

West Yorkshire Minuteful Kidney & Hypertension Project

10th October 2024 – 12:30-1:30pm

The webinar will begin shortly



YORKSHIRE & HUMBER
Kidney Network

West Yorkshire
Health and Care Partnership



Acknowledgements

- Dr Sunil Daga, Consultant Nephrologist, Leeds Teaching Hospitals NHS Trust | WY Health Equity fellow | WY ICS CKD Lead | YH Renal Network
- Professor Raj Thakkar, President and CKD lead, Primary Care Cardiovascular Society | UK Clinical Director, Healthy.IO
- Dr Waqas Tahir, WYICB Clinical Lead Diabetes | GP Bradford Place
- Emily Turner, WYICB Clinical Lead CVD Prevention | Pharmacist Leeds Place
- Damian O'Boyle, Director of Client and Clinical Services, Healthy.IO
- Adam Marshal, Programme Manager, Healthy.IO
- Sarah DeBiase, Senior Programme Manager, West Yorkshire ICB
- Dannii Robinson, Project Support Officer, YHKN



Housekeeping

To assist in the management of the webinar, please note the points below on virtual meeting etiquette:



Please keep your microphone on mute unless you are asking a question to ensure there is no background noise during presentations



To help minimise bandwidth issues and any lag in information shared during the webinar, please turn your camera off during the presentation element of the webinar



Please do take the opportunity to ask questions via the chat box



If you wish to ask a question, **please wait until Q&A at end** (post questions in chat as we go)



If you have any technical issues, please leave and join again using the link provided in the invitation



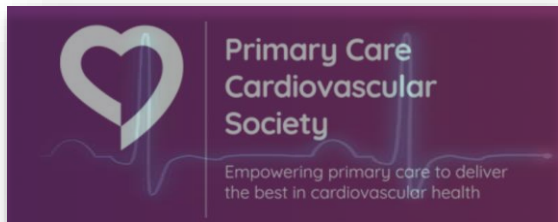
This session will be recorded and shared



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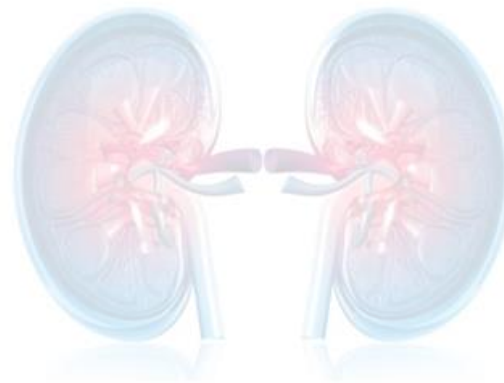


CKD 2024 update

Prof. Raj Thakkar

GP
President and CKD lead, Primary Care Cardiovascular Society
Honorary Visiting Professor, Cardiff University Medical School
Primary care cardiology lead, Oxford and Thames Valley Health Innovation Network
Observing board member, British Society of Heart Failure
Member, National Expert advisory groups for lipids, heart attack and HF, NHSE
National primary care workstream co-lead - cardiac transformation programme, NHSE
UK Clinical Director, Healthy.io
Head of Medical External Engagement and Innovation, AstraZeneca
Industry consultant

MIMS 9.45-10.30



Declarations and disclaimer

The speaker has received honoraria from:

Abbott | Amarin | Amgen | AstraZeneca | Bayer | Boehringer Ingelheim | Diaachi Sankyo | Edwards | Medtronic | Novartis | Omron

The speaker is currently employed by AstraZeneca as:

Head of Medical External Engagement and Innovation

The speaker is currently employed by Healthy.io as:

UK Medical Director

Disclaimer:

The information provided in this presentation is for educational purposes only. Prescribing or management decisions made by clinicians are exclusively their own responsibility. The speaker/PCCS bear no responsibility regarding management or prescribing decisions made by others, or otherwise.

Talking points

CKD in context

What is CKD and how to diagnose it

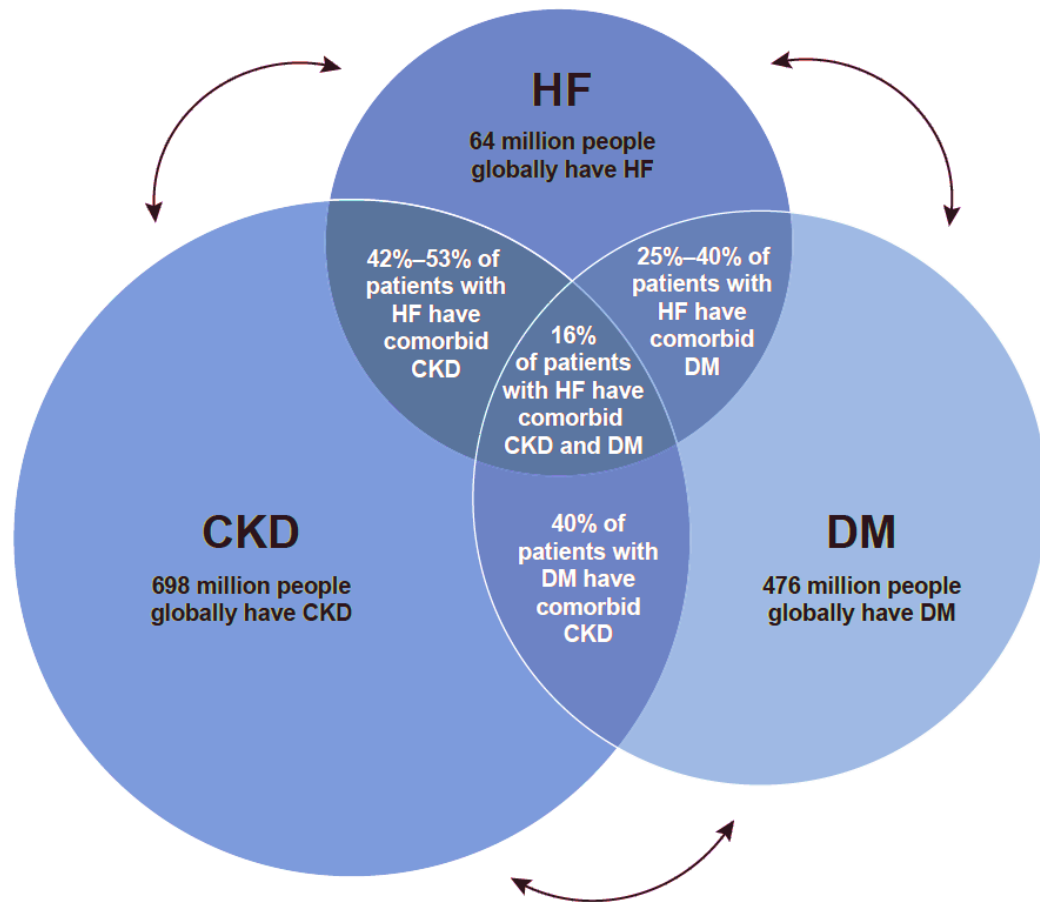
The cardiovascular consequences of CKD

New study: GLP-1s and CKD

Opportunities to improve outcomes



Heart Failure in Patients with Diabetes and Chronic Kidney Disease: Challenges and Opportunities



Review Article

Cardiorenal Med 2022;12:1–10
DOI: 10.1159/000520909

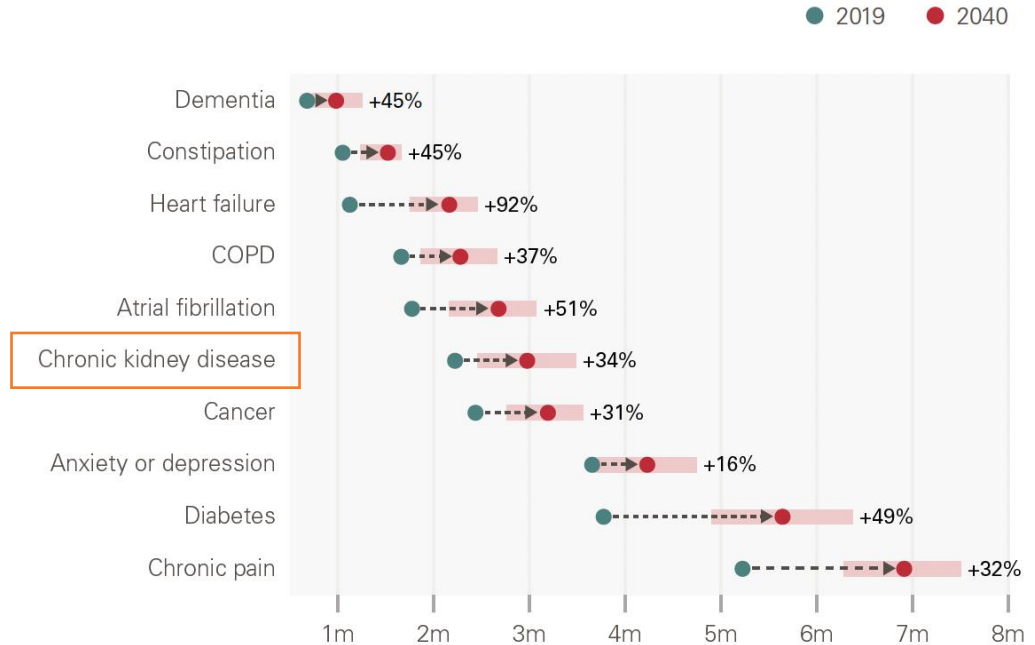
Received: May 17, 2021
Accepted: November 6, 2021
Published online: November 19, 2021



Figure E3: Projected total number of diagnosed cases for the 10 conditions with the highest impact on health care use and mortality among those aged 30 years and older, including demographic changes, England, 2019 and projected for 2040

England in 2040

- 2.5 million more LTCs from 2019 (increase of 37%)
- Only 4% increase in people contributing to the economy

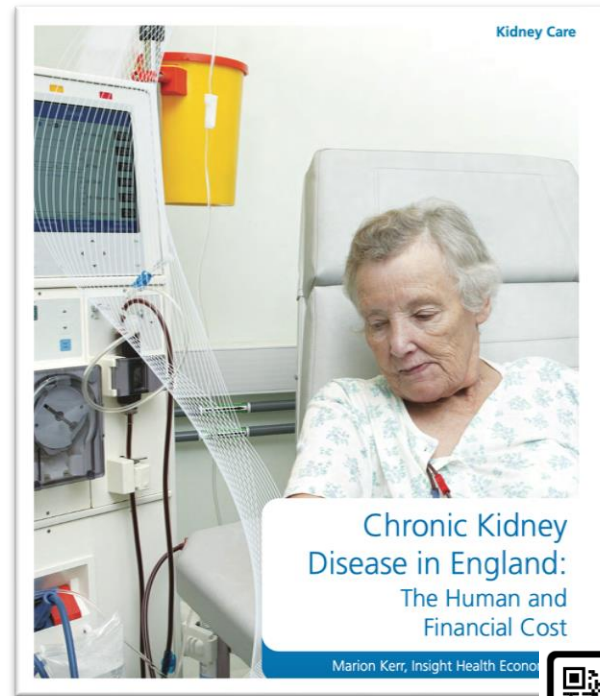


Source: Analysis of linked health care records and mortality data conducted by the REAL Centre and the University of Liverpool.

