

KEEP CALM AND CARRY ON

the Guideline Directed Management

Practical prescribing in patients with kidney disease

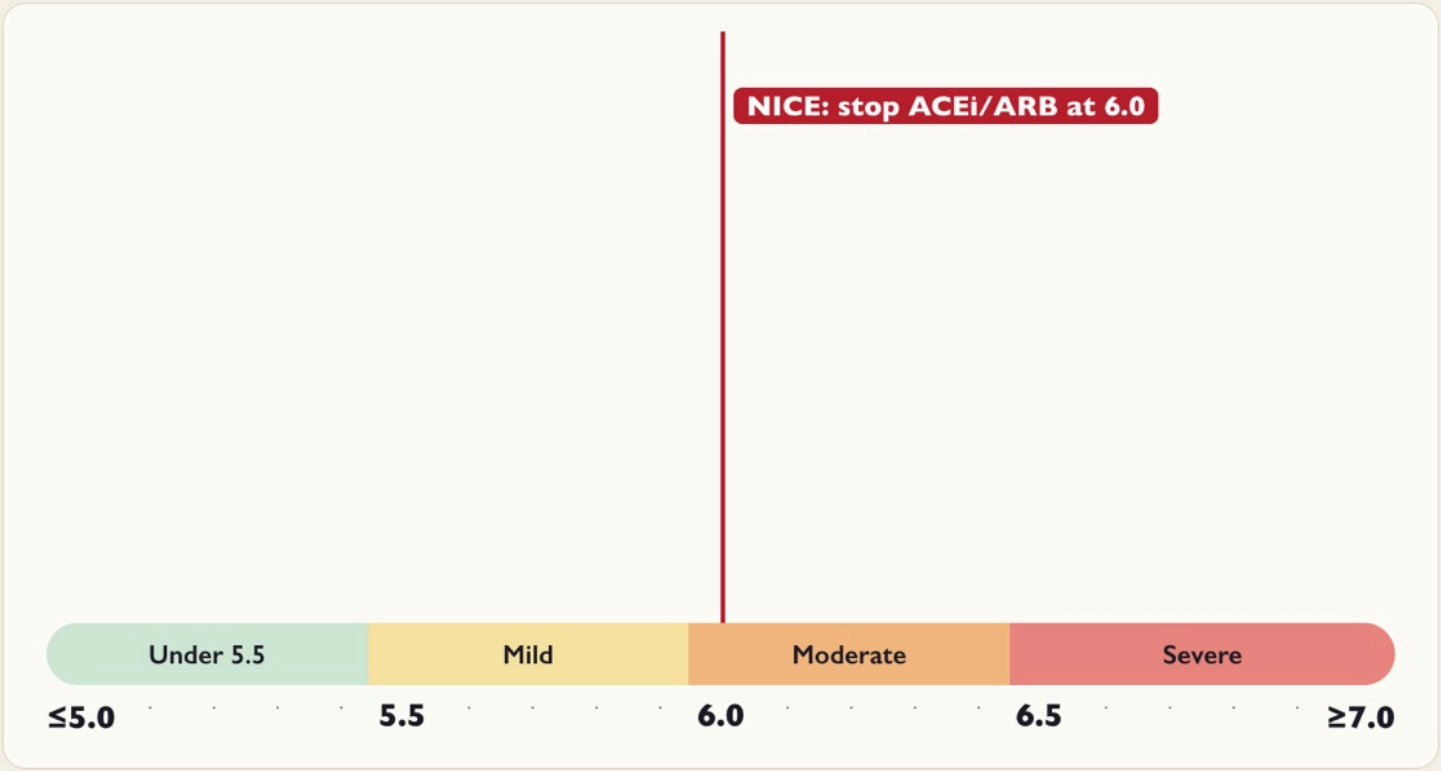
Dr Shona Methven, consultant nephrologist, NHS Grampian

Douneside House · 20 November 2026

WARM-UP

When does a potassium make you act?

Any action at all: what number first gets you moving?



Hands up: who acts at 5.5? 6.0? 6.5? Only at 7?

