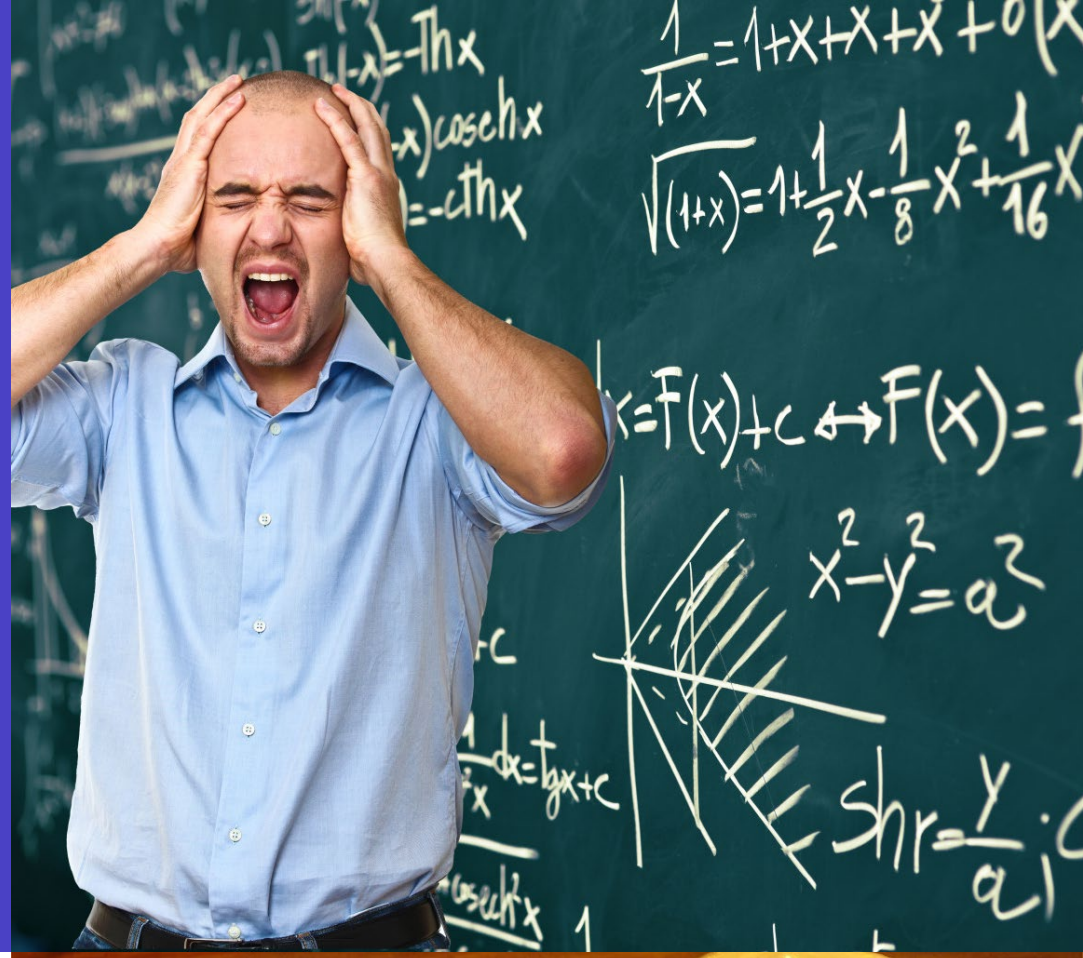
Chronic Kidney Disease Updates

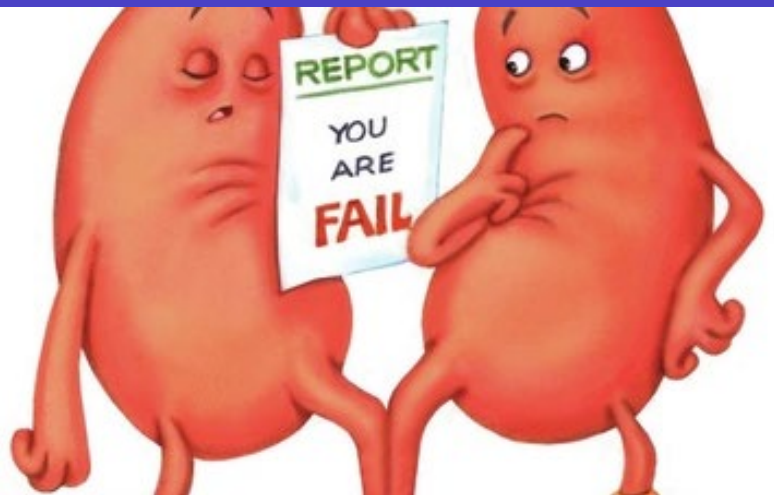
Dr Shailesh Agarwal
Specialist Registrar in Renal Medicine
Sheffield Teaching Hospitals

Agenda

- KFRE
- SGLT2i
- Finerenone
- CKD Cases

Kidney Failure Risk Equation (KFRE)





Kidney Failure Risk Equation (KFRE) – What is it?

- Risk Prediction Model
- First outlined by Tangri et al in 2011
- Ideal model: accurate, easy-to-implement, highly generalizable
- Relies solely on info available to lab

Why KFRE?

Measure	NICE Criteria	Recalibrated KFRE			Hybrid criteria	
		≥3%	≥5%	≥15%	KFRE ≥ 5% or eGFR < 30 ml/min/1.73 m^2	KFRE ≥ 5% or ACR ≥ 70 mg/mmol
Sensitivity	5.5% (4.1 to 7.2)	4.4% (3.3 to 5.8)	6.8% (5.0 to 9.1)	16.7% (11.0 to 23.8)	5.2% (3.8 to 7.0)	6.6% (5.0 to 8.5)
Specificity	99.7% (99.6 to 99.8)	99.7% (99.6 to 99.8)	99.7% (99.6 to 99.8)	99.6% (99.5 to 99.7)	99.7% (99.6 to 99.8)	99.8% (99.7 to 99.8)
Baseline referrals	879 (5.6%)	1,084 (6.9%)	615 (3.8%)	144 (0.9%)	803 (5.1%)	836 (5.3%)
ESRD not referred at baseline	41 (46.1%)	41 (46.1%)	47 (52.8%)	65 (73.0%)	47 (52.8)	34 (38.2%)
Mean age if eligible, years	76.3 (75.4 to 77.2)	76.3 (75.5 to 77.1)	75.2 (74.1 to 76.3)	70.3 (67.6 to 72.9)	77.3 (76.3 to 78.2)	73.8 (72.9 to 74.8)
Female referrals	58.4% (55.1 to 61.6)	55.9% (52.9 to 58.9)	54.3% (50.4 to 58.3)	47.2% (39.0 to 55.4)	59.4% (56.0 to 62.8)	52.8% (49.4 to 56.1)
Mean referral eGFR, ml/min/1.73 m^2	32.7 (31.9 to 33.5)	30.5 (30.0 to 30.9)	27.7 (27.1 to 28.3)	21.6 (20.5 to 22.7)	27.5 (27.1 to 28.0)	34.0 (33.1 to 34.9)
Mean referral ACR, mg/mmol	77.3 (69.7 to 84.9)	50.6 (45.0 to 56.2)	64.8 (56.2 to 73.4)	130.8 (103.4 to 158.2)	50.5 (43.7 to 57.3)	86.0 (78.3 to 93.8)

Sensitivity refers to the percentage of patients referred who developed ESRD within 5 years of follow-up. Specificity refers to the percentage of patients not initially referred who did not go on to develop ESRD. Figures in parentheses for 'baseline referrals' and 'ESRD not referred at baseline' refer to percentage of all individuals in cohort not previously seen in renal secondary care. All other figures in parentheses refer to 95% confidence intervals. *n* = 15,830 for eligibility assessment cohort, with 89 ESRD cases.

ACR, albumin-to-creatinine ratio; eGFR, estimated glomerular filtration rate; ESRD, end stage renal disease; KFRE, Kidney Failure Risk Equation; NICE, National Institute of Health And Clinical Excellence.