Note: Red shaded bars represent uncertainty intervals. COPD is chronic obstructive pulmonary disease.

Health economics of CKD:

- **There were an estimated 7,000 extra strokes and 12,000 extra myocardial infarctions in people with CKD in 2009–2010**, relative to the expected number in people of the same age and sex without CKD. The cost to the NHS of health care related to these strokes and MIs is estimated at £174–178 million.
- **People with CKD have longer hospital stays** than people of the same age without the condition, even when they go into hospital for treatments unrelated to CKD. We estimate that the average length of stay is 35% longer for people with CKD, and that the cost to the NHS of excess hospital bed days for patients with CKD was £46 million in 2009–10.
- **NHS England spent an estimated £1.45 billion on CKD in 2009–10**: equivalent to £1 in every £77 of NHS expenditure. This spending estimate covers both treatment directly associated with CKD (renal care and prescribing to prevent disease progression), and also treatment for excess non-renal problems such as strokes, heart attacks and infections in people with CKD.



Health economics of CKD:

1 In the UK, there are approximately 3.25 million people living with chronic kidney disease (CKD) stages 3-5. A further 3.9 million people are estimated to have CKD stages 1-2. Together reaching a total of 7.2 million – more than 10% of the entire population.



Key Findings

2 By 2033, the number of people with CKD stages 3-5 is projected to reach 3.9 million. This is mainly driven by an ageing population, as well as risk factors such as diabetes, hypertension and cardiovascular disease and other important factors such as health and economic inequalities.



1 In the UK, there are approximately 3.25 million people living with chronic kidney disease (CKD) stages 3-5. A further 3.9 million people are estimated to have CKD stages 1-2. Together reaching a total of 7.2 million – more than 10% of the entire population.



3 Around 615,000 episodes of acute kidney injury occur each year; mainly among people who are already unwell or hospitalised for another reason.



4 A total of 30,000 adults and children are on dialysis due to kidney failure and lose at least 12 hours per week of work and leisure time (dialysing three sessions a week, 4 hours per session). The number of patients requiring dialysis could rise to 143,000, while the demand for transplantation could be as high as 12,000 per year by 2033.



5 Dialysis is a key driver of the economic burden of kidney disease, estimated to cost the NHS £34,000 per year per patient in 2023 – more than three times the annual value of a state pension.



6 The total annual economic burden of kidney disease in the UK is £7.0 billion, with £6.4 billion being direct costs to the NHS – about 3.2% of NHS budgets.



7 People living with CKD and those who support them experience a dramatic impact in their daily lives, with £372 million in productivity loss to the UK economy annually from missed work due to dialysis alone. This could rise to £2.0 billion by 2033.



8 Kidney disease is currently the tenth biggest killer worldwide and is projected to be the fifth highest cause of life years lost by 2040.

10 Modelling suggests that improved implementation of four illustrative kidney-related healthcare interventions alone could save more than 10,000 lives between 2023 and 2033 in the UK and would be cost effective.



9 Despite the large and rapidly growing burden of kidney disease, it received only 1.4% of relevant public healthcare research funding – just £17.7 million – in financial year 2021/2022.



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Remember, SGLT2i's delay dialysis by circa 13 years

KRUK, 2023: The health economics of kidney disease to 2033.

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For every 100 patients with moderate to severe Chronic Kidney Disease:



unplanned hospital admissions **per year**



events of acute kidney injury **per year**



admissions to the Intensive Care Unit **per year**



deaths **per year**



What is Chronic Kidney Disease?

“The presence of kidney damage, mainly albuminuria

and/or

decreased kidney function (estimated glomerular filtration rate [eGFR] <60 mL/min/1.73m²)

for at least 3 months”¹

KDIGO 2024²:

1. Estimating GFR from creatinine and cystatin C (eGFR_{cr-cys}) improves accuracy.
2. Recognised variability of GFR and urinary albumin
3. POCT valuable in underserved communities

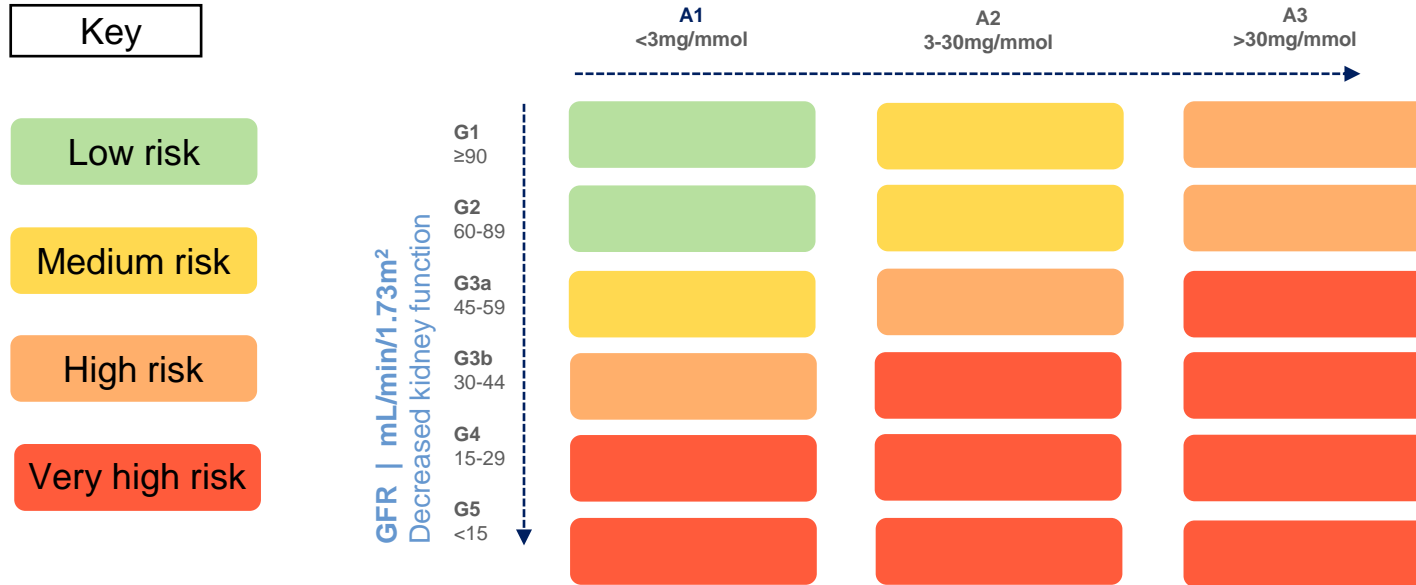
1. Levey AS and Coresh J. Lancet 2012;379:165-180; 2. KDIGO 2022 Clinical Practice Guideline for Diabetes Management in Chronic Kidney Disease. Kidney International Supplements 2022;102(5S):S1-S127.

2. Levin et al., Kidney International (2024) 105, 684–701, Executive summary of the KDIGO 2024 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease: known knowns and known unknowns

Diagnosing and Classifying CKD [NICE NG203, 2021]:

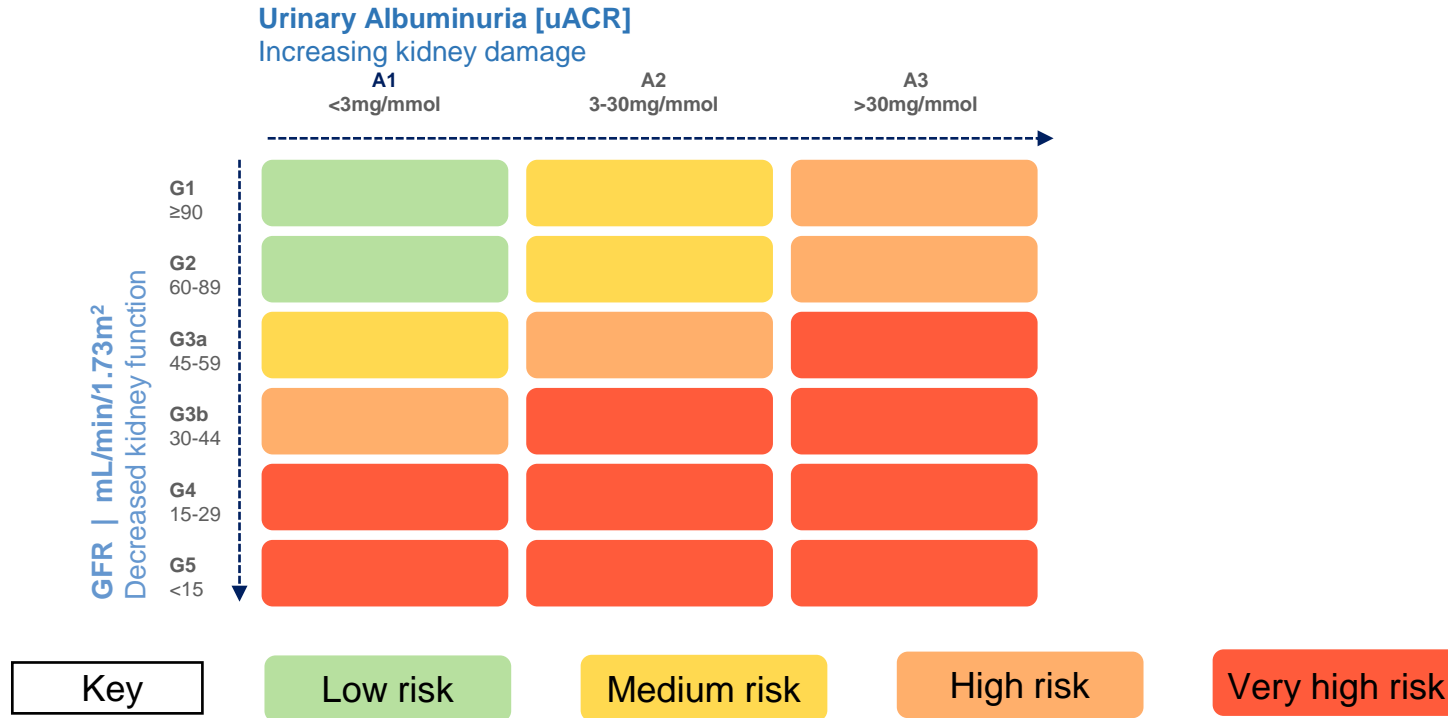
Requires **both** blood testing [eGFR] and urine testing [ACR] to investigate patients for CKD