Age **62** | eGFR **53**

CKD — HEART ATTACK — STROKE + AF — DIALYSIS

CHAPTER 1 · YEAR 0

Meet Stewart



62, retired harbourmaster

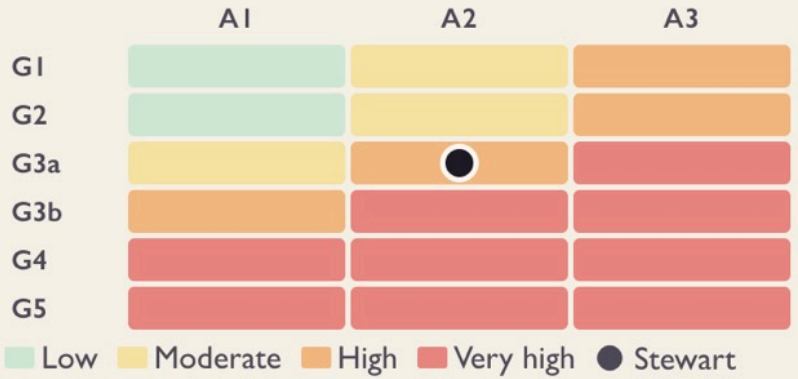
Stonehaven. Walks the dog daily. Wants to see his granddaughter graduate.

Type 2 diabetes	10 years · HbA1c 64 mmol/mol
Blood pressure	146/88 mmHg
Creatinine	125 µmol/L · eGFR 53 ml/min/1.73m²
ACR	24 mg/mmol
Potassium	4.6 mmol/L
Weight	74 kg · BMI 25
Smoking	Ex pipe smoker, now vapes

STEWART'S PILL BOX 3 MEDICINES

- Metformin 1 g bd
- Amlodipine 10 mg
- Atorvastatin 20 mg

Kidney risk map: G is the eGFR stage, A is the albumin (ACR) stage. Stewart is **G3a A2**



LEARNING OBJECTIVES

Four things to do differently on Monday

1. Keep the ACE inhibitor or ARB and the SGLT2 inhibitor going through an eGFR fall **under 25%**
2. **Repeat and treat** a potassium of 5.1 to 5.9 mmol/L rather than stopping
3. Write a **restart plan** for every sick day pause
4. Dose DOACs on **Cockcroft-Gault CrCl** with a current weight, not eGFR

Age 62 | eGFR 53 60 30 15

● CKD — ○ HEART ATTACK — ○ STROKE + AF — ○ DIALYSIS

VOTE 1 OF 6 · CHAPTER 1

Stewart: T2DM, BP 146/88 mmHg, eGFR 53 ml/min/1.73m², ACR 24 mg/mmol, on metformin. What's your plan?

A Titrate the ACEi/ARB to maximum dose first, then add an SGLT2i

B SGLT2i first: it has the bigger kidney benefit

C Both, started within weeks ✓ GUIDELINE

D Add gliclazide for the HbA1c; recheck ACR in 3 months

GUIDELINE ANSWER: C

NICE NG203: an ACE inhibitor or ARB in diabetes with ACR over 3 mg/mmol. NICE NG28 (2026) makes an SGLT2i first line with metformin for T2DM anyway, so there's no reason to wait months for ACEi titration. Staggering by a few weeks is fine.

Age **62** | eGFR **53** 60 30 15

● CKD — ○ HEART ATTACK — ○ STROKE + AF — ○ DIALYSIS

THE TOOLKIT

Four pillars, plus the basics

1 and 2: evidence across proteinuric CKD, with or without diabetes 3 and 4: evidence in diabetic kidney disease, like Stewart's



Age **62** | eGFR **53**



● CKD — ○ HEART ATTACK — ○ STROKE + AF — ○ DIALYSIS

CHAPTER 1 · WHAT THE GUIDELINES SAY

Start both, within weeks

- **NICE:** an ACE inhibitor or ARB when ACR is over 3 mg/mmol in diabetes (NG203); metformin MR plus an SGLT2 inhibitor first line (NG28, 2026)
- NICE TA1075 and SMC now use identical SGLT2i criteria for CKD

STEWART'S PILL BOX ▮▮▯▯ 5 MEDICINES

- Metformin MR 2 g daily — MR
- Ramipril 2.5 → 10 mg — NEW
- Dapagliflozin 10 mg — NEW
- Amlodipine 10 mg
- Atorvastatin 20 mg