https://doi.org/10.1371/journal.pmed.1002955.t003

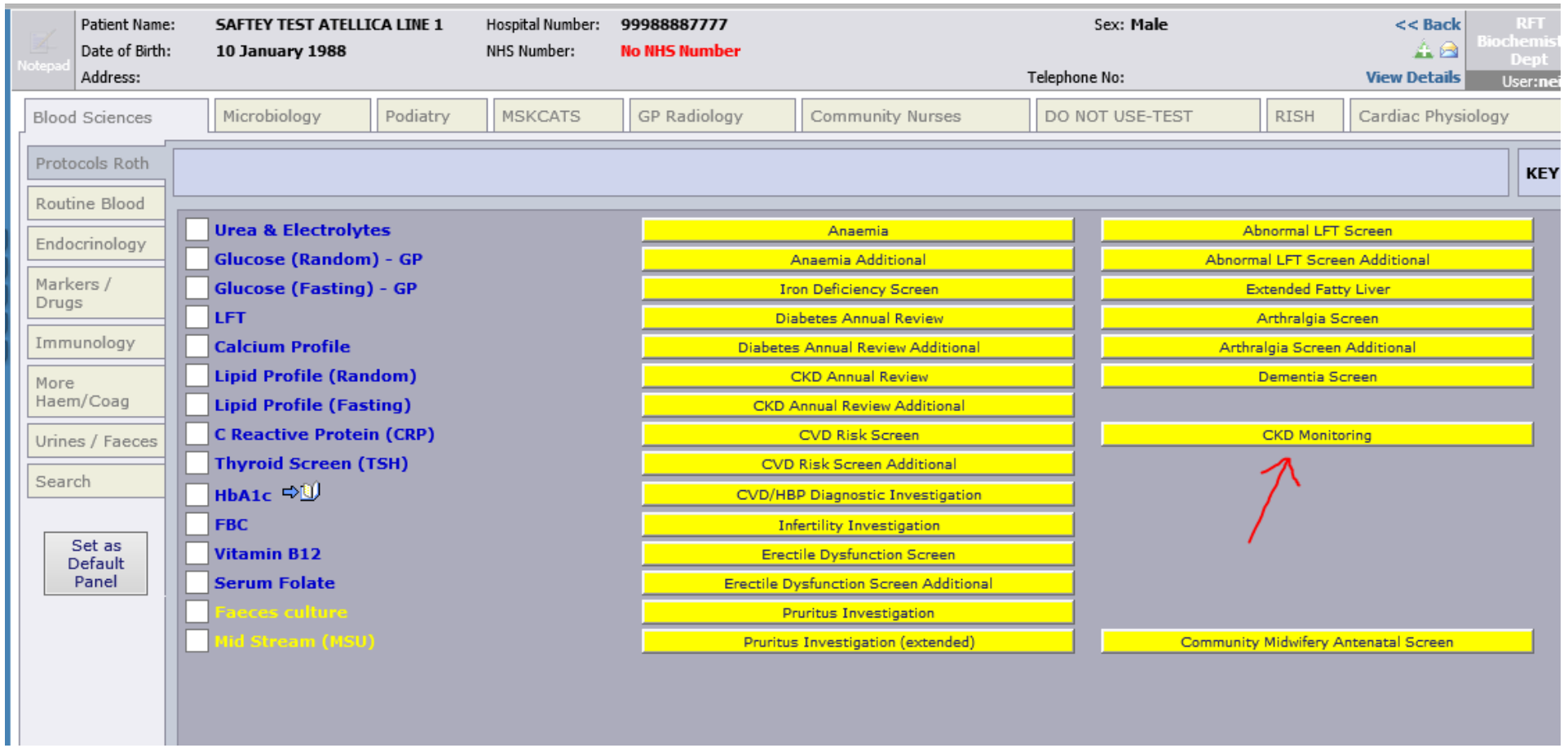
Nice Guidance

Referral criteria

1.5.5 Refer adults with CKD for specialist assessment (taking into account their wishes and comorbidities) if they have any of the following:

- a 5-year risk of needing renal replacement therapy of greater than 5% (measured using the 4-variable Kidney Failure Risk Equation)
- an ACR of 70 mg/mmol or more, unless known to be caused by diabetes and already appropriately treated (see recommendations 1.6.6 and 1.6.7)
- an ACR of more than 30 mg/mmol (ACR category A3), together with haematuria
- a sustained decrease in eGFR of 25% or more and a change in eGFR category within 12 months
- a sustained decrease in eGFR of 15 ml/min/1.73 m^2 or more per year
- hypertension that remains poorly controlled (above the person's individual target) despite the use of at least 4 antihypertensive medicines at therapeutic doses (see also NICE's guideline on hypertension in adults)
- known or suspected rare or genetic causes of CKD
- suspected renal artery stenosis. **[2021]**

How to KFRE?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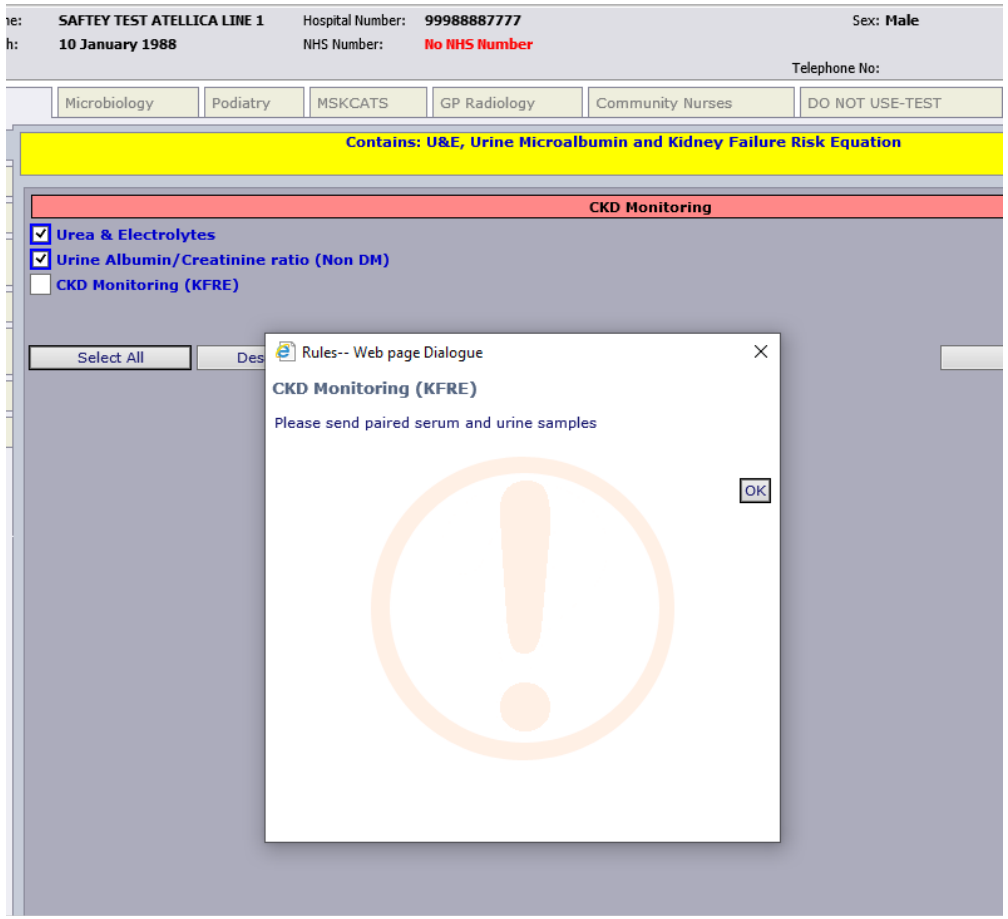
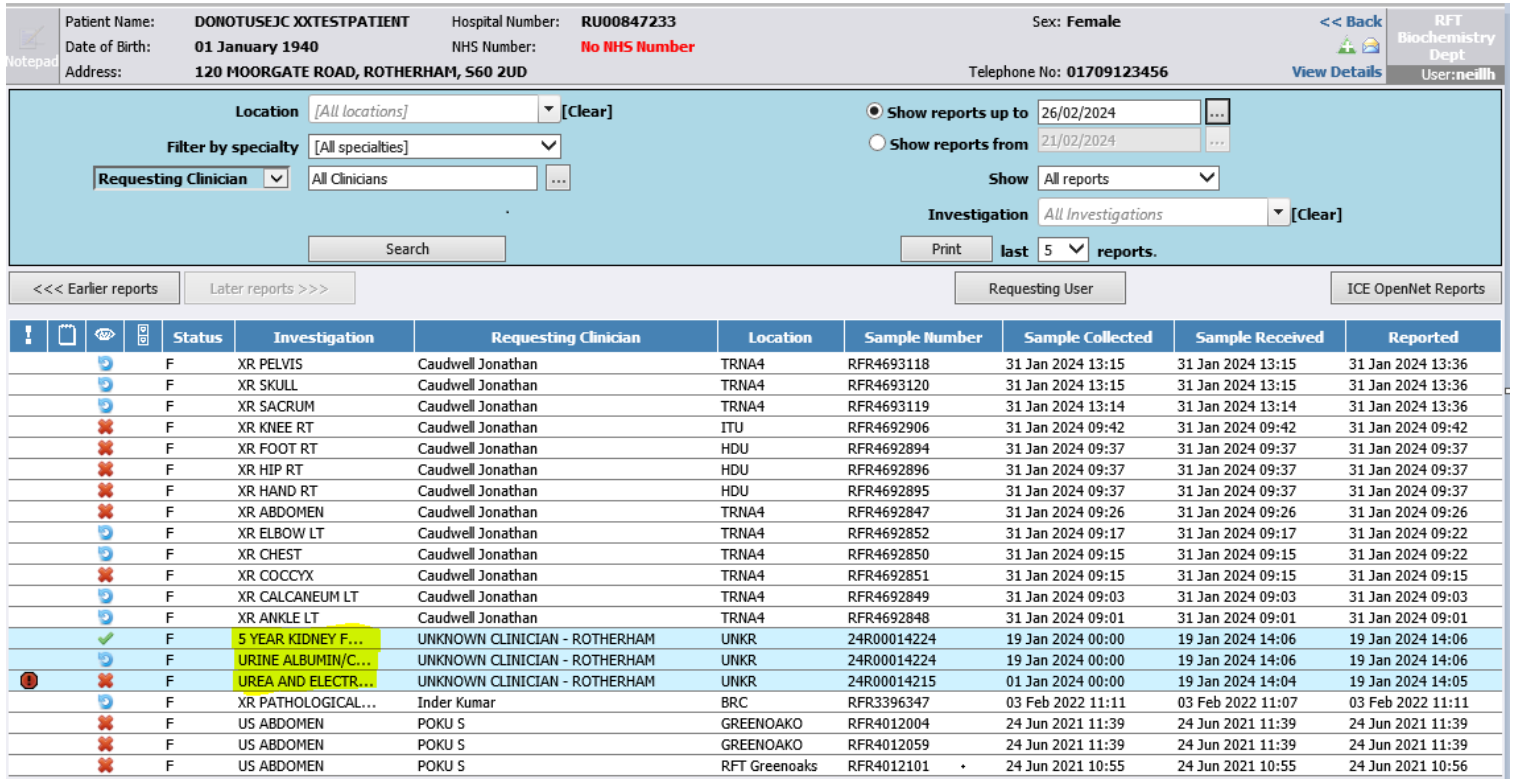
Patient Name: SAFTEY TEST ATELLICA LINE 1
Hospital Number: 99988887777
Sex: Male
<< Back
Date of Birth: 10 January 1988
NHS Number: No NHS Number
View Details
Address:
Telephone No:
RFT Biochemist Dept
Blood Sciences
Microbiology
Podiatry
MSKCATS
GP Radiology
Community Nurses
DO NOT USE-TEST
RISH
Cardiac Physiology
Protocols Roth
KEY
Routine Blood
Endocrinology
Markers / Drugs
Immunology
More Haem/Coag
Urines / Faeces
Search
Set as Default Panel
Urea & Electrolytes
Glucose (Random) - GP
Glucose (Fasting) - GP
LFT
Calcium Profile
Lipid Profile (Random)
Lipid Profile (Fasting)
C Reactive Protein (CRP)
Thyroid Screen (TSH)
HbA1c
FBC
Vitamin B12
Serum Folate
Faeces culture
Mid Stream (MSU)
Anaemia
Anaemia Additional
Iron Deficiency Screen
Diabetes Annual Review
Diabetes Annual Review Additional
CKD Annual Review
CKD Annual Review Additional
CVD Risk Screen
CVD Risk Screen Additional
CVD/HBP Diagnostic Investigation
Infertility Investigation
Erectile Dysfunction Screen
Erectile Dysfunction Screen Additional
Pruritus Investigation
Pruritus Investigation (extended)
Abnormal LFT Screen
Abnormal LFT Screen Additional
Extended Fatty Liver
Arthralgia Screen
Arthralgia Screen Additional
Dementia Screen
CKD Monitoring
Community Midwifery Antenatal Screen