Urinary Albuminuria [uACR]
Increasing kidney damage



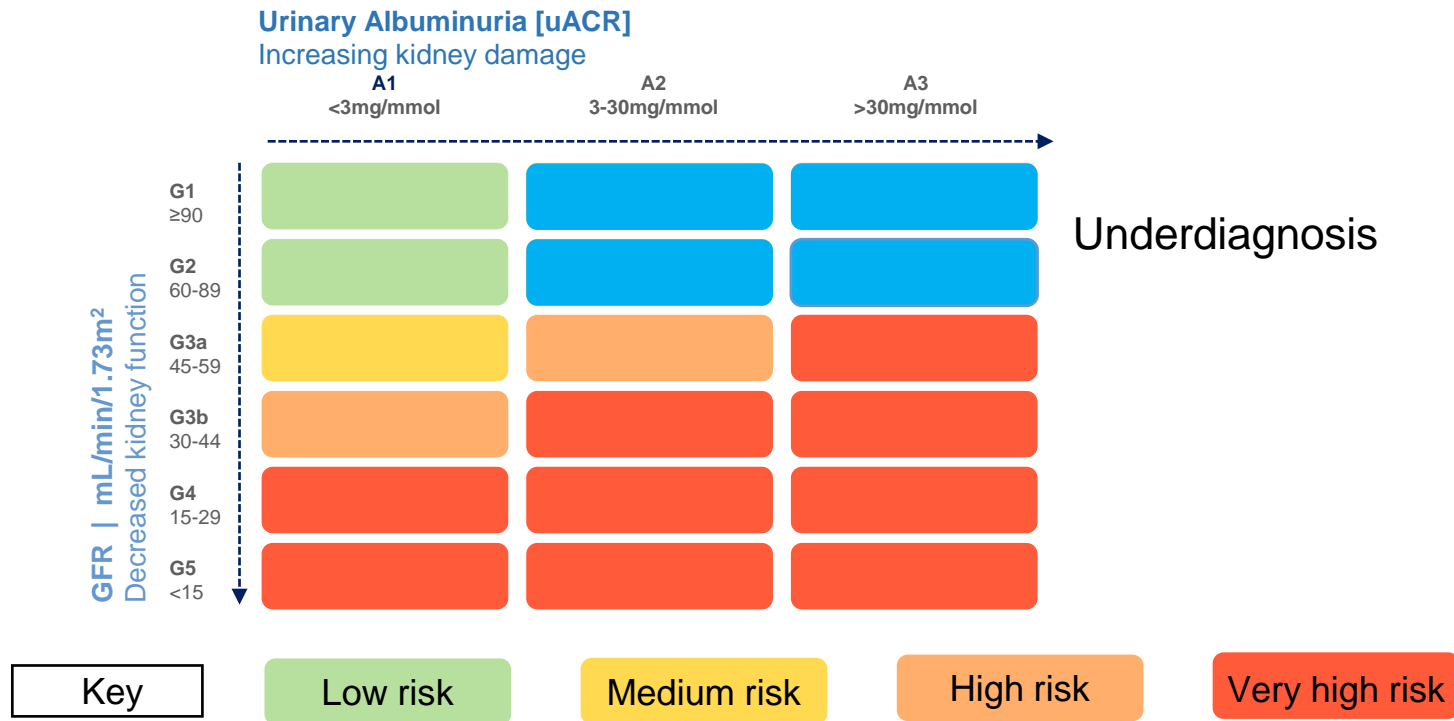
- CKD, chronic kidney disease; CVD, cardiovascular disease; GFR, glomerular filtration rate; uACR, urine albumin-to-creatinine ratio.
- Adapted from NICE Guidelines NG203 2021 <https://www.nice.org.uk/guidance/ng203>; Adapted from KDIGO 2022 Clinical Practice Guideline for Diabetes Management in Chronic Kidney Disease. Kidney International Supplements 2022;102(5S):S1-S127.

What happens if we don't check the urine ACR?



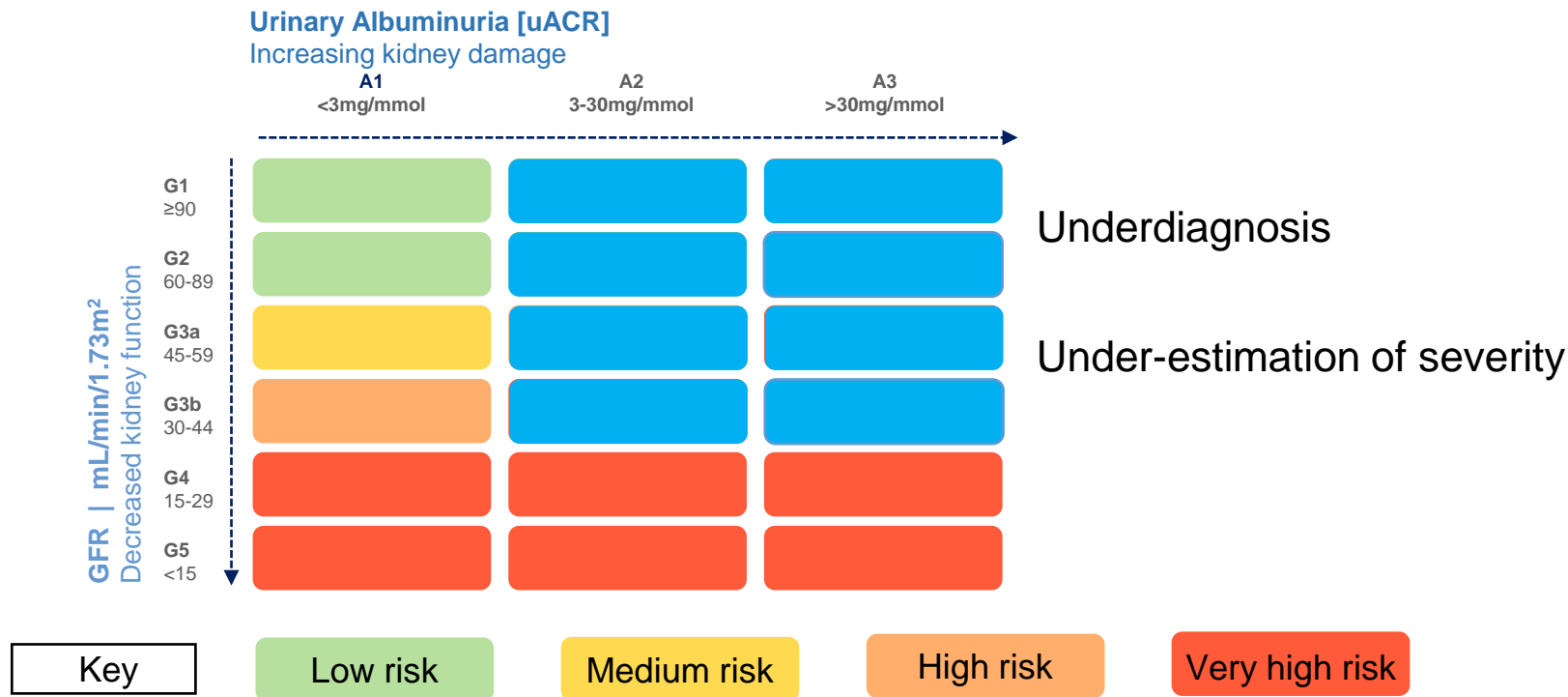
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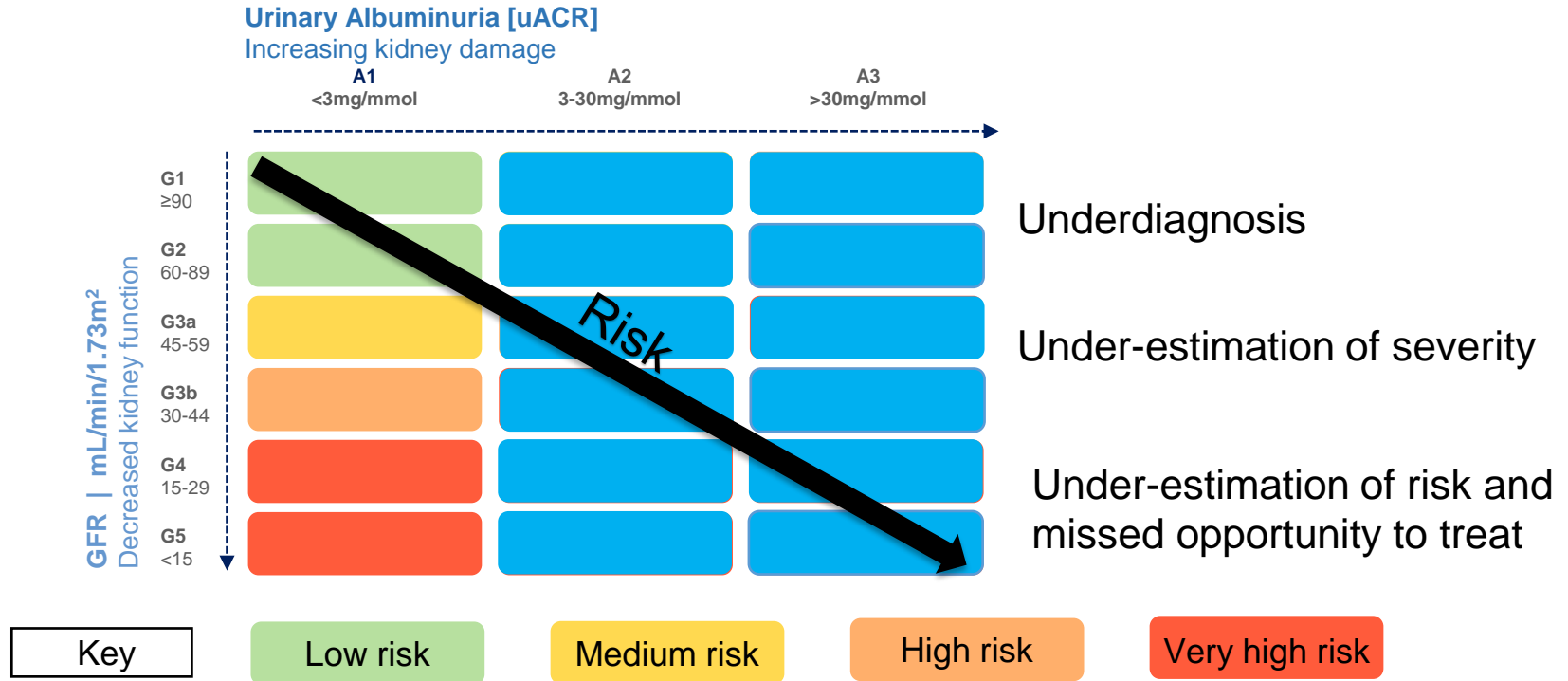
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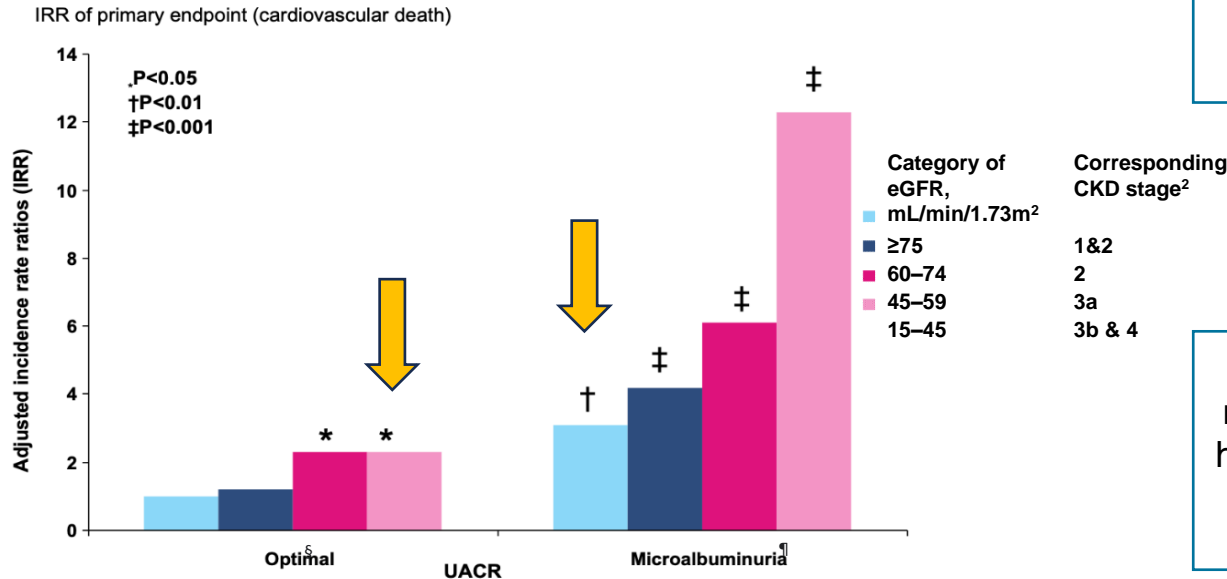