KEEP CALM
AND
START BOTH

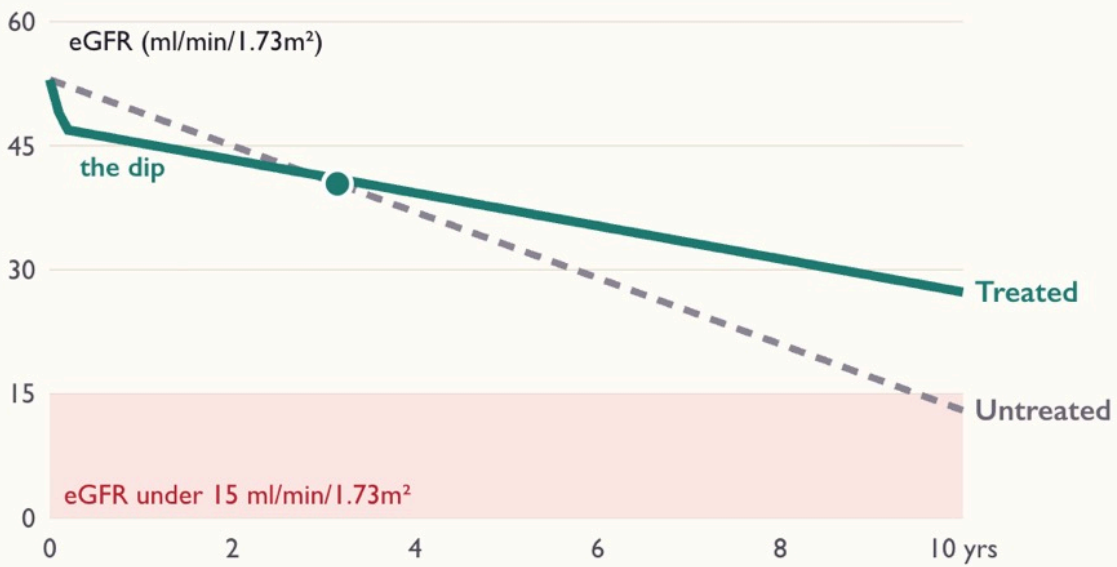
NICE NG203; NG28 (Feb 2026); TA1075, TA942; SMC2763, SMC2642

Age **62** | eGFR **47**

CKD — HEART ATTACK — STROKE + AF — DIALYSIS

CHAPTER 1 · WHY THE DIP IS GOOD NEWS

The dip is the drug working



Lines cross after about 3.1 years. eGFR under 15 at about 10 years untreated vs 16 years treated.

The 25% rule (NICE)

eGFR down **less than 25%**: don't change the dose; recheck in 1 to 2 weeks.

25% or more: look for other causes first.

Or by creatinine: up less than 30%, or 30% or more

KEEP CALM AND ACCEPT THE DIP

Illustrative model, not trial data. NICE NG203 1.6.21 to 1.6.23; UKKA SGLT-2i guideline 2023

Age **62** | eGFR **36**



● CKD — ○ HEART ATTACK — ○ STROKE + AF — ○ DIALYSIS

VOTE 2 OF 6 · CHAPTER 1

Four weeks in, eGFR is 53 → 36 ml/min/1.73m² (−32%; creatinine 125 → 172 µmol/L), K 5.3 mmol/L. He's otherwise well. What now?

A Stop both pillars

B Halve the ramipril, keep the dapagliflozin

C No change: this is the expected dip

D Look for a cause before changing anything ✓ **GUIDELINE**

GUIDELINE ANSWER: D

An eGFR fall of 25% or more (or a creatinine rise of 30% or more) is not the expected dip: NICE says look for other causes first. Stewart had been taking over-the-counter ibuprofen for his knee during a hot spell. Stop the NSAID, check fluid status, recheck within a week. Reduce or stop the pillars only if there's no other cause and the fall persists.

Age 62 | eGFR 48 

● CKD — ○ HEART ATTACK — ○ STROKE + AF — ○ DIALYSIS

VOTE 3 OF 6 · CHAPTER 1

Six months later, on ramipril 10 mg and dapagliflozin, the practice phones: potassium 5.7 mmol/L. What do you do?

A Stop ramipril

B Halve ramipril

C Repeat, find causes, keep ramipril ✓ GUIDELINE

D Start a potassium binder

GUIDELINE ANSWER: C

Repeat it first: delayed and haemolysed samples are common. NICE NG203: stop an ACEi/ARB only at 6.0 mmol/L or more, after other potassium-raising drugs are stopped. Lokelma now starts at 5.5 (SMC2884, NICE TA1148), but for confirmed, persistent hyperkalaemia in CKD stage 3b to 5 or heart failure, not one sample.