How to KFRE?


SAFTEY TEST ATELLICA LINE 1
Hospital Number: 99988887777
Sex: Male
10 January 1988
NHS Number: No NHS Number
Telephone No:
Microbiology
Podiatry
MSKCATS
GP Radiology
Community Nurses
DO NOT USE-TEST
Contains: U&E, Urine Microalbumin and Kidney Failure Risk Equation
CKD Monitoring
Urea & Electrolytes
Urine Albumin/Creatinine ratio (Non DM)
CKD Monitoring (KFRE)
Select All
Rules-- Web page Dialogue
CKD Monitoring (KFRE)
Please send paired serum and urine samples
OK


SAFTEY TEST ATELLICA LINE 1
Hospital Number: 99988887777
Sex: Male
10 January 1988
NHS Number: No NHS Number
Telephone No:
Microbiology
Podiatry
MSKCATS
GP Radiology
Community Nurses
DO NOT USE-TEST
CKD Monitoring
Urea & Electrolytes
Urine Albumin/Creatinine ratio (Non DM)
CKD Monitoring (KFRE)
Select All
Deselect All

How to KFRE?



Patient Name: DONOTUSEJC XXTESTPATIENT Hospital Number: RU00847233 Sex: Female << Back
Date of Birth: 01 January 1940 NHS Number: No NHS Number RFT Biochemistry Dept
Address: 120 MOORGATE ROAD, ROTHERHAM, S60 2UD Telephone No: 01709123456 View Details User:neilh

Location [All locations] [Clear] Show reports up to 26/02/2024
Filter by specialty [All specialties] Show reports from 21/02/2024
Requesting Clinician All Clinicians Show All reports
Investigation All Investigations [Clear]
Search Print last 5 reports.
<<< Earlier reports Later reports >>> Requesting User ICE OpenNet Reports

Status	Investigation	Requesting Clinician	Location	Sample Number	Sample Collected	Sample Received	Reported
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F	XR SKULL	Caudwell Jonathan	TRNA4	RFR4693120	31 Jan 2024 13:15	31 Jan 2024 13:15	31 Jan 2024 13:36
F	XR SACRUM	Caudwell Jonathan	TRNA4	RFR4693119	31 Jan 2024 13:14	31 Jan 2024 13:14	31 Jan 2024 13:36
F	XR KNEE RT	Caudwell Jonathan	ITU	RFR4692906	31 Jan 2024 09:42	31 Jan 2024 09:42	31 Jan 2024 09:42
F	XR FOOT RT	Caudwell Jonathan	HDU	RFR4692894	31 Jan 2024 09:37	31 Jan 2024 09:37	31 Jan 2024 09:37
F	XR HIP RT	Caudwell Jonathan	HDU	RFR4692896	31 Jan 2024 09:37	31 Jan 2024 09:37	31 Jan 2024 09:37
F	XR HAND RT	Caudwell Jonathan	HDU	RFR4692895	31 Jan 2024 09:37	31 Jan 2024 09:37	31 Jan 2024 09:37
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F	XR CHEST	Caudwell Jonathan	TRNA4	RFR4692850	31 Jan 2024 09:15	31 Jan 2024 09:15	31 Jan 2024 09:22
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F	XR ANKLE LT	Caudwell Jonathan	TRNA4	RFR4692848	31 Jan 2024 09:01	31 Jan 2024 09:01	31 Jan 2024 09:01
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F	UREA AND ELECTR...	UNKNOWN CLINICIAN - ROTHERHAM	UNKR	24R00014215	01 Jan 2024 00:00	19 Jan 2024 14:04	19 Jan 2024 14:05
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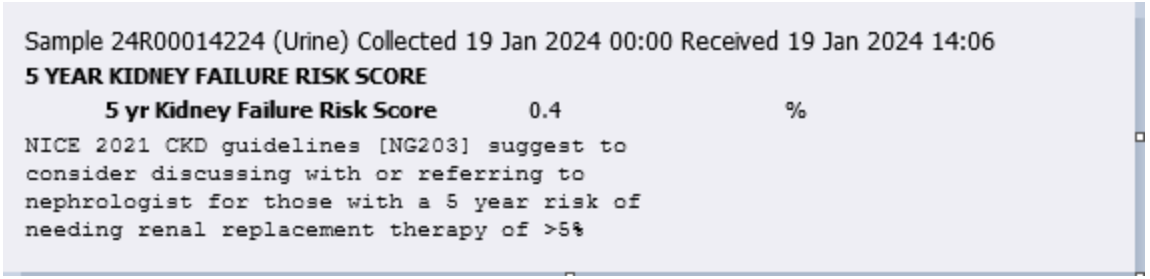
F	US ABDOMEN	POKU S	GREENOAKO	RFR4012004	24 Jun 2021 11:39	24 Jun 2021 11:39	24 Jun 2021 11:39
F	US ABDOMEN	POKU S	GREENOAKO	RFR4012059	24 Jun 2021 11:39	24 Jun 2021 11:39	24 Jun 2021 11:39
F	US ABDOMEN	POKU S	RFT Greenoaks	RFR4012101	24 Jun 2021 10:55	24 Jun 2021 10:55	24 Jun 2021 10:56

Note from labs:

- Do not request U&E and uACR separately – won't calculate KFRE
- If you request CKD monitoring and send both samples within 30 days of each other, a KFRE will be calculated (must be SAME request)



Sample 24R00014224 (Urine) Collected 19 Jan 2024 00:00 Received 19 Jan 2024 14:06

5 YEAR KIDNEY FAILURE RISK SCORE

5 yr Kidney Failure Risk Score 0.4 %

NICE 2021 CKD guidelines [NG203] suggest to consider discussing with or referring to nephrologist for those with a 5 year risk of needing renal replacement therapy of >5%

