

Diabetes and CKD3 Management Workshop Frequently Asked Questions by Primary Care Staff

What are the normal sizes of kidneys?

Normal kidney size varies between 9-11 cm. However, kidney sizes can be deceptive in patients with Diabetes Mellitus as kidney sizes tend to be in normal range until advanced chronic kidney disease.

When renal function is deteriorating, does it affect both kidneys?

Yes, it does. Renal function is unaffected with a single fully functional kidney.

What would be the blood pressure target?

There are number of guidelines with different blood pressure targets. Our recommendation is to individualise BP targets as follows:

- ACR <70 or PCR <100 – systolic BP range 130 to 140/90
- ACR >70 or PCR >100 – systolic BP range 120 to 130/80
- Remember to manage to the standing BP in those patients with significant postural drop
- In more elderly or frailer patients consider a systolic BP range of 140 to 150

In what order of anti-hypertensive medication should be used?

There are a number of guidelines available with different blood pressure targets. In the presence of diabetes or proteinuria, we recommend the use of ACEi/ARB as first line if tolerated and additional antihypertensive agents thereafter to attain the appropriate target. Aim to attain maximum dose of ACEi/ARB before the addition of further agents.

What dose of ACEi/ARB should be used as a starting dose?

Our recommendation would be to start either ACEi or ARB at maximum dose; If concerned about side effects (the patient is frail, elderly, has a lower starting BP, has significant heart failure or vascular disease) then start at a lower dose (e.g. Ramipril 2.5mg OD) and build dose.

If proteinuria remains above ACR 70 or PCR 100, then specialist advice should be sought. The patient might need dual therapy with ACEi and ARB – however this should not be commenced in primary care.

If the patient has not met their individualised BP target, then a second agent should be considered.

Do we need to be careful about starting ACEi/ARB?

We should be careful in starting ACEi/ARB in patients with congestive cardiac failure, low blood pressure and peripheral vascular disease. These patients have increased chances of developing complications related to therapy.

How much of fall in eGFR is acceptable with ACEi/ARB?

A small rise in creatinine or a mild fall in eGFR values is expected with therapy – repeat the assessment of kidney function if the rise in creatinine is greater than 15%.

STOP therapy if serum creatinine rises by >30% or eGFR falls by >25% and seek specialist advice (to exclude possible renal vascular disease).

How do I treat hyperkalemia?

If $K > 6.0$ stop medications associated with hyperkalemia like ACEi, ARB, potassium sparing diuretics.

If the patient has proteinuria and would benefit from an ACEi/ARB, seek nephrological advice as introduction of furosemide or sodium bicarbonate can facilitate reintroduction of these agents.

Low potassium dietary advice is an essential part of management. The Trust's Department of Nutrition and Dietetics has produced a low potassium diet information sheet – see Appendix A.

If $K > 6.5$, consider referral for urgent review.

Is treatment for proteinuria in normotensive patients beneficial?

There is strong evidence linking proteinuria with ischemic heart disease and deterioration in kidney function. Treatment with ACEi/ARB is known to diminish proteinuria. In younger patients with reasonable blood pressure, commence treatment with an ACEi/ARB at maximal dose with monitoring of blood pressure, renal function and for other related side effects.

Can diuretics (thiazide or loop) be used to augment blood pressure control?

Diuretics can be used as antihypertensive agents. They can be useful in patients with fluid overload and those with increased dietary intake of salt.

What is the lowest eGFR for safe use of Metformin?

Metformin has to be cautiously used in individuals with an eGFR of 30-45. Dose reduction may be required with reduction in eGFR. Patient needs to be educated about sick day rules.

Where can we access sick day rules?

Sick day rules are an important intervention in preventing Acute Kidney Injury. Medications like ACEi, ARB, NSAIDS, metformin and diuretics should be omitted in patients who have vomiting, diarrhoea and are unwell with sepsis. See Appendix B.

Who should send referrals for review in secondary care?

Initial referral needs to be sent by the General Practitioner via Choose and Book or the electronic referral system. Requests for advice in relation to a patient under secondary care or in the shared care pathway can come from a practice nurse and can be sent to the e-referral system (ICHHC-tr.ckdadvice@nhs.net).

What training will nurses/HCAs need?

We are currently focusing on training of ancillary staff. Areas we will be covering include interpretation of blood pressure readings with postural drop check, interpretation of urine dipstick and identification of symptoms such as swelling of legs.

Low Potassium Information Sheet

What is potassium?

Potassium occurs naturally in most foods. Some potassium is needed as part of a healthy diet.



Why have I been asked to follow a low potassium diet?

High levels of potassium in the blood can affect the beating of the heart, which may lead to serious complications. Eating a low potassium diet helps to reduce your blood potassium.

How can I reduce the amount of potassium that I eat?

This sheet explains which foods are high in potassium and provides suitable alternatives. Your Doctor/ Nurse may also give you individualised advice on the changes you need to make.

Cooking tips

- Avoid cooking vegetables in steamers, pressure cookers, microwaves or stir frying. Vegetables should be boiled in plenty of water. Once cooked the cooking water should be thrown away
- All potatoes should be boiled and the cooking water thrown away before frying or roasting potatoes
- All pulses should be soaked and then boiled for 10-15 minutes. The cooking water should be thrown away and then the pulses should be re-cooked with seasonings. Tinned pulses are lower in potassium than dried pulses
- If you are vegetarian, avoid having salad and cooked vegetables at the same meal, as it will contain too much potassium. Choose either salad or vegetables

Contact details

If you have any queries about your diet, please contact your renal nurse or renal doctor.