Age **62** | eGFR **48** 

● CKD — ○ HEART ATTACK — ○ STROKE + AF — ○ DIALYSIS

CHAPTER 1 · POTASSIUM

Repeat it. Treat it. Keep the protection.

Potassium in mmol/L

≤ 5.0	Start or continue as normal
5.1 to 5.9	**Repeat** the sample. On an ACEi/ARB: **continue**, find causes, treat. Not yet started: fix causes first.
≥ 6.0	Stop the ACEi/ARB, after other K-raising drugs are stopped

Stewart 5.7

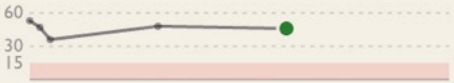
Persistent K of 5.5 or more, with CKD stage 3b to 5 or heart failure: Lokelma lets the ACE inhibitor or ARB continue.

SMC2884, August 2026: "persistent hyperkalaemia (defined as a serum potassium of 5.5 to 6.0 mmol/L)"

KEEP CALM
AND
RECHECK THE POTASSIUM

Finerenone has a lower threshold: withhold if K is over **5.5 mmol/L**; restart at 10 mg when 5.0 mmol/L or less.

NICE NG203 1.6.16 to 1.6.19; Kerendia SmPC; SMC2884 (Aug 2026); NICE TA1148 (Apr 2026)

Age **63** | eGFR **46** 

● CKD — ○ HEART ATTACK — ○ STROKE + AF — ○ DIALYSIS

CHAPTER 1 · YEAR 1 · THE THIRD PILLAR

ACR still 18 mg/mmol on two pillars? Add finerenone

Stewart's repeat potassium was **4.6 mmol/L**: the 5.7 was a sample that sat in the van overnight

WHO QUALIFIES NICE TA877 · SMC accepted

- ✓ **Type 2 diabetes** — Stewart: 10 years
- ✓ **eGFR 25 or more** — Stewart: 46
- ✓ **ACR 3 mg/mmol or more** — Stewart: 18
- ✓ **Highest tolerated ACEi or ARB and an SGLT2i** — Stewart: ramipril 10 mg + dapagliflozin

K under 5.0

Start 10 mg
eGFR 25 to 59 · don't start if K is 5.0 or above

→

4 weeks

Check K and eGFR
Stewart: K 4.6

→

K still under 5.0

Up to 20 mg
the target dose · Stewart is here

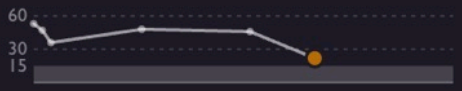
Why not spironolactone? Finerenone causes less hyperkalaemia, and it has the outcome trials in diabetic kidney disease.

STEWART'S PILL BOX 6 MEDICINES

- Metformin MR 2 g daily
- Ramipril 10 mg
- Dapagliflozin 10 mg
- Finerenone 10 → 20 mg — NEW
- Amlodipine 10 mg
- Atorvastatin 20 mg

KEEP CALM AND STACK THE PILLARS

NICE TA877; SMC2486; NHS Grampian finerenone guide (2025); Kerendia SmPC. Horizon: CONFIDENCE (NEJM 2025), FIND-CKD (NEJM 2026; unlicensed in non-diabetic CKD)

Age 63 | eGFR 22 

● CKD — ○ HEART ATTACK — ○ STROKE + AF — ○ DIALYSIS

CHAPTER 1 · THAT WINTER

Norovirus.

Three days of vomiting and an AKI. Two nights on the ward for IV fluids, and four medicines are held.

Home on day 3. The letter says "withheld". Nobody says when to restart.

STEWART'S PILL BOX	6 MEDICINES
Metformin MR	PAUSED
Ramipril 10 mg	PAUSED
Dapagliflozin 10 mg	PAUSED
Finerenone 20 mg	PAUSED
Amlodipine 10 mg	
Atorvastatin 20 mg	

Age **63** | eGFR **45** 

● CKD — ○ HEART ATTACK — ○ STROKE + AF — ○ DIALYSIS

CHAPTER 1 · YEAR 1 · SICK DAYS · PHONES DOWN

Four medicines held on the ward. Nobody restarted them.