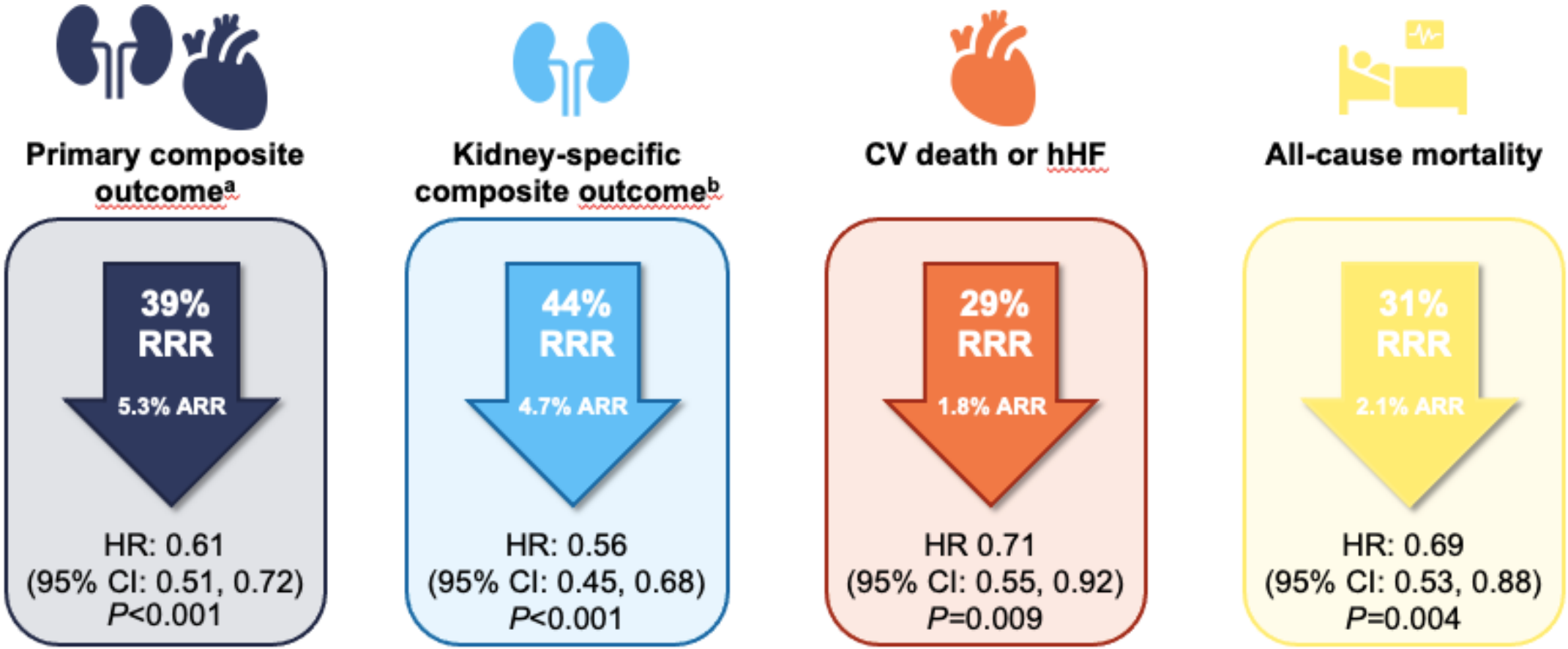
KFRE – Take home points

- KFRE is a validated tool to quantify risk of needing kidney replacement over 5 years
- It will only be reported if eGFR < 60ml/min
- NICE guidelines now advise referral for anyone with KFRE >5% rather than all patients with eGFR < 30ml/min
- It does NOT account for competing risk of death – therefore in elderly, comorbid patients where risk of death from other cause is higher, it may be reasonable to use advice and guidance first

SGLT2i

Empagliflozin and Dapagliflozin

Dapagliflozin outcomes



Heerspink HJL et al. Dapaglifozin in CKD. N Engl J Med 2020;383:1436-46.

Empagliflozin outcomes

6609 patients randomized

2-year follow up

eGFR ≥ 20-45 ml/min/1.73 m^2
or
eGFR ≥ 45-90 ml/min/1.73 m^2
and
Urine Albumin to creatinine ratio of > 200 mg/g

	Progressive CKD* or CV death	Hospitalization for CHF or CV death	Hospitalization any cause (per 100 patient yrs)
Placebo n=3305	16.9%	4.6%	29.2
	HR 0.72 (0.64-0.82) p< 0.001	**HR 0.84 (0.67-1.07) p=0.15**	**HR 0.86 (0.78-0.95) p= 0.003**
Empagliflozin 10mg n=3304	13.1%	4.0%	24.8

*sustained 40% eGFR decline / eGFR <10 ml/min / ESKD

or

Results were consistent in patients with and without diabetes

NICE SGLT2i

1.1 Empagliflozin is recommended as an option for treating chronic kidney disease (CKD) in adults, only if:

- it is an add-on to optimised standard care including the highest tolerated licensed dose of angiotensin-converting enzyme (ACE) inhibitors or angiotensin-receptor blockers (ARBs), unless these are contraindicated, and
- people have an estimated glomerular filtration rate of:
  - 20 ml/min/1.73 m^2 to less than 45 ml/min/1.73 m^2 or
  - 45 ml/min/1.73 m^2 to 90 ml/min/1.73 m^2 and either:
    - a urine albumin-to-creatinine ratio of 22.6 mg/mmol or more, or
    - type 2 diabetes.

NICE
National Institute for Health and Care Excellence

Dapagliflozin is recommended as an option for treating chronic kidney disease (CKD) in adults. It is recommended only if:

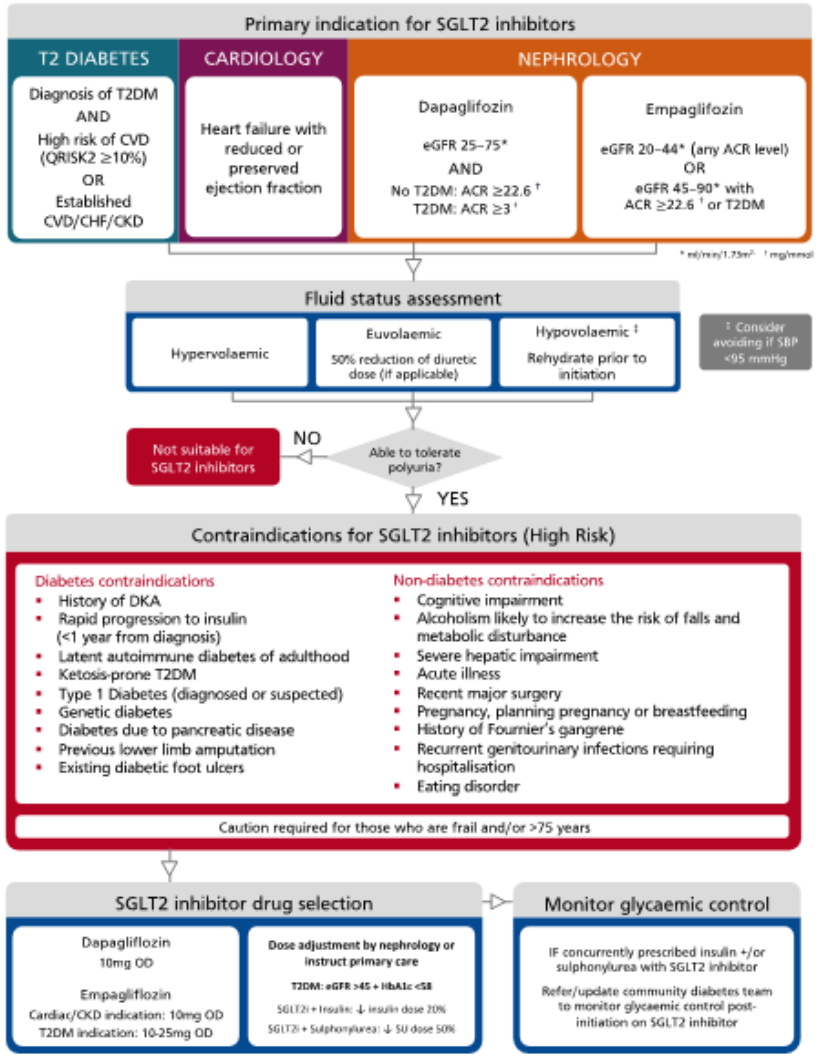
- it is an add-on to optimised standard care including the highest tolerated licensed dose of angiotensin-converting enzyme (ACE) inhibitors or angiotensin-receptor blockers (ARBs), unless these are contraindicated, and
- people have an estimated glomerular filtration rate (eGFR) of 25 ml/min/1.73 m^2 to 75 ml/min/1.73 m^2 at the start of treatment and:
  - have type 2 diabetes or
  - have a urine albumin-to-creatinine ratio (uACR) of 22.6 mg/mmol or more.

SGLT2i Summary

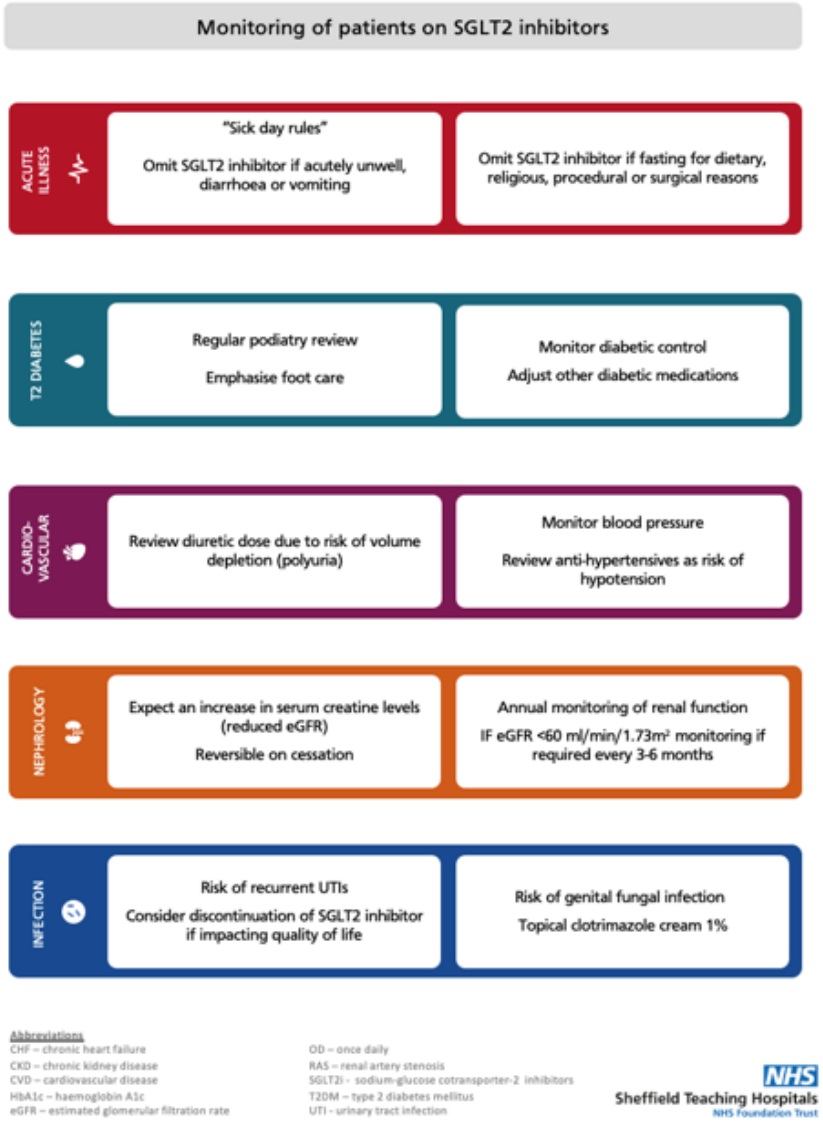
2 Summary and Guideline

2.1 Flowchart

Stepwise Multi-speciality Outpatient Approach to the Prescription of SGLT2 inhibitors