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Risk is intensified with microalbuminuria

Cardiovascular death is more common in Albuminuria and reduced GFR

eGFR, uACR and cardiovascular death* were assessed in 9709 participants from a Norwegian community-based health study



Microalbuminuria with eGFR >75 mL/min/1.73m² is associated with higher risk of cardiovascular death than CKD Stage 3b/4 without albuminuria

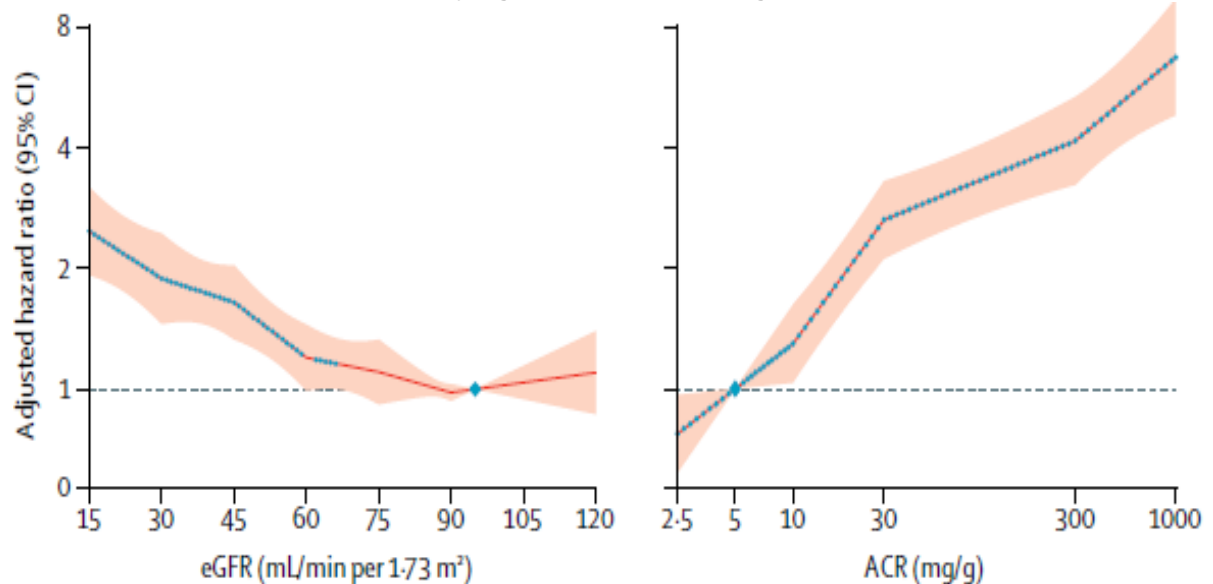
*Defined as death certificates with ICD-10 codes: hypertensive disease (I10–I15), ischaemic heart disease (I20–I25), arrhythmia (I44–I49), heart failure (I50), cerebrovascular disease (I60–I69) and diseases of the arteries (I70–I77).[§]Values below the sex-specific median (5 mg/g in men and 7 mg/g in women).[¶]ACR of 20 to 200 mg/g in men and 30 to 300 mg/g in women. ACKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; IRR, incidence rate ratio; UACR, urinary albumin creatinine ratio.

Adapted from Hallan S et al. Arch Int Med. 2007;167:2490–2496;

Risk of leg amputation (as a measure of PAD) in Diabetic Kidney Disease

- Meta-analysis of data from eligible cohorts in the Chronic Kidney Disease Prognosis Consortium (CKD-PC) investigating the independent and joint associations of eGFR and albuminuria with future risk of PAD
- Study population: 817,084 individuals without a history of peripheral artery disease at baseline from 21 cohorts
- Different definitions of PAD were studied, including:
 - Study-specific PAD*
 - PAD-related hospital admissions
 - Leg revascularisation
 - **Leg amputation**

Adjusted hazard ratios and 95% confidence intervals (shaded areas) for peripheral artery disease defined by leg amputation according to eGFR and ACR



Amputation risk is significantly higher with declining eGFR, and rising albuminuria

CVD prevent

E54000028: NHS North Central London Integrated Care Board

Change time period or area ▾

Time Period: To December 2023

Participation Coverage: 97%

Population Coverage: 97% ?

Data Explorer EXPERIMENTAL

Explore the data, indicator-by-indicator, through different visualisations.

Select an indicator:

Switch between available indicators

CKD: monitoring with ACR/PCR (CVDP004CKD) ▾

CVDP004CKD: Percentage of patients aged 18 and over with GP recorded CKD (G3a to G5), with a record of a urine albumin:creatinine ratio (or protein:creatinine ratio) test in the preceding 12 months Proportion %

☰ Quality Improvement

Data Extract

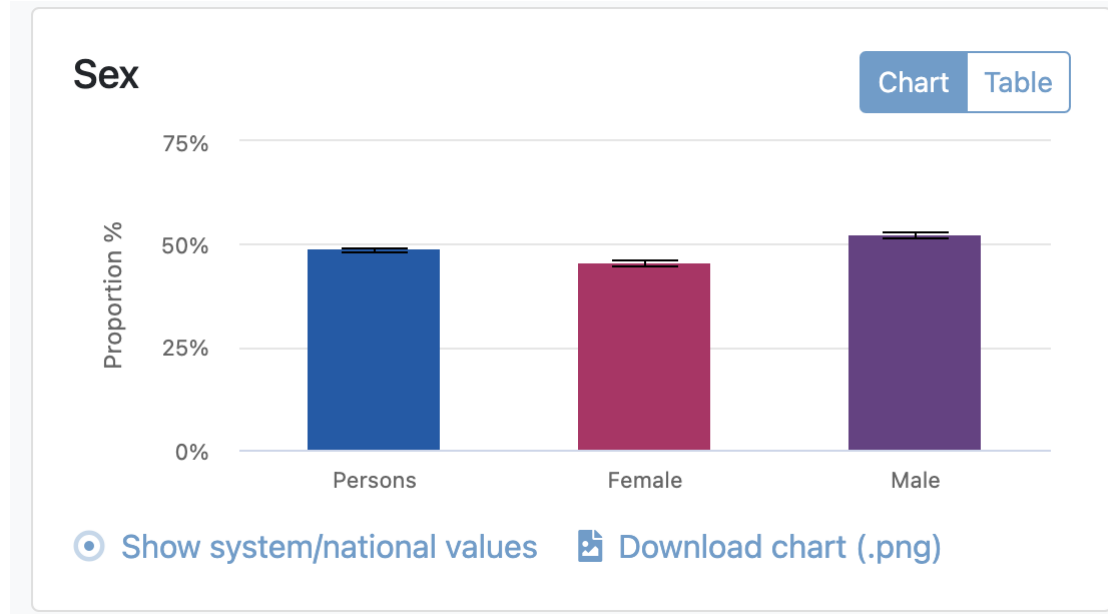
Metadata

48.54 %

Area value

What about the undiagnosed group?

CVD prevent



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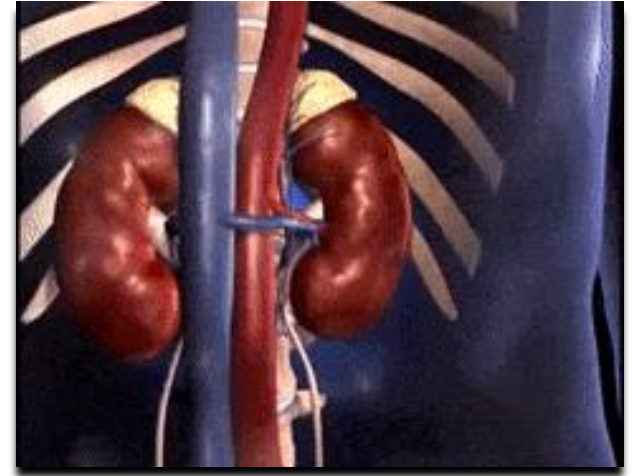
Quality Improvement Data Extract Metadata

Who should be tested for CKD?