60 SECONDS WITH YOUR NEIGHBOUR

What would have got them restarted? What should the discharge letter say, and what should Stewart be told?

Medication Sick Day Guidance (Scotland, 2026): pause is not stop

When: 2 or more episodes of vomiting or diarrhoea, or fever, sweats or shaking (unless mild)

Pause: SGLT2i, ACEi, ARB, diuretics, metformin, NSAIDs, plus any others agreed with the patient (such as finerenone)

Restart: after **24 to 48 hours** of eating and drinking normally

STEWART'S PILL BOX ▯▯▯▯ 6 MEDICINES

- Metformin MR — PAUSED
- Ramipril 10 mg — PAUSED
- Dapagliflozin 10 mg — PAUSED
- Finerenone 20 mg — PAUSED
- Amlodipine 10 mg
- Atorvastatin 20 mg

KEEP CALM AND RESTART

Scottish Government and Healthcare Improvement Scotland: Medication Sick Day Guidance card, version 4 (2026), and leaflets; Polypharmacy Guidance

Age **64** | eGFR **42** 

CKD — **HEART ATTACK** — STROKE + AF — DIALYSIS

CHAPTER 2 · YEAR 2

The NSTEMI

Stewart, 64, gets chest pain at the harbour. Troponin rises. eGFR 42 ml/min/1.73m².
Angiography and a drug-eluting stent.



Age **64** | eGFR **42** 

CKD — **HEART ATTACK** — STROKE + AF — DIALYSIS

CHAPTER 2 · ON THE WARD · NOW CKD G3B A2

Don't let the admission undo the kidney work

- Standard secondary prevention: 12 months of dual antiplatelets, a beta-blocker, a high-intensity statin and a PPI
- Pause the SGLT2 inhibitor while he is acutely unwell. Whatever is paused: **write the restart date**
- Lipids: aim LDL 2.0 mmol/L or less (non-HDL 2.6 mmol/L); add ezetimibe if needed

STEWART'S PILL BOX	10 MEDICINES
Metformin MR 1 g daily	EGFR < 45
Ramipril 10 mg	
Dapagliflozin 10 mg	WHILE UNWELL
Finerenone 20 mg	
Aspirin 75 mg	NEW
Ticagrelor 90 mg bd (12 months)	NEW
Bisoprolol 2.5 mg	NEW
Atorvastatin 80 mg	↑ DOSE
Lansoprazole 15 mg	NEW
Amlodipine 5 mg	↓ DOSE

NICE NG185, NG238; Scottish Sick Day Guidance for professionals v4 (2026); UKKA SGLT-2i guideline 2023

Age **64** | eGFR **42** 

CKD — **HEART ATTACK** — STROKE + AF — DIALYSIS

CHAPTER 2 · BACK TO THE FOURTH PILLAR

Pillar four: the NSTEMI makes the indication stronger

KIDNEY EVENTS	MAJOR CV EVENTS	DEATH
−24%	**−18%**	**−20%**

FLOW: semaglutide 1 mg weekly in 3,533 people with T2DM and CKD

NICE NG28: not recommended for CKD alone (not cost-effective), but **first line with established cardiovascular disease** (ASCVD), which Stewart now has.

STEWART'S PILL BOX 11 MEDICINES

- Metformin MR 1 g daily
- Ramipril 10 mg
- Dapagliflozin 10 mg
- Finerenone 20 mg
- Semaglutide 0.25 → 1 mg weekly NEW
- Aspirin 75 mg
- Ticagrelor (12 months)
- Bisoprolol 2.5 mg
- Atorvastatin 80 mg
- Lansoprazole 15 mg
- Amlodipine 5 mg

Perkovic et al. NEJM 2024 (FLOW); NICE NG28 Feb 2026

Age **66** | eGFR **31** 

CKD — HEART ATTACK — **STROKE + AF** — DIALYSIS

CHAPTER 3 · YEAR 4

Stroke, and new AF

Stewart, 66, wakes with a weak left arm: a small right-sided stroke and new atrial fibrillation.
He has lost 12 kg since his heart attack, but the weight on the GP record is still 74 kg.



CHAPTER 3 · TWO NUMBERS, ONE PATIENT

eGFR or creatinine clearance?