Stepwise Multi-speciality Outpatient Approach to Prescription of SGLT2 inhibitors

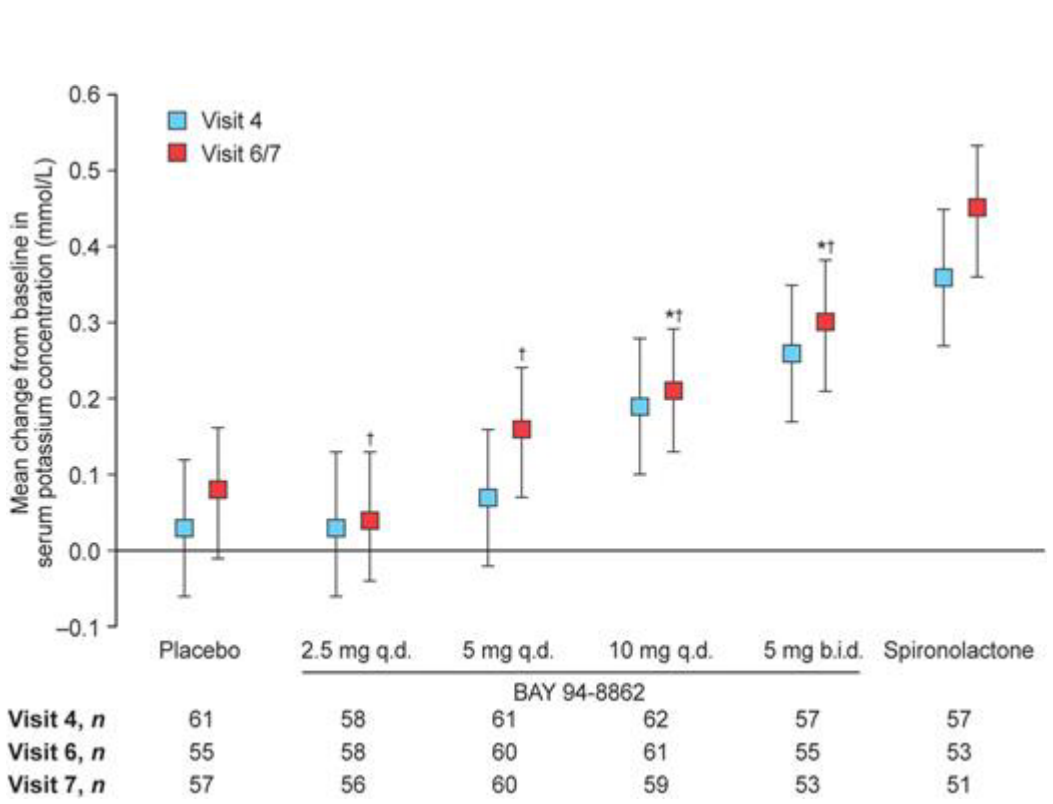


Credit: Dr Matthew Gittus

Finerenone

The New Kid on the Block

What is it?



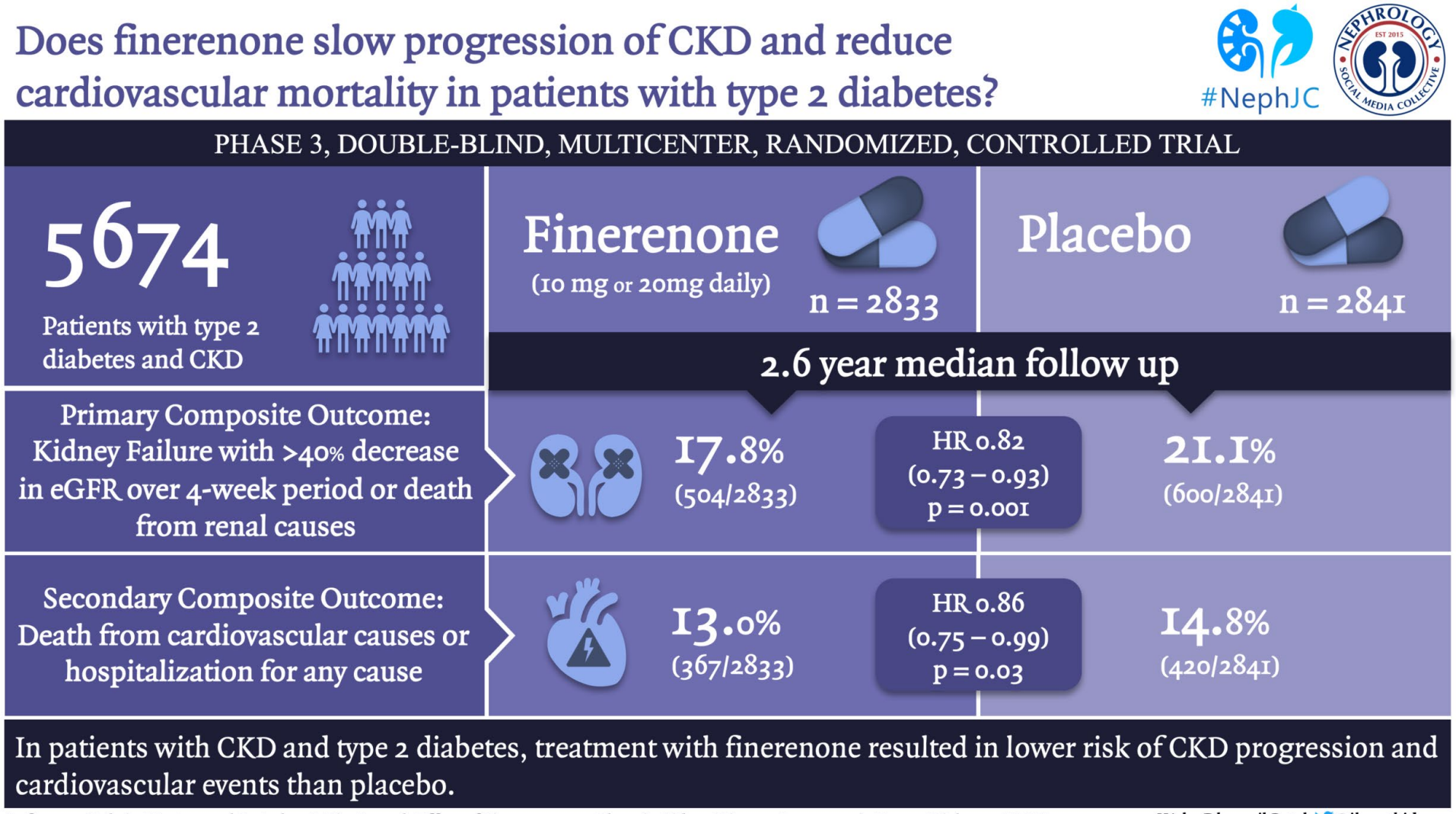
Visit 4, *n*	61	58	61	62	57	57
Visit 6, *n*	55	58	60	61	55	53
Visit 7, *n*	57	56	60	59	53	51

- Non-steroidal MRA
- Main concern with steroidal MRA is hyperkalaemia
- Finerenone more potently blocks MR than spironolactone and eplerenone
- For the same benefit in reducing BNP, albuminuria, causes lower incidence of hyperkalaemia

Pitt, B., Kober, L., Ponikowski, P., Gheorghiade, M., Filippatos, G., Krum, H., Nowack, C., Kolkhof, P., Kim, S. Y., & Zannad, F. (2013). Safety and tolerability of the novel non-steroidal mineralocorticoid receptor antagonist BAY 94-8862 in patients with chronic heart failure and mild or moderate chronic kidney disease: a randomized, double-blind trial. *European Heart Journal*, *34*(31), 2453–2463. https://doi.org/10.1093/EURHEARTJ/EHT187

Kolkhof, P., & Bärfacker, L. (2017). 30 YEARS OF THE MINERALOCORTICOID RECEPTOR: Mineralocorticoid receptor antagonists: 60 years of research and development. *Journal of Endocrinology*, *234*(1), T125–T140. https://doi.org/10.1530/JOE-16-0600

Finerenone outcomes



NICE Finerenone

1.1 Finerenone is recommended as an option for treating stage 3 and 4 chronic kidney disease (with albuminuria) associated with type 2 diabetes in adults. It is recommended only if:

- it is an add-on to optimised standard care; this should include, unless they are unsuitable, the highest tolerated licensed doses of:
  - angiotensin-converting enzyme (ACE) inhibitors or angiotensin-receptor blockers (ARBs) and
  - sodium–glucose cotransporter-2 (SGLT2) inhibitors and
- the person has an estimated glomerular filtration rate (eGFR) of 25 ml/min/1.73 m^2 or more.