- NICE NG203, CKD

Offer testing for CKD using **eGFR and ACR** to adults with any of the following risk factors:

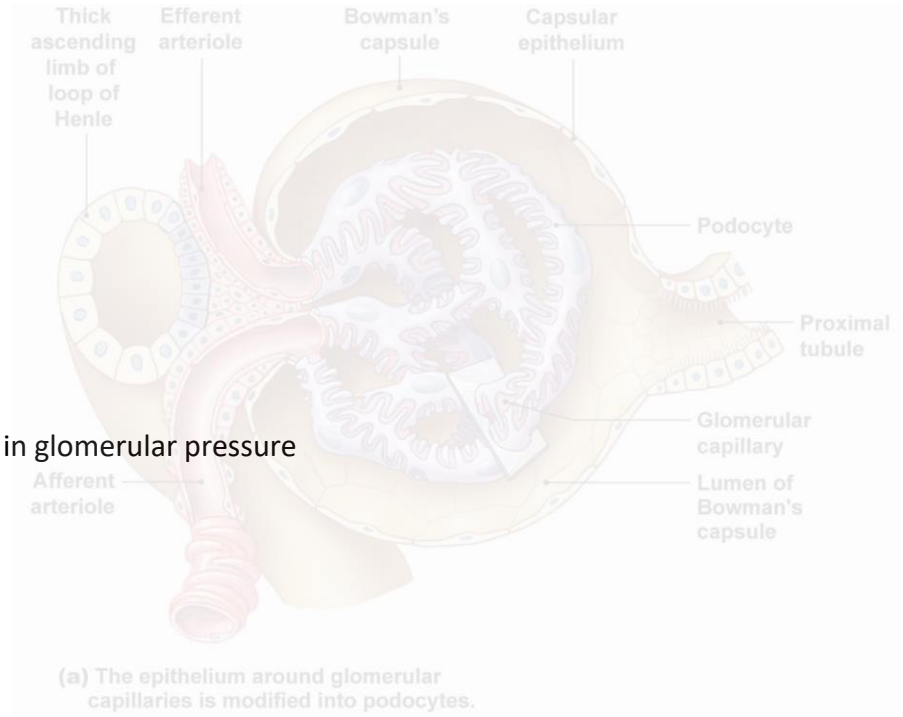
- diabetes
- hypertension
- previous episode of acute kidney injury
- cardiovascular disease
- structural renal tract disease inc. stones, prostate disease
- gout
- multisystem diseases – e.g. SLE
- family history of end-stage renal disease (GFR category G5) or hereditary kidney disease
- incidental detection of haematuria or proteinuria



- ACR, albumin creatinine ratio; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; GFR, glomerular filtration rate; SLE, systemic lupus erythematosus.
- NICE 2021. NG203. Available at <https://www.nice.org.uk/guidance/ng203>. Accessed May 2023. Image from Shutterstock.

Diabetic kidney disease

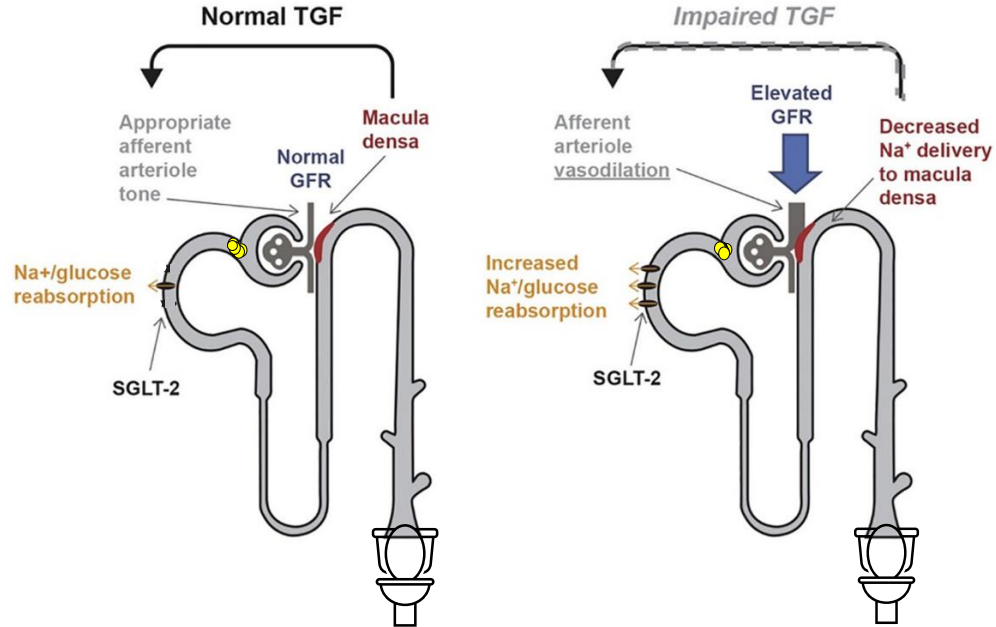
- ~40% diabetics develop DKD¹⁻³
 - DKD is the commonest cause of ESRD worldwide
 - DKD in T2DM often diagnosed late
 - Often co-exists with obesity and CVD
- – Significant number have albuminuria.^{4,5}
 - Worse with uncontrolled HTN
 - Improves with good sugar control, BP control, regulation in glomerular pressure
- – Complex²
 - Inflammation
 - SGLT2-receptor upregulation
 - RAAS activation and glomerular hyperfiltration
 - Efferent arteriosclerosis, glomerulosclerosis, fibrosis



• BP, blood pressure; DKD, diabetic kidney disease; ESRD, end-stage renal disease; HTN, hypertension; RAAS, renin-angiotensin-aldosterone system; T2DM, type 2 diabetes mellitus.

• 1. Hussain S et al. Clinical Epidemiology and Global Health 2021;9:2-6; 2. Alicic RZ et al. Clin J Am Soc Nephrol. 2017;12:2032-2045; 3. Seyed Ahmadi S et al. Cardiovasc Diabetol 2020;19:9; 4. Selby NM et al. Diabetes Obes Metab. 2020;22 Suppl 1:3-15; 5. Thomas MC et al. Nat Rev Dis Primers. 2015;1:15018;

Tubulo-glomerular feedback in diabetes

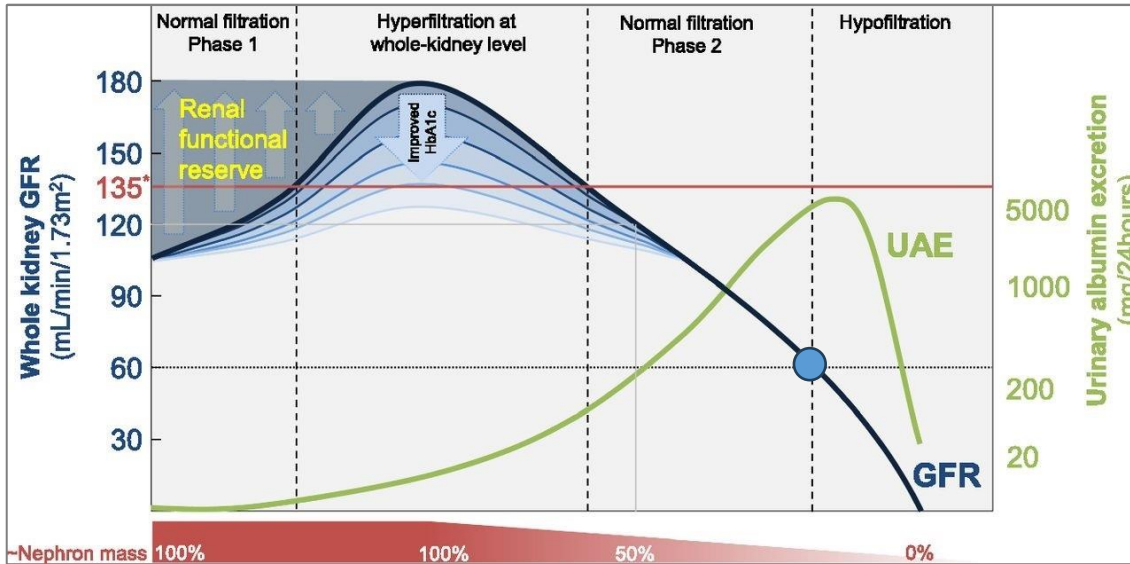


Normal physiology

Hyperfiltration in early stages of diabetic nephropathy



Glomerular Hyperfiltration in Diabetes:



Tonneijck, Lennart; Muskiet, Marcel H.A.; Smits, Mark M.; van Bommel, Erik J.; Heerspink, Hidde J.L.; van Raalte, Daniël H.; Joles, Jaap A.

Journal of the American Society of Nephrology 28(4):1023-1039, April 2017.

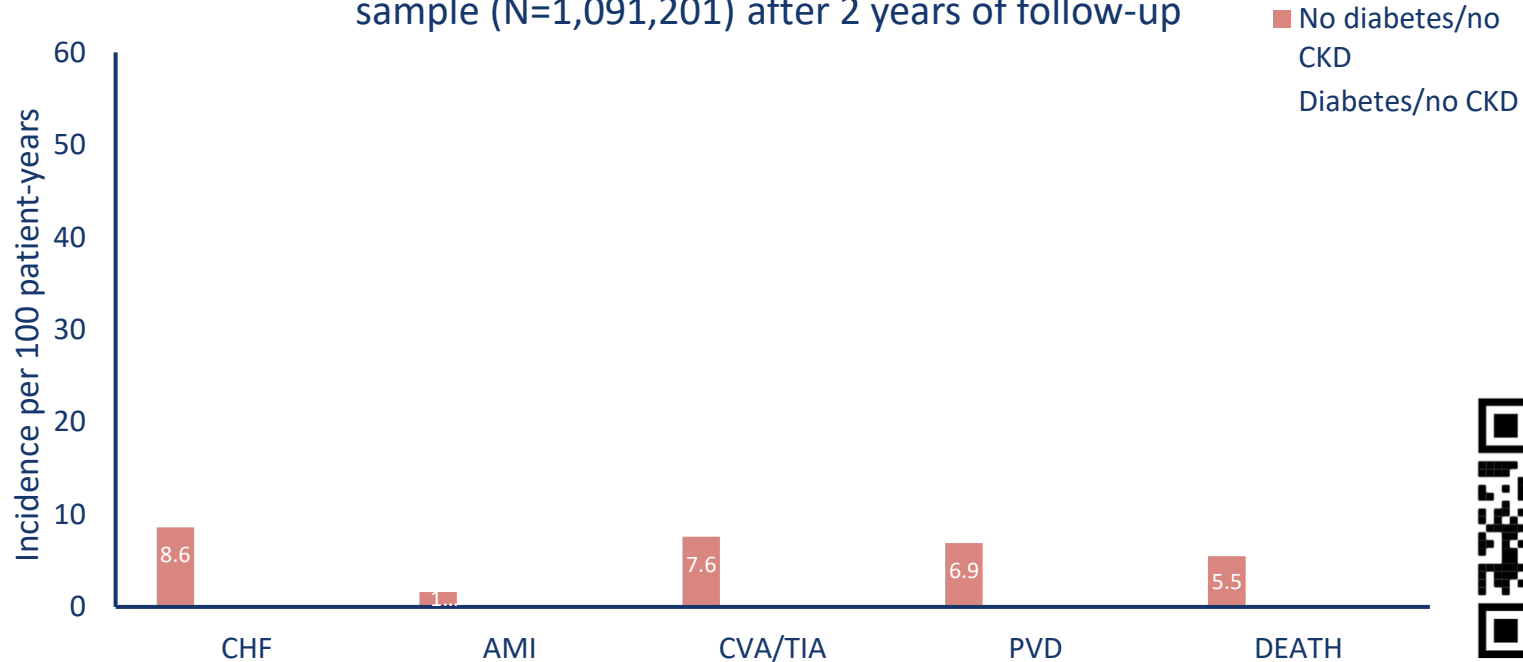
doi: 10.1681/ASN.2016060666

Classic course of whole-kidney GFR and UAE according to the natural (proteinuric) pathway of DKD. Peak GFR may be seen in prediabetes or shortly after diabetes diagnosis, and can reach up to 180 ml/min in the case of two fully intact kidneys. Strict control of HbA1c and initiation of other treatments (such as RAS inhibition) mitigate this initial response. Two normal filtration phases can be encountered, in which GFR may be for instance 120 ml/min (indicated with the gray line): one at 100% of nephron mass and one at approximately 50% of nephron mass. Thus, whole-kidney GFR may remain normal even in the presence of considerable loss of nephron mass, as evidenced by a recent autopsy study.¹²¹ Assessing renal functional reserve and/or UAE may help identify the extent of subclinically inflicted loss of functional nephron mass.