Try: **Stewart, GP record weight** | Stewart, weighed today | Frail woman of 86

AGE	SEX	WEIGHT (KG)	CREATININE (µMOL/L)
66	Male	74	192

LAB EGFR (CKD-EPI 2009)
31 ml/min/1.73m²

CRCL (COCKCROFT-GAULT)
35 ml/min

AF DOSE	USING EGFR	USING CRCL
Apixaban	5 mg bd	5 mg bd
Edoxaban	30 mg od	30 mg od
Rivaroxaban	15 mg od	15 mg od
Dabigatran	150 mg bd (110 if bleeding risk)	150 mg bd (110 if bleeding risk)

Teaching aid only, based on UK SmPC dose bands for non-valvular AF. Always check the SmPC or BNF.

Age **66** | eGFR **31** 

CKD — HEART ATTACK — **STROKE + AF** — DIALYSIS

VOTE 4 OF 6 · CHAPTER 3

Stroke with new AF. Age 66, creatinine 192 µmol/L. GP record weight 74 kg; ward weight today 62 kg. Lab eGFR 31 ml/min/1.73m². Which anticoagulant?

A. Apixaban 5 mg twice daily

B. Apixaban 2.5 mg twice daily ✓ GUIDELINE

C. Dabigatran 110 mg twice daily

D. Edoxaban 60 mg once daily

GUIDELINE ANSWER: B

MHRA: use Cockcroft-Gault with a current weight. At 62 kg his creatinine clearance is 29 ml/min: apixaban 2.5 mg bd (the old 74 kg gives 35 and, wrongly, 5 mg). Dabigatran: contraindicated below 30 ml/min. Edoxaban: 30 mg, not 60, at 15 to 50 ml/min.

Age **66** | eGFR **31**



CKD — HEART ATTACK — **STROKE + AF** — DIALYSIS

CHAPTER 3 · DOSING DOACS

Calculate. Don't read off the eGFR.

- **MHRA:** Cockcroft-Gault CrCl for DOACs, age 75 and over, and extremes of muscle mass
- eGFR overestimated function in up to **28%** of people 65 and over, and **58%** of those 85 and over
- Use a **current** weight in kg. Recalculate when weight or creatinine changes.

Apixaban 2.5 mg bd if

CrCl 15 to 29 ml/min, **or** two of: age 80+, weight 60 kg or less, creatinine 133 µmol/L or more



MHRA Drug Safety Update 13(3), October 2019; apixaban, edoxaban, rivaroxaban and dabigatran UK SmPCs

Age **66** | eGFR **31** 

CKD — HEART ATTACK — **STROKE + AF** — DIALYSIS

CHAPTER 3 · THE RIPPLE EFFECTS

Every event is a medication review

EGFR	ACR	CRCL AT 62 KG	5-YEAR KIDNEY FAILURE RISK
31 ml/min/1.73m²	**74** mg/mmol	**29** ml/min	**23%**
was 53 at the start	was 24 · now A3	creatinine 192 µmol/L	Kidney Failure Risk Equation

- **Aspirin stopped:** more than 12 months after his heart attack, the anticoagulant alone is enough (AFIRE, EPIC-CAD)
- **Ramipril continues:** no eGFR cut-off for stopping (STOP-ACEi)
- **Dapagliflozin and finerenone continue;** metformin stays capped at 1 g a day, stop below eGFR 30 ml/min/1.73m²
- **Refer to the kidney team:** ACR now 74 mg/mmol (A3); 5-year risk of kidney failure about 23% on the Kidney Failure Risk Equation. NICE: refer at over 5%, or ACR 70 mg/mmol or more

STEWART'S PILL BOX — 8 MEDICINES

Apixaban 2.5 mg bd	NEW
~~Aspirin 75 mg~~	~~STOPPED~~
~~Ticagrelor~~	~~COMPLETED~~
~~Lansoprazole~~	~~DAPT DONE~~
~~Amlodipine~~	~~BP LOW~~
Metformin MR 1 g daily	MAX DOSE
Ramipril 10 mg	
Dapagliflozin 10 mg	
Finerenone 20 mg	
Semaglutide 1 mg weekly	
Bisoprolol 2.5 mg	
Atorvastatin 80 mg	

Yasuda et al. NEJM 2019 (AFIRE); Cho et al. NEJM 2024 (EPIC-CAD); Bhandari et al. NEJM 2022 (STOP-ACEi); NICE NG203, NG28

Age 69 | eGFR 9



CKD — HEART ATTACK — STROKE + AF — **DIALYSIS**

CHAPTER 4 · YEAR 7

Dialysis

At 69, with an eGFR of 9 ml/min/1.73m², Stewart starts incremental haemodialysis twice a week at the Stonehaven Dialysis Unit, close to home. He is also being assessed for a kidney transplant.