		Current Finerenone dose	
		10mg	20mg
Current Serum Potassium	≤4.8mmol/L	Increase to 20mg once daily	Continue 20mg once daily
	>4.8-5.5mmol/L	Continue 10mg once daily	Continue 20mg once daily
	>5.5mmol/L	Withhold. Consider to Re-start at 10 mg once daily when serum potassium ≤ 5.0 mmol/L.	Withhold. Consider to re-start at 10 mg once daily when serum potassium ≤ 5.0 mmol/L.

BEST CKD Pathway

CKD Testing and Diagnosis (Simplified - NICE guidelines NG203)-DRAFT

using **eGFR** -creatinine (blood) **AND** Albumin: Creatine Ratio **ACR** (urine)

SELECT CKD monitoring (KRFE) box on ICE

increased ACR is associated with increased risk of adverse outcomes
decreased GFR is associated with increased risk of adverse outcomes
increased ACR and decreased GFR in combination multiply the risk of adverse outcomes.

Offer annual CKD monitoring -to risk factor patients:

- AKI- up to 3 yrs post AKI/ Connective tissue disease /CVD /Diabetic/ Gout/ Haematuria / Hypertension/ Proteinuria/ Prostatic hypertrophy /renal disease or FHx of Renal disease
- Patient on nephrotoxic drugs eg. Lithium, NSAIDS, ACE, ARB, Cyclosporine, Tacrolimus
- Children with AKI. Solitary functioning kidney

Test eGFR
- No meat 12 hrs before test
- If eGFR <60 as NEW finding
THEN repeat within 2 weeks to exclude AKI
- otherwise if eGFR <60
then Repeat in 3 months before diagnosing CKD

Test for proteinuria using ACR
- early morning urine sample (ideally)
- if eGFR < 60, diabetic or suspicion of CKD
- if ACR between 3-70mg/mmol- repeat on early morning urine sample
- if ACR> 70 mg/mmol – no need to repeat

Results of eGFR and ACR after 3 months

eGFR≥60 and ACR<3

Do NOT Diagnose CKD
test eGFR annually if at risk

eGFR<59 (regardless of ACR)

Diagnose CKD
*Classify, investigate, manage
BUT remember to only make diagnosis after at least **two eGFR readings** at least **two months** apart

ACR ≥3 (regardless of eGFR)

If ACR≥ 3
-check urine dipstick for **haematuria**
- If ≥+1 evaluate further
- do not use microscopy to confirm +ve result

SELECT CKD monitoring (KRFE) box on ICE

Stages of CKD and frequency of further Testing

Stage	eGFR (ml/min/1.73m2)	Description	e-GFR testing		Proteinuria annually	FBC	Ca, PO4	Vit D
			ACR<30	ACR>30				
1	≥ 90	Normal or increased GFR -with other evidence of kidney damage	12 monthly		√	x	x	x
2	60-89	Slight decrease in GFR - with other evidence of kidney damage			√	x	x	x
3A	45-59	Moderate decrease in GFR - With or without other evidence of kidney damage	12 monthly	6 monthly	√	x	x	x
3B	30-44		6 monthly		√	FBC Target Hb10.5 -12.5	Ca, PO4	x
4	15-29	Severe decrease in GFR -With or without other evidence of kidney damage	6 monthly	4 monthly •	√			Vit D and may be PTH offer ergocalciferol if vit D reduced
5	<15	Established renal failure	3 monthly		√			

Progressive CKD Criteria
- need three eGFR spread over at least 3 months
- Fall in eGFR of 25% AND change in eGFR category in 12 months
- OR sustained fall in eGFR of 15ml/min/yr.

Risk Factors associated with CKD Progression

AKI- previous episodes, African, African-Caribbean, Asian , CVD, diabetes, hypertension, NSAIDs – chronic use, proteinuria, smoking, urinary outflow obstruction- if chronic an untreated

CKD and Anaemia (Hb < 110g/l)
- if eGFR > 60ml/min consider/investigate other causes of anaemia other than CKD
- if eGFR 30-60ml/min CKD possible cause, still exclude other cause of anaemia
- if e-GFR < 30ml/min CKD most likely cause of anaemia

- **DO NOT** use transferrin saturation/ ferritin alone to assess iron deficiency status in CKD
- if Iron treatment given, ferritin should not rise > 500 mcg/l

BP Targets – (see Hypertension pathway)
- <140/90 if CKD and ACR <70 mg/mmol
- <130/80 if CKD and ACR >70 mg/mmol Type 1 diabetic
- if ACR> 30mg/mmol- offer ACE inhibitors or Angiotensin-receptor blocker (ARB)
-if ACR >3 mg/mmol AND patient Type 1/ Type 2 Diabetes -offer ACE /ARB

- ACE inhibitors- check U+E 7-10 days post / stop when ill/ stop if K +>6 or Cr rise >30 %.

- **Ultrasound** – consider if eGFR <30 ml/min, LUTS, FHx polycystic kidney/ accelerated progress of CKD
- **Statins** for all CKD patients (cannot use QRISK)
- **Antiplatelet meds** – offer for secondary prevention of CVD- be aware of increased risk of bleeding

- **SGLT2 inhibitors** – Empagliflozin / Dapagliflozin
SGLT2i can be started in primary care - but worth noting that empagliflozin also now NICE approved and has slightly broader reach than Dapagliflozin
- -it is an add-on to optimised standard care including the highest tolerated licensed dose of angiotensin-converting enzyme (ACE) inhibitors or angiotensin-receptor blockers (ARBs), unless these are contraindicated AND
- for empagliflozin use in CKD- Check TA942 in NICE Guidelines
https://www.nice.org.uk/guidance/ta942/chapter/1-Recommendations
- Check TA775 for dapagliflozin use in CKD - Check TA775 in NICE Guidelines
https://www.nice.org.uk/guidance/ta775/chapter/1-Recommendations

Referral Criteria to Secondary Care

- Advanced – **CKD 4/5**. However many elderlies with **stable CKD 4 do not need referral.**
- A **5-year risk of needing renal replacement therapy of greater than 5%**
(measure using the 4-Variable Kidney Failure Risk Equation)
The Kidney Failure Risk Equation
- Deteriorating and heavy proteinuria (**ACR>70 and not due to diabetes**)
- **ACR>30 mg/mmol + hematuria**
- Sustained **decrease in GFR of 25% or more**, and a change in GFR category
- Sustained **Rapidly declining eGFR of 15ml/min or more/ year**.
- Consider Referral if **resistant hypertension** – despite four antihypertensive.
- Known / suspected rare or **genetic cause of CKD**.
- Suspected **renal artery stenosis**.
- Refer patients with CKD and **renal outflow obstruction** to urology services.
- Consider **discussing management with a specialist via** Advice & Guidance in ERS if there are concerns but the person with CKD does not need to see a specialist.

Main message : SELECT CKD monitoring (KRFE) box on ICE
24/2/2024

Credits: Dr Sabiha Atcha

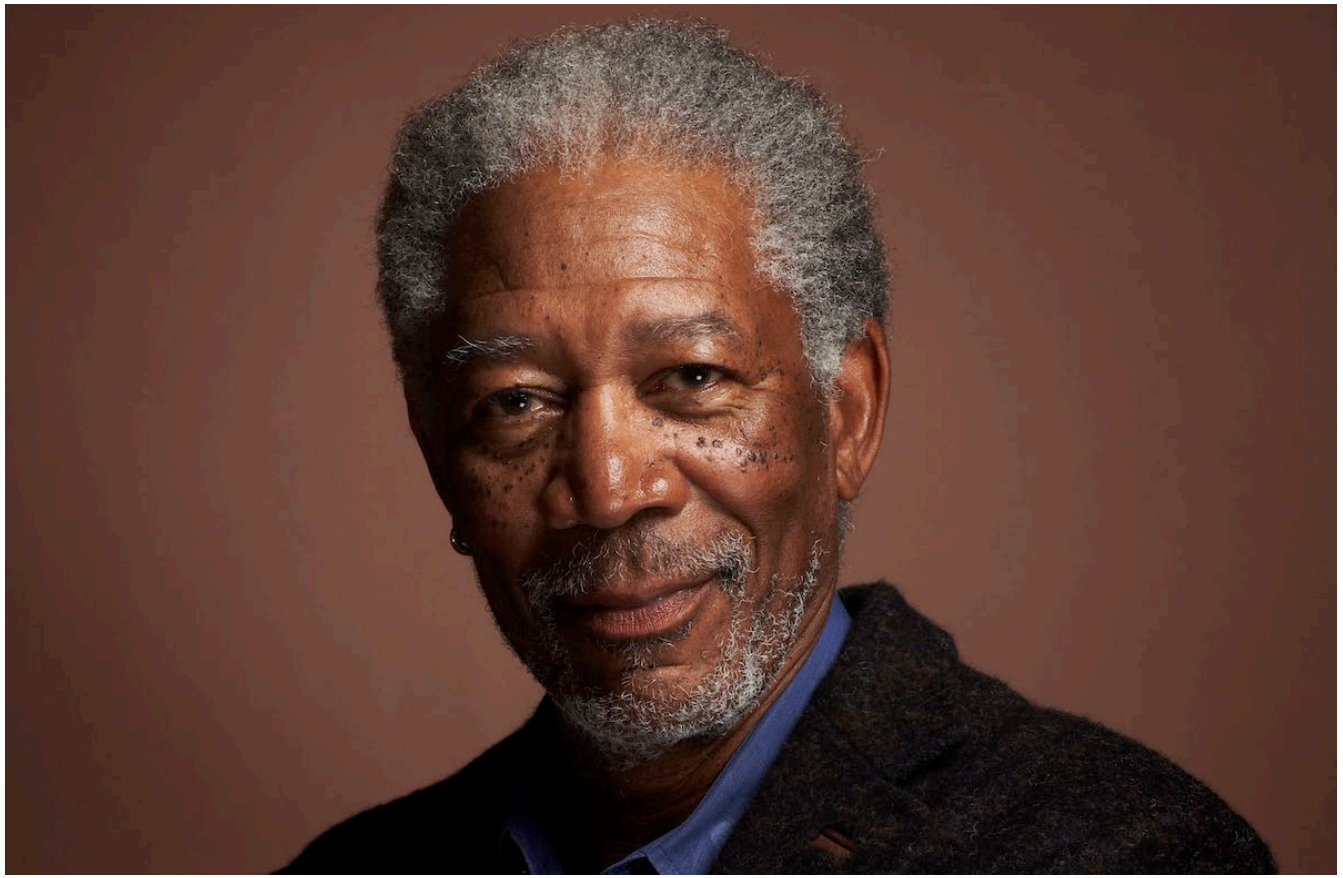
Available via BEST website: https//best.barnsleyccg.nhs.uk