*Whole-kidney hyperfiltration is generally defined as a GFR that exceeds approximately 135 ml/min, and is indicated with the red line. Heterogeneity of single-nephron filtration rate and nonproteinuric pathway¹²² of DKD are not illustrated.

CKD vs diabetes: CVD risk

Incident event rates in 1998–1999 US Medicare population sample (N=1,091,201) after 2 years of follow-up

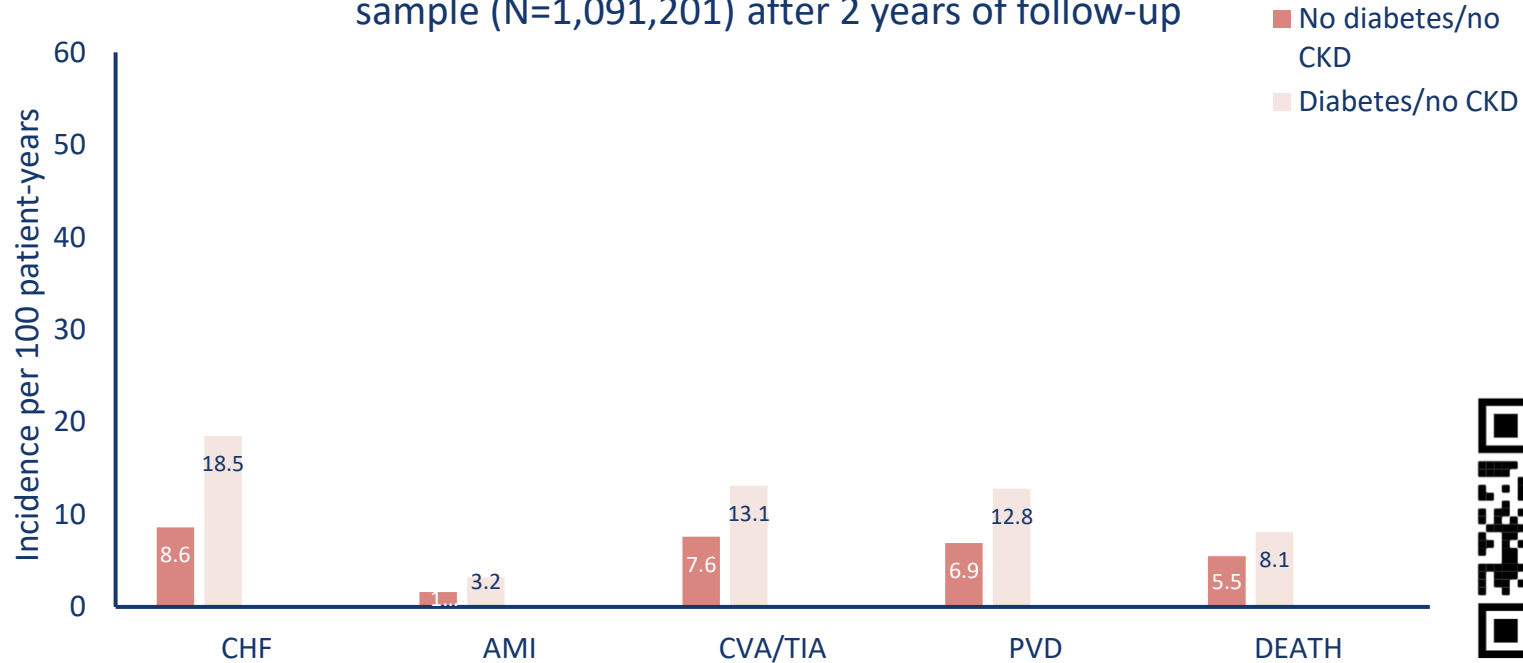


Increases in the values for Diabetes/no CKD to the values for Diabetes/CKD are indicated on the graph.



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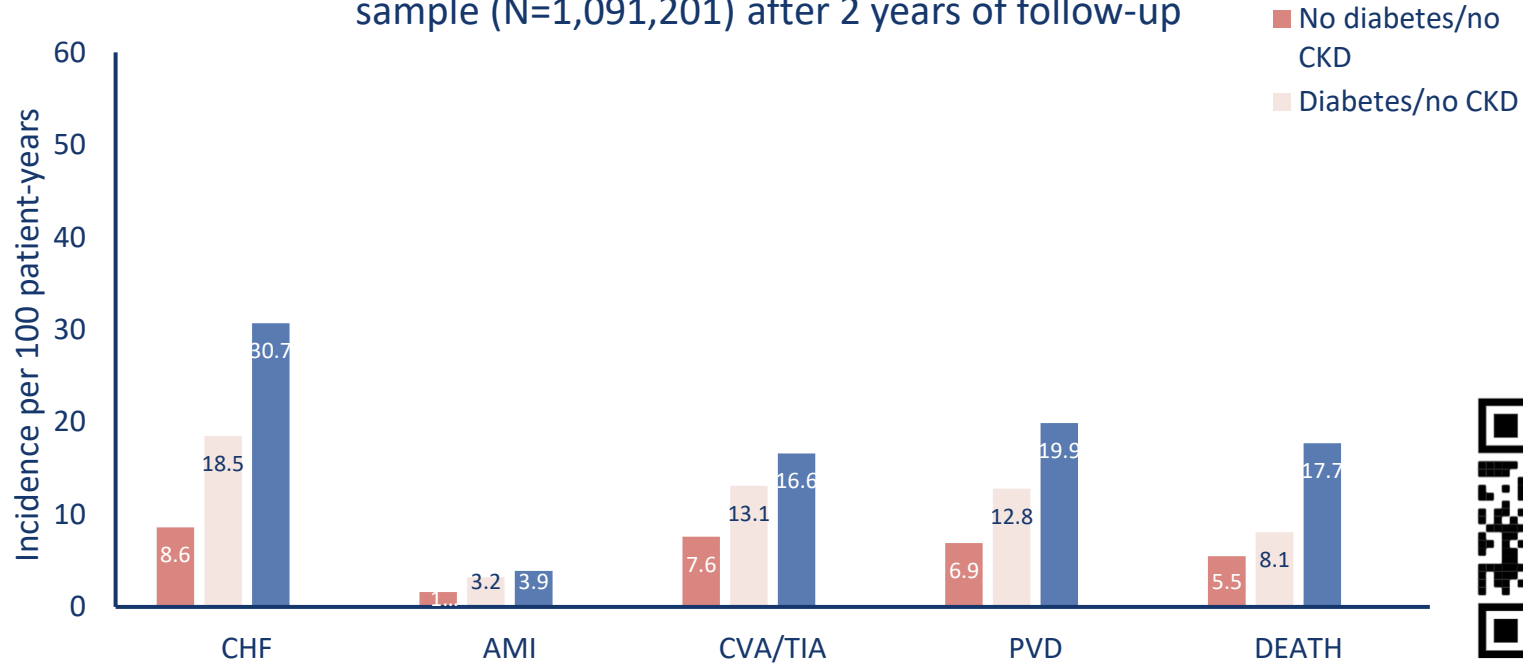


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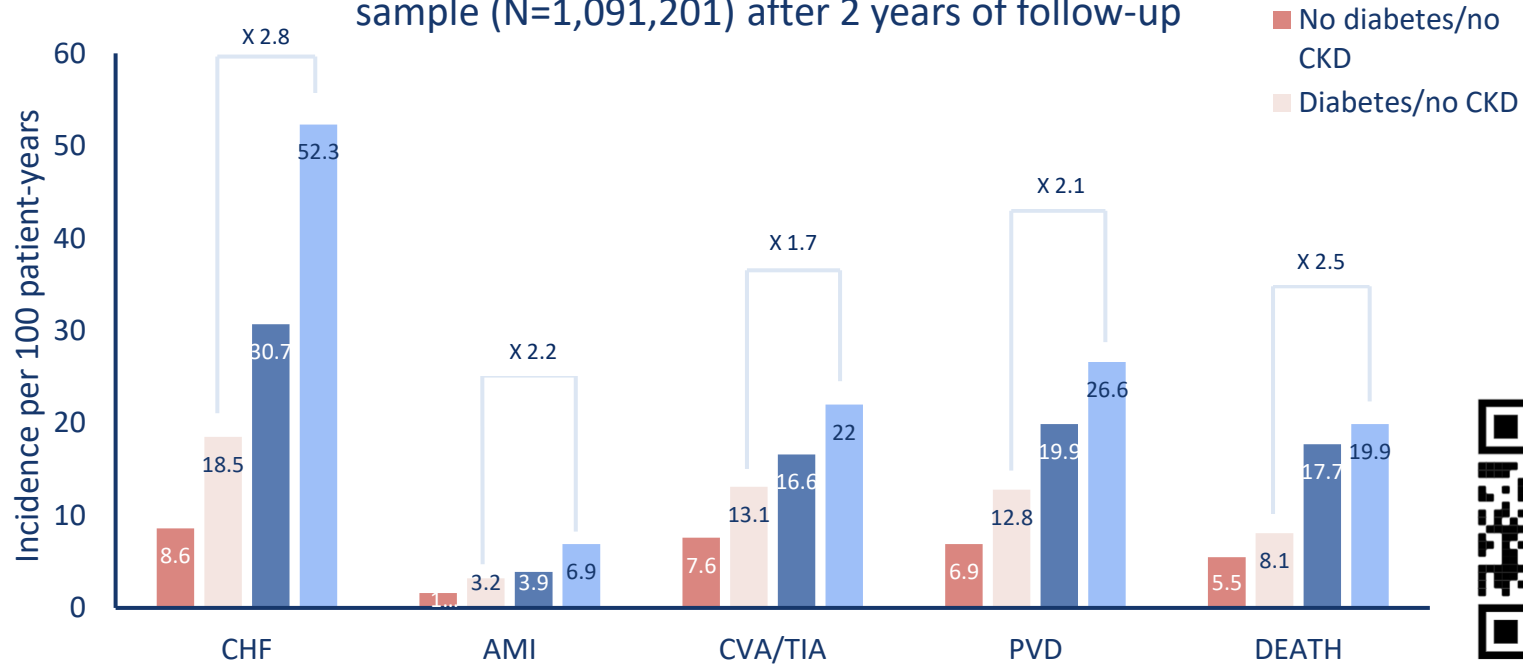


