood pressure management in patients with chronic kidney disease
<https://ukkidney.org/sites/renal.org/files/Commentary%20on%20NICE%20guideline%20%28NG136%29%20HypertensionFINAL.pdf>
10. NICE Guidelines CG181 on Cardiovascular Disease, Risk assessment and reduction including Lipid modification (see section 1.3.26 and 1.3.27)
<https://www.nice.org.uk/guidance/cg181/chapter/1-Recommendations#lipid-modification-therapy-for-the-primary-and-secondary-prevention-of-cvd-2>

Appendix 1

Useful Resources

Kidney Failure Risk Equation Calculator (also has some useful information and visual aids) <https://kidneyfailurerisk.co.uk/>

Classification of CKD using GFR categories

Category	eGFR in ml/min/1.73m ²
1	≥90
2	60-89
3a	45-59
3b	30-44
4	15-29
5	<15

Appendix 2

SICK DAY RULES

Any illness causing dehydration increases risk of (euglycaemic) diabetic ketoacidosis in patients taking SGLT2 inhibitors.

Advise patients to hold SGLT2i ('flozin) during period of illness if unable to eat and drink as normal. Once feeling better and able to eat and drink for 24-48 hours these may be restarted

Medicine Sick Day Rules

When you are unwell with any of:

- Vomiting or diarrhea (unless only minor)
- Dehydration eg from fevers or sweats
- Not able to eat and drink as normal

Then **STOP** taking the medicines listed overleaf

Restart when you are well (after 24-48hours of eating and drinking normally)

If you are in any doubt, contact your pharmacist, GP or nurse

Medicines to stop when unwell:

ACEi or ARBs	<i>e.g. Lisinopril, perindopril, Ramipril or losartan, candesartan, valsartan</i>
NSAIDs	<i>e.g. ibuprofen, diclofenac, naproxen</i>
Diuretics	<i>e.g. furosemide, spironolactone, indapamide, bendroflumethiazide</i>
Metformin or 'floxins	<i>e.g. Dapagliflozin, canagliflozin, empagliflozin, ertugliflozin</i>
Others