CKD Cases

A little bit of fun!

Case 1

- 85 year old Morgan Freeman
- BG:
  - Obstructive Uropathy
  - Hypertension
  - LVSD – EF 30%
  - OA
  - Frail
- Current eGFR 26ml/min



Case 1

- Background of AKI in 2015 due to obstruction – had a TURP
- Kidney function recovered to eGFR 28ml/min then
- Hb 120
- BP 126/70

Case 1

- Prescribed drugs:
  - Bisoprolol 5mg OD
  - Ramipril 5mg OD
  - Atorvastatin 20mg OD
  - Aspirin 75mg OD
  - Tamsulosin 400 micrograms OD
  - Co-codamol 8/500 2 tabs QDS
  - Furosemide 40mg OD

- No OTC NSAID use

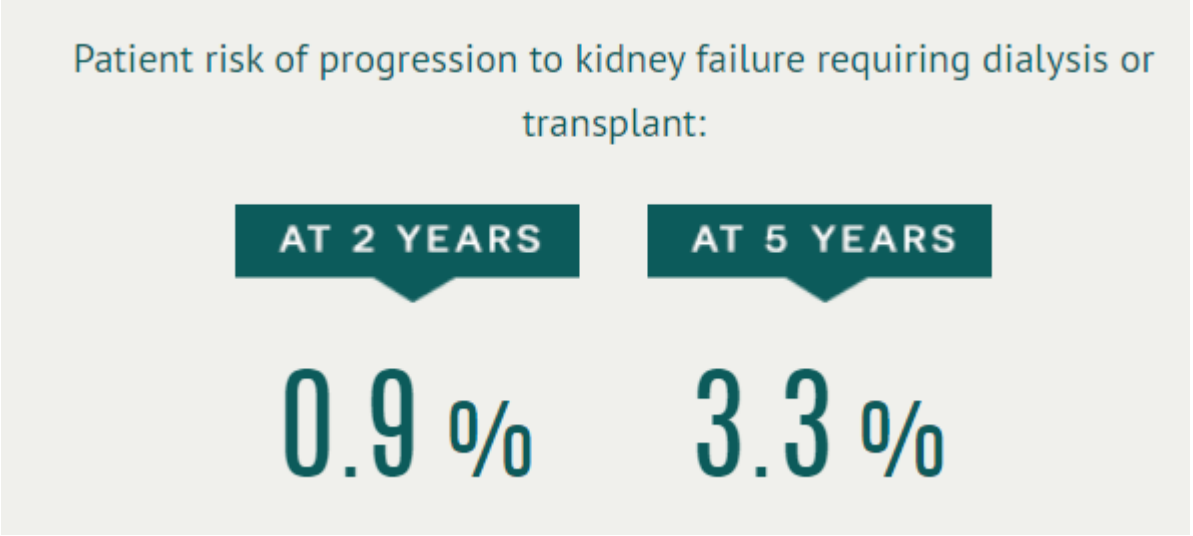
Case 1

- What next?

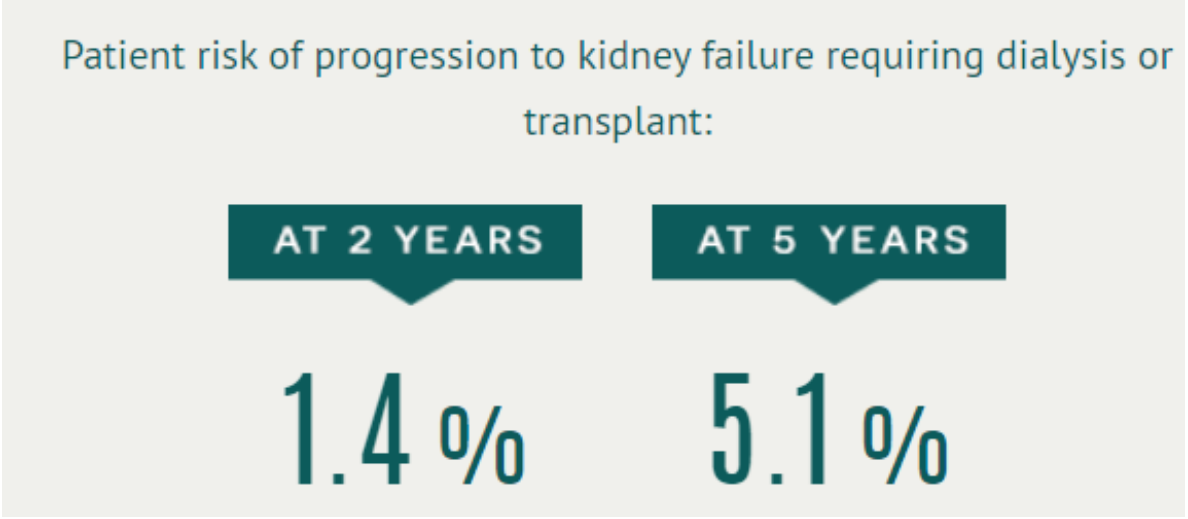
- Urine dipstick: 1+ blood, –ve protein
- Urine ACR: 1.4mg/mmol
- US abdomen: 2 x 9.6cm kidneys, thin cortices, 2 simple cysts on right kidney, 1 on left. No ongoing obstruction

Case 1

- Refer?
- Remember ACR can vary with time – best to check early morning sample to minimise risk of dilute sample
- Consider competing risks



If uACR 3.8mg/mmol



Case 2

- 36 year old Rebecca Ferguson
- Type 2 diabetes
- Laser treatment in right eye

- eGFR 46ml/min
- HbA1c 67mmol/mol (previously 70-80 for years)
- BP 138/88

Case 2

- Current medications:
  - Tresiba OD
  - Novorapid TDS
  - Metformin 1g BD
  - Ramipril 5mg OD
  - Amlodipine 10mg OD
  - Atorvastatin 20mg OD

Case 2

- What next?

- ACR 158mg/mmol
- No blood
- Albumin 38

- ?Ultrasound

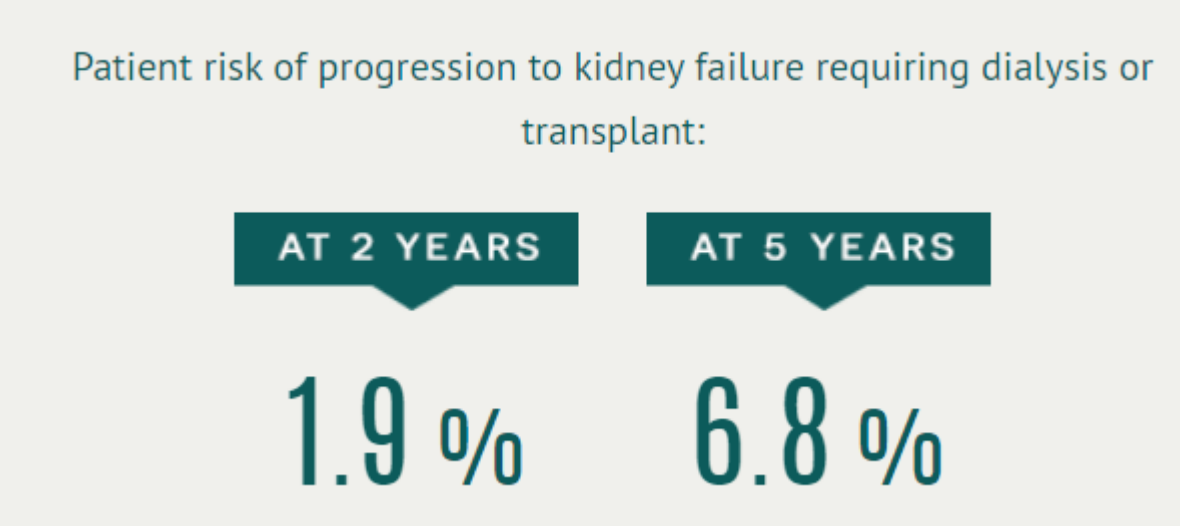
Indications for renal ultrasound in adults

1.2.5 Offer a renal ultrasound scan to all adults with CKD who:

- have accelerated progression of CKD (see recommendation 1.3.5)
- have visible or persistent invisible haematuria
- have symptoms of urinary tract obstruction
- have a family history of polycystic kidney disease and are older than 20
- have a GFR of less than 30 ml/min/1.73 m^2 (GFR category G4 or G5)
- are considered by a nephrologist to need a renal biopsy. **[2008, amended 2014]**

Case 2

- Refer?