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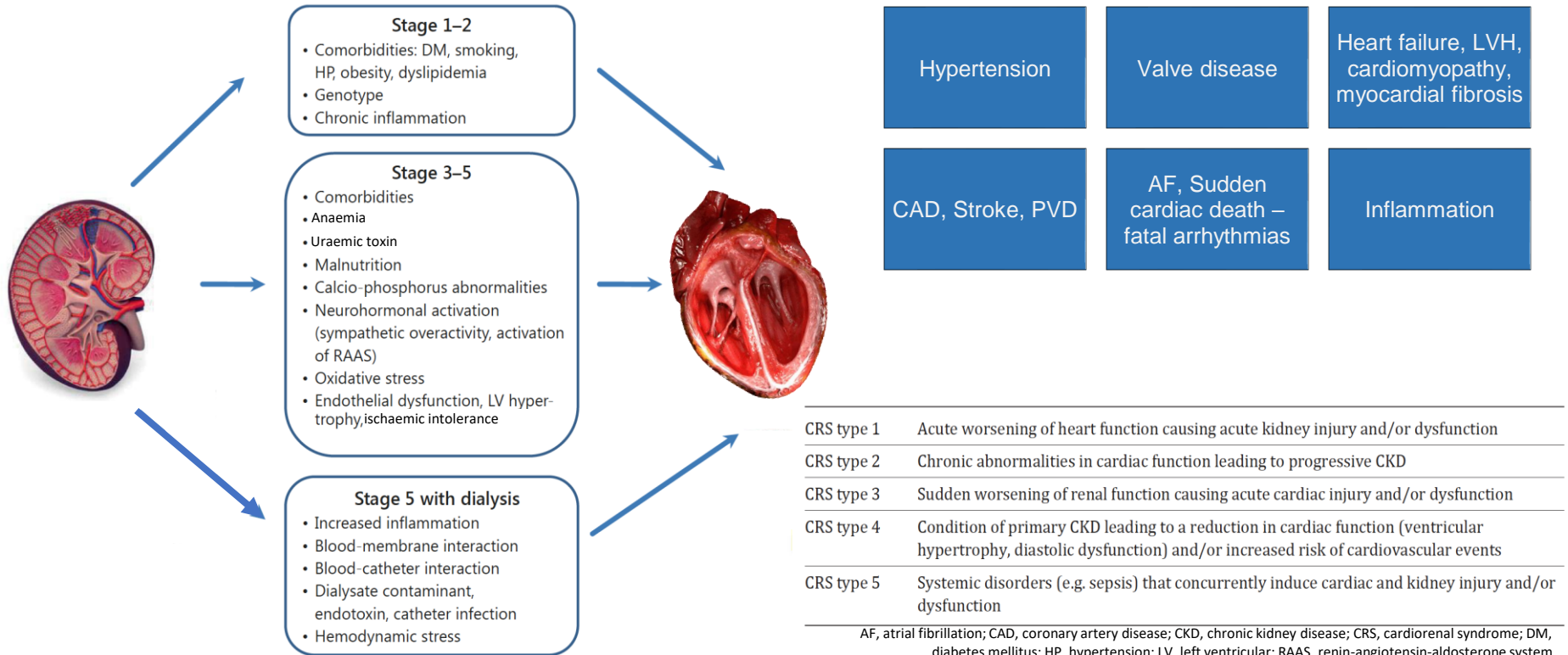
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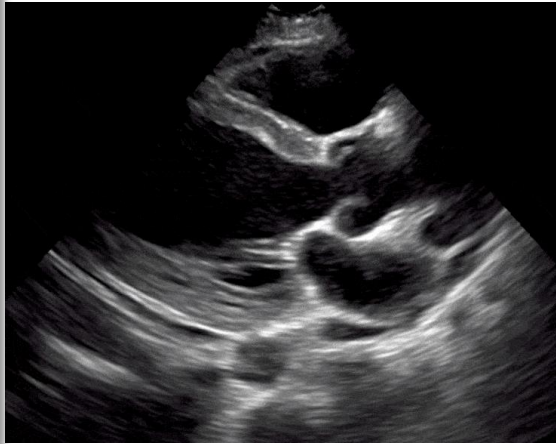
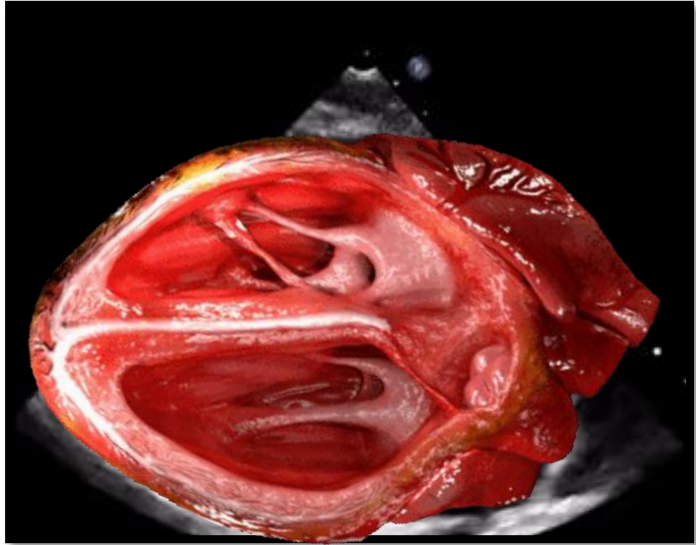


Cardiorenal syndromes



AF, atrial fibrillation; CAD, coronary artery disease; CKD, chronic kidney disease; CRS, cardiorenal syndrome; DM, diabetes mellitus; HP, hypertension; LV, left ventricular; RAAS, renin-angiotensin-aldosterone system

Echocardiography



CKD and AF

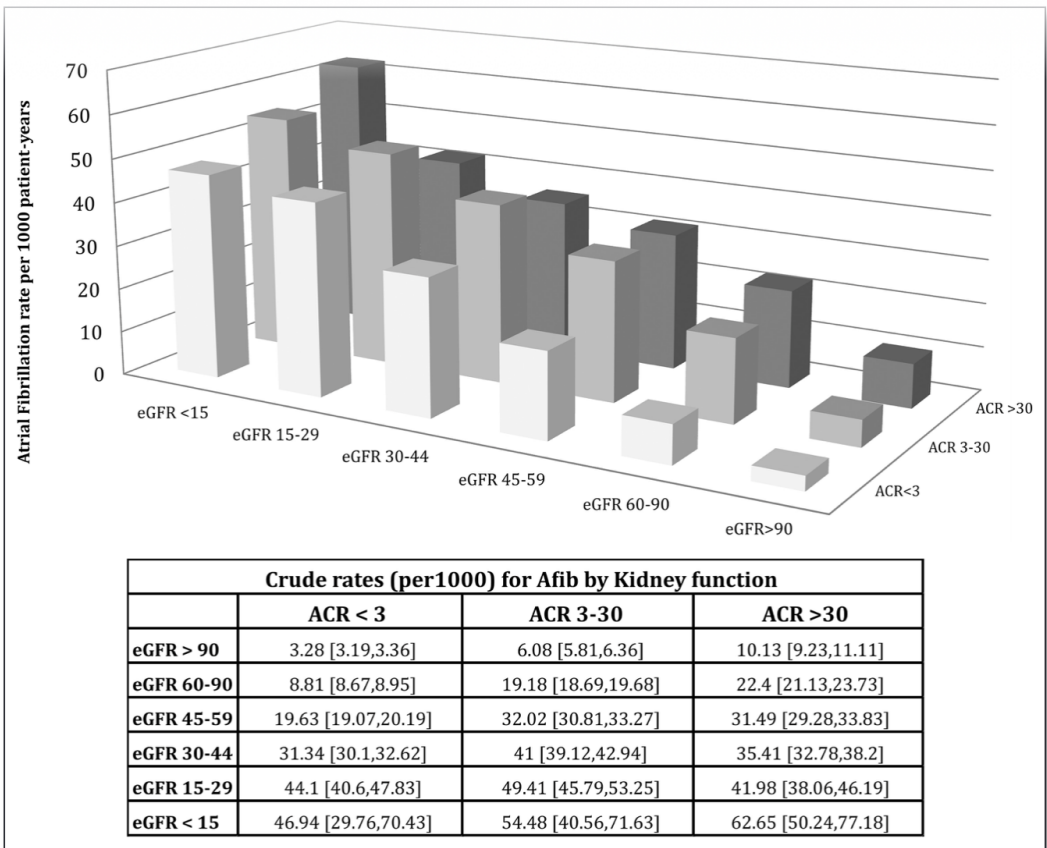
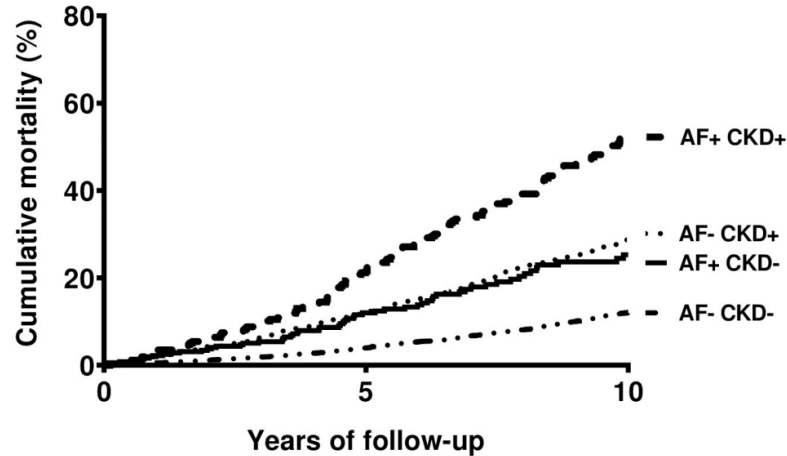


Figure 3. Crude incidence rate of atrial fibrillation by urine albumin-to-creatinine ratio and eGFR category. ACR is in milligrams per millimole. eGFR is in milliliters per minute per 1.73 m². ACR and eGFR categories correspond to KDIGO categories for chronic kidney disease.⁷ ACR indicates albumin to creatinine ratio; eGFR, estimated glomerular filtration rate.

CKD and AF: A dangerous combination



Number of patients:

AF-CKD-	9268	6511	3810
AF+CKD-	374	210	87
AF-CKD+	2427	1762	934
AF+CKD+	325	206	87

Fig 2. Kaplan-Meier survival curve for ten year mortality.