Age **69** | eGFR **9** 

CKD — HEART ATTACK — STROKE + AF — **DIALYSIS**

VOTE 5 OF 6 · CHAPTER 4

Year 7: Stewart starts haemodialysis. He has been on atorvastatin for years. The statin…

A Stop: 4D and AURORA showed no benefit

B Continue ✓ GUIDELINE

C Stop: life expectancy on dialysis limits the benefit

D Halve the dose: it accumulates in kidney failure

GUIDELINE ANSWER: B

KDIGO: don't start a statin in someone already on dialysis, but continue one they're taking. Atorvastatin needs no renal dose adjustment. SHARP (simvastatin plus ezetimibe) cut major atherosclerotic events by 17% across CKD; switching to that regimen is reasonable too. The key is don't stop.

Age **69** | eGFR **9** 

● CKD — ● HEART ATTACK — ● STROKE + AF — ● **DIALYSIS**

CHAPTER 4 · STATINS

Statins on dialysis: the evidence

4D

2005 · 1,255 on haemodialysis with T2DM · atorvastatin 20 mg

No significant benefit

AURORA

2009 · 2,776 on haemodialysis · rosuvastatin 10 mg

No significant benefit

SHARP

2011 · 9,270 with CKD, a third on dialysis · simvastatin + ezetimibe

17% fewer major atherosclerotic events

Bleeding in the brain? 4D: more fatal strokes on atorvastatin (27 vs 13). SHARP: haemorrhagic stroke 45 vs 37 (not significant), but ischaemic stroke fewer (131 vs 174). For Stewart, after an ischaemic stroke and on apixaban, the bigger bleeding lever is the anticoagulant dose and his BP.

KDIGO

On dialysis: **don't start** a statin, but **continue** one already started.

KEEP CALM
AND
KEEP THE STATIN

Wanner et al. NEJM 2005 (4D); Fellström et al. NEJM 2009 (AURORA); Baigent et al. Lancet 2011 (SHARP); KDIGO Lipid Guideline 2013

Age **69** | eGFR **9**



CKD — HEART ATTACK — STROKE + AF — **DIALYSIS**

CHAPTER 4 · TIDYING THE PILL BOX

What happens to the pillars on dialysis?

~~Dapagliflozin~~ ~~Finerenone~~ ~~Metformin~~ Ramipril Semaglutide Apixaban Atorvastatin Bisoprolol

STOP

Dapagliflozin
Continue until dialysis starts

Finerenone
Stop at end-stage kidney disease (eGFR under 15 ml/min/1.73m²)

Metformin
Already stopped below eGFR 30 ml/min/1.73m²

REVIEW

Ramipril
BP, heart, residual function, K

Semaglutide
Limited data: renal team

Apixaban
Off-label on dialysis: renal team

CONTINUE

Atorvastatin
Keep the statin

Bisoprolol
Cardiac indication

UKKA SGLT-2i guideline 2023; Kerendia SmPC; NICE NG28; KDIGO 2013; Ozempic SmPC

WHAT TO TAKE BACK TO CLINIC

The Keep Calm collection



VOTE 6 OF 6 · YOUR MONDAY

Which ONE will you change in your practice on Monday?

- **A** Keep going through the expected eGFR dip
- **B** Repeat and treat potassium before stopping an ACE inhibitor or ARB
- **C** Write a restart plan for every sick day pause
- **D** Calculate CrCl, with a current weight, for every DOAC

NO SINGLE RIGHT ANSWER

All four are on the cheat sheet. Scan the code to take it with you.

THANK YOU

Keep calm.
Carry on.
Restart.

Questions for Shona and Jamie

Teaching material; not a substitute for the BNF, SmPCs or local guidance.

douneside.jamiersmith.com/cheatsheet

Slides: douneside.jamiersmith.com/present