- Things to do while waiting for appointment?
  - Maximise ACEi
  - Start SGLT2i while waiting for appointment
- Be aware, both of these cause a slight decline in KF, but confer longer term reno-protection

Case 3

- 74 year old Meryl Streep
- BG:
  - Hypertension
  - Smoker
  - BMI 34
- BP 158/92

- eGFR 45ml/min (Creat 108umol/L)
- 2 years ago eGFR 55ml/min (Creat 92umol/L)

Case 3

- Current medications:
  - Amlodipine 10mg OD
  - Bendroflumathiazide 2.5mg OD

- Not taking NSAIDs

Case 3

- What next?

- Urine dipstick – Blood 2+ Protein 1+ Leuk 2+
- Urine ACR – 20mg/mmol

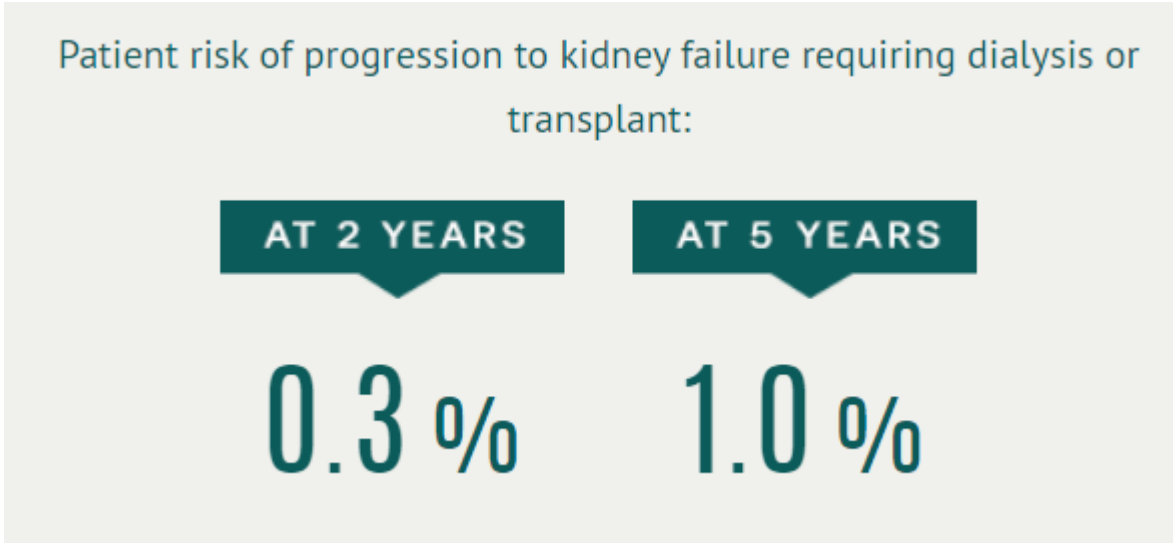
- MSU – negative

- Ultrasound: Both kidneys 10.5cm

Case 3

- Refer?

- Repeat urine dip after 6 weeks:
  - Blood 1+ Protein 1+ Leuk 2+
  - Urine ACR 10mg/mmol
  - MSU –ve
- Repeat urine dip after 6 more weeks
  - Bloods 2+ Protein 1+ Leuk 2+
  - Urine ACR 13mg/mmol
  - MSU -ve



UROLOGY!

Case 3

- What else?
- Lifestyle: Advise weight loss, exercise, stopping smoking
- Start ACEi for BP management
- Start atorvastatin 20mg OD
- Consider Empagliflozin when eGFR <45ml/min

NICE's guideline on hypertension in adults recommends using clinic blood pressure for monitoring response to lifestyle changes or medical treatment (see recommendation 1.4.15).

1.6.1 In adults with CKD and an ACR under 70 mg/mmol, aim for a clinic systolic blood pressure below 140 mmHg (target range 120 to 139 mmHg) and a clinic diastolic blood pressure below 90 mmHg. **[2021]**

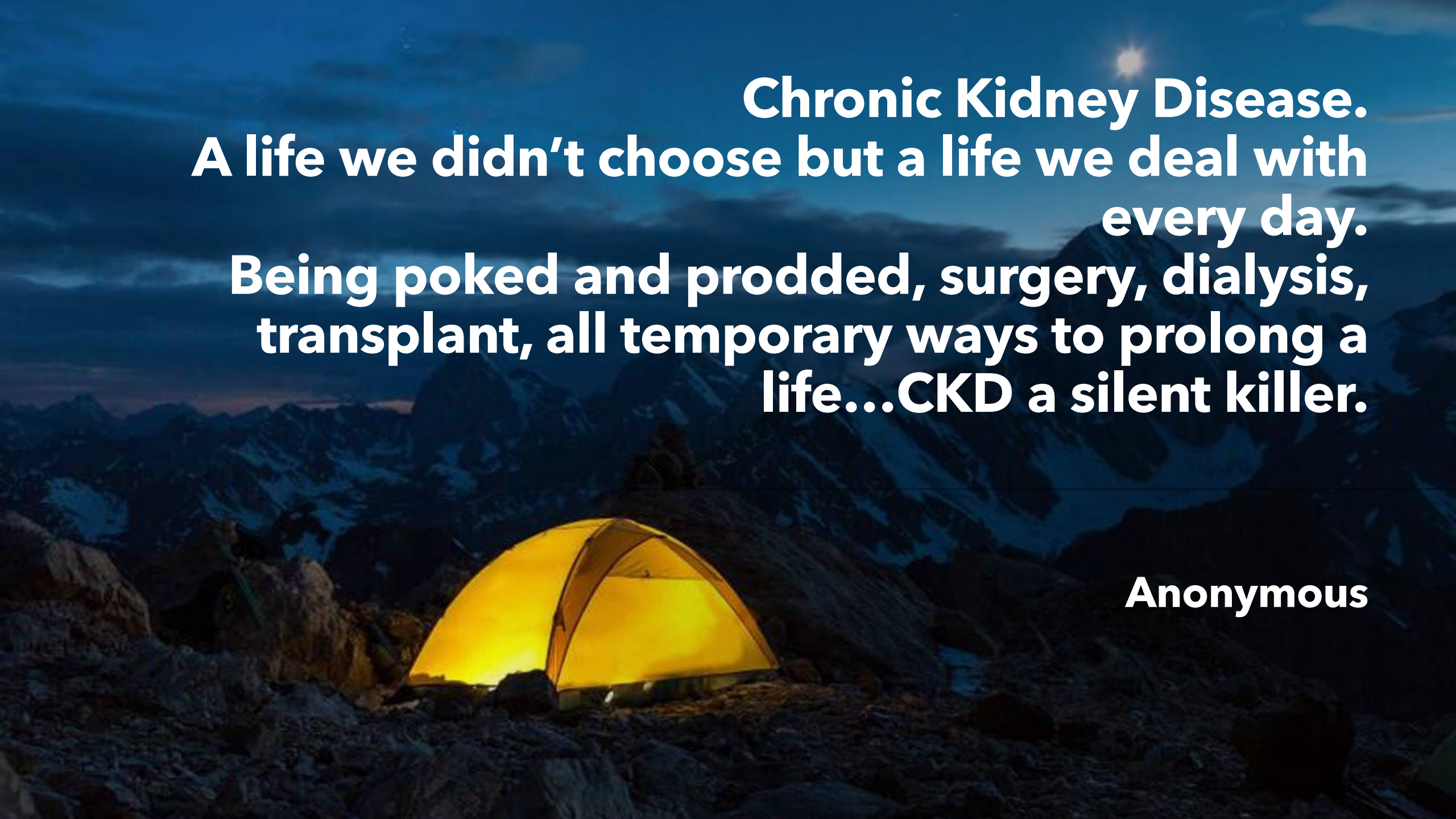
1.6.2 In adults with CKD and an ACR of 70 mg/mmol or more, aim for a clinic systolic blood pressure below 130 mmHg (target range 120 to 129 mmHg) and a clinic diastolic blood pressure below 80 mmHg. **[2021]**

1.1.9 Do not use a risk assessment tool for people who are at high risk of CVD, including people with:

- type 1 diabetes (see the section on primary prevention of CVD for people with type 1 diabetes)
- an estimated glomerular filtration rate less than 60 ml per minute per 1.73 m^2 and/or albuminuria (see the section on primary and secondary prevention of CVD for people with chronic kidney disease [CKD])

1.8.1 Offer atorvastatin 20 mg for the primary or secondary prevention of CVD to people with CKD. **[May 2023]**

1.8.2 If the lipid target for primary or secondary prevention of CVD (see recommendation 1.6.1 and recommendation 1.7.1) is not met and eGFR is 30 ml per minute per 1.73 m^2 or more, increase the dose of atorvastatin. **[May 2023, amended December 2023]**


Chronic Kidney Disease.
A life we didn't choose but a life we deal with every day.
Being poked and prodded, surgery, dialysis, transplant, all temporary ways to prolong a life...CKD a silent killer.
Anonymous

Dr Shailesh Agarwal

Shailesh.agarwal1@nhs.net

Thank you