Foods to avoid and those to choose instead

	Foods to limit	Choose these instead
Fruit	Avocados, bananas, coconut, mango, oranges, papaya, rhubarb, all dried fruit e.g. currants, prunes, raisins, figs, dates, fruit cake	Two portions of fruit per day (fresh or drained tinned) e.g. apples, pears, peaches, nectarines, <i>but not those listed in the foods to limit list</i>
Vegetables	Baked, steamed or jacket potatoes, chips, oven chips, instant potato, potato waffles or wedges, potato pakoras, fried green banana, plantain, cassava, yam, dasheen, taro Baked beans, beetroot, brussels sprouts, mushrooms, parsnips, spinach, tomatoes, breadfruit, callaloo, karella, drumstick leaves/pods, okra, patra leaves, water chestnuts, tomato puree and tomato based sauces	One small portion per day of well boiled potato, yam, cassava Plus two portions of boiled vegetables per day, <i>but not those listed in the foods to limit list</i>
Drinks	Coffee, Horlicks, Ovaltine, Bournvita, cocoa, drinking chocolate, condensed, coconut and evaporated milk, pure fruit juices, fruit and vegetable smoothies Ale, beer, cider lager, stout, wine	Tea, herbal teas, fizzy drinks, squashes, mineral water, 1/3 of a pint of milk per day Spirits e.g. brandy, gin, rum vodka, whiskey (<i>if permitted by your doctor</i>)
Protein	Nuts and seeds	All meat, fish, eggs, quorn, soya mince, pulses
Cereals	Breads and breakfast cereals that contain dried fruits, nuts or chocolate e.g. All Bran, sultana Bran, Chocos, Fruit'n'fibre, chocolate croissants, products made from gram flour or besan flour	All types of bread, rice, pasta, couscous, breakfast cereals, noodles, croissants, bagels, crumpets, chapattis, naan, pitta bread, puris, plain paratha
Snacks	Potato and vegetable crisps, nuts and nut products e.g. peanut butter, Bombay mix, chevra, papadums, pakoras Biscuits and cakes containing chocolate, nuts or dried fruit, Chocolate, fudge, marzipan, black treacle, liquorice, toffee Asian sweets containing milk or nut products e.g. burfi, besan, halva, rasmali	Corn or maize based snacks e.g. skips, wotsits, tortilla chips, rice cakes, crisp breads, breadsticks, crackers, plain popcorn Mints, plain biscuits, plain cake, boiled sweets, marshmallows, jelly babies, Turkish delight, ludoo, jelabi
Miscellaneous	Salt substitutes e.g. Lo Salt, Ruthmol, Selora, vegetable based soups, brown sauce and tomato ketchup, tahini, bovril, marmite	Mustard, mint sauce, horseradish, mayonnaise, salad cream, salad dressing, relish e.g. piccalilli, corn or onion relish, pickle

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Sick Day Medication Rules

Instructions for Healthcare Professionals:

If patients become ill and are unable to maintain adequate fluid intake, or have an acute decline in renal function (e.g. due to gastrointestinal upset or dehydration), they should be instructed to adjust medications which will:

A) Increase risk to cause decline in kidney function:

- Angiotensin-converting enzyme inhibitor
- Angiotensin receptor blockers
- Direct renin inhibitors e.g. aliskerin
- Non-steroidal anti-inflammatory drugs
- Diuretics

B) Have a reduced clearance and increase the risk for adverse effects:

- Metformin
- Sulfonylureas (gliclazide, glimepiride)
- Insulin

S sulfonylureas

A ace-inhibitors

D diuretics, direct renin inhibitors

M metformin, other antidiabetic medication and insulins

A angiotensin receptor blockers

N non-steroidal anti-inflammatories

Please complete the following and give to your patient. Patients should be instructed to increase the frequency of blood glucose monitoring and adjust doses of their anti-diabetic medications if necessary.

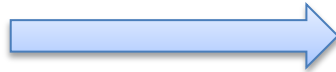
Sick Day Medication Rules

Instructions for Patients:

When you are ill, particularly if you become dehydrated (e.g. from vomiting or diarrhoea), some medicines can worsen your kidney function or result in side effects.

You **may** need to temporarily miss or reduce doses for the following types of medications:

- Blood pressure pills
- Water pills
- Metformin
- Diabetes medications



Discuss with
your GP or
clinic

If you are diabetic and usually monitor your sugars at home, increase the number of times you check your blood glucose levels.

If they run too high or low contact your GP.

If you are on antidiabetic tablets or insulin, you **may** need to adjust your doses.

Your list of medications that may need adjusting are as follows:

Even When You Are Well:

Never take non-steroidal anti-inflammatory drugs - these are commonly found in pain and cold remedies e.g. nurofen, ibuprofen. These can damage your kidney further.

CONTINUE with steroids such as prednisolone or hydrocortisone, never stop them abruptly.

Check with your pharmacist before using over the counter medicines and discuss all changes with your GP or clinic.