<https://doi.org/10.1371/journal.pone.0266046.g002>

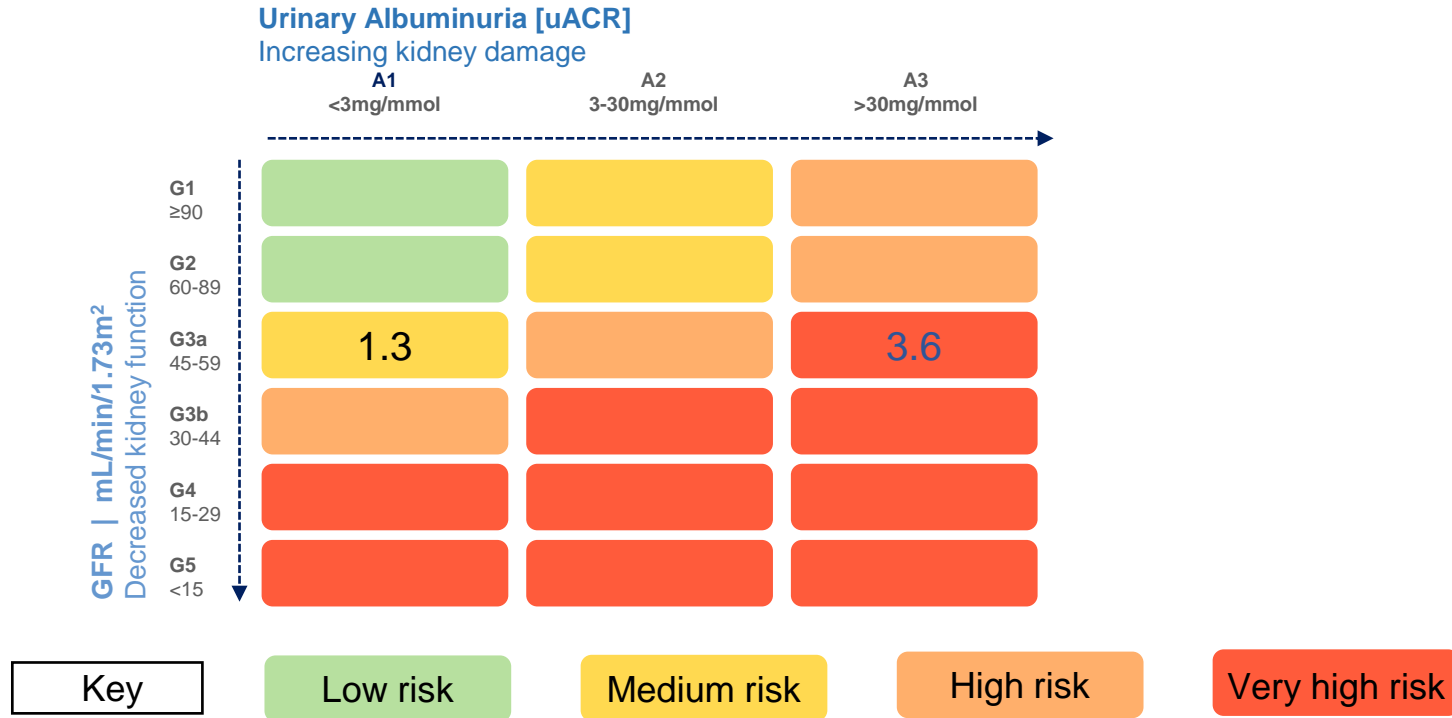
- Prothrombotic state + all cause mortality¹
 \propto AF + CKD > AF or CKD
- Prothrombotic state \propto eGFR and ACR²
- e.g., high stroke rate in ESRD³
- ACR independent risk factor for CVD⁴
- Essential we detect and treat AF/CKD early

- CKD also leads to excess bleeding events.

ACR, albumin creatinine ratio; AF, atrial fibrillation; CKD, chronic kidney disease; CVD, cardiovascular disease; DOAC, direct-acting oral anticoagulant; eGFR, estimated glomerular filtration rate; ESRD, end-stage renal disease.

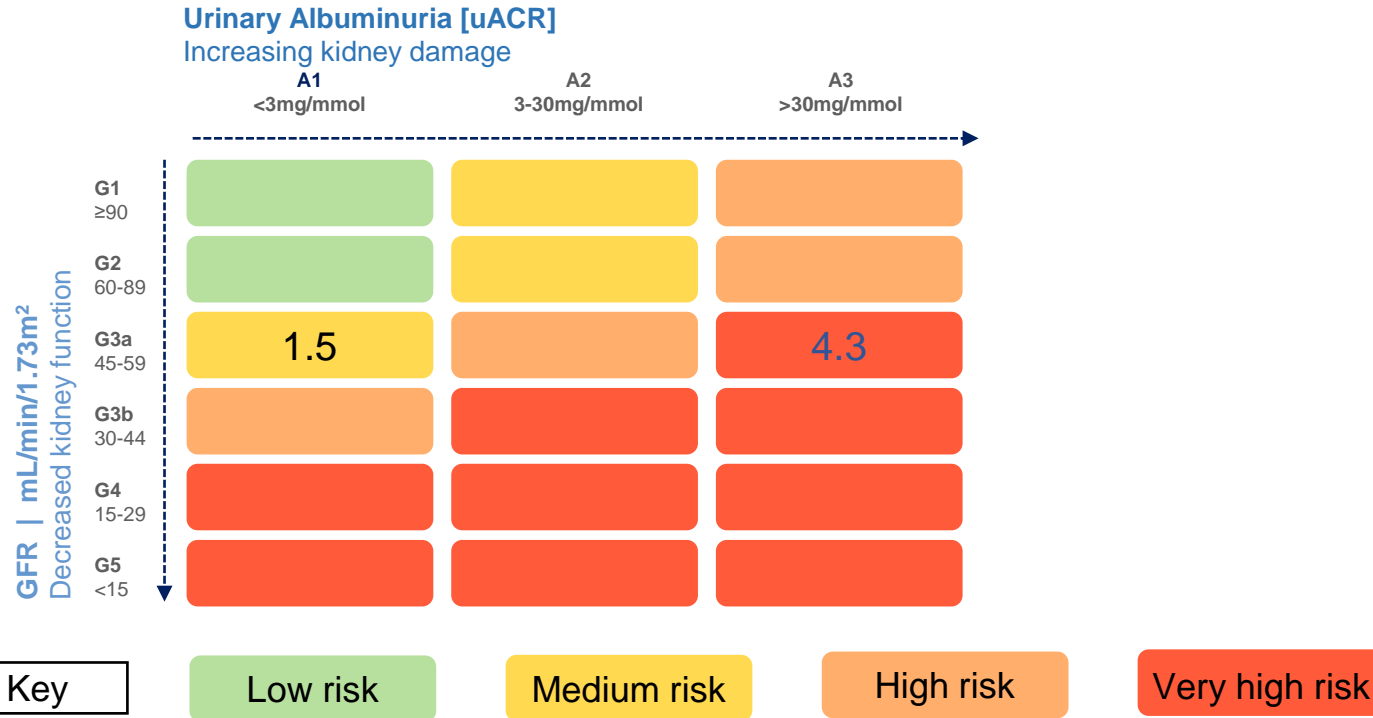
1. Ocak G, et al. Chronic kidney disease and atrial fibrillation: A dangerous combination. PLoS One. 2022;17(4):e0266046; 2. Mahmoodi BK et al. Circulation. 2012;126:1964–1971; 3. Masson P et al. Clin J Am Soc Nephrol. 2015;10:1585–1592; 4. Liu S et al. BMJ Open 2021;11:e040890.

Albuminuria is a strong and independent risk for all cause mortality



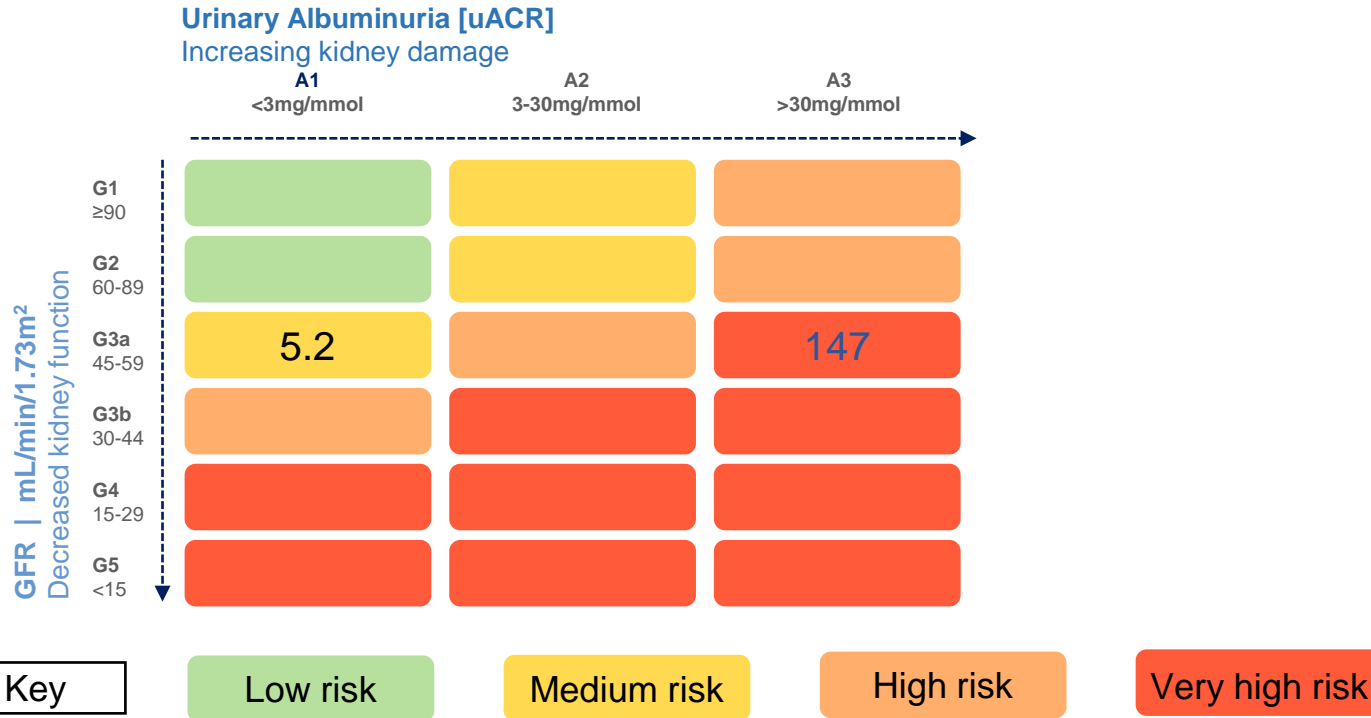
- CKD, chronic kidney disease; CVD, cardiovascular disease; GFR, glomerular filtration rate; uACR, urine albumin-to-creatinine ratio.
- 1. Adapted from NICE Guidelines NG203 2021 <https://www.nice.org.uk/guidance/ng203>. Accessed May 2023; 2. Adapted from KDIGO 2022 Clinical Practice Guideline for Diabetes Management in Chronic Kidney Disease. Kidney International Supplements 2022;102(5S):S1-S127.

Albuminuria is a strong and independent risk CVD mortality



- CKD, chronic kidney disease; CVD, cardiovascular disease; GFR, glomerular filtration rate; uACR, urine albumin-to-creatinine ratio.
- 1. Adapted from NICE Guidelines NG203 2021 <https://www.nice.org.uk/guidance/ng203>. Accessed May 2023; 2. Adapted from KDIGO 2022 Clinical Practice Guideline for Diabetes Management in Chronic Kidney Disease. Kidney International Supplements 2022;102(5S):S1-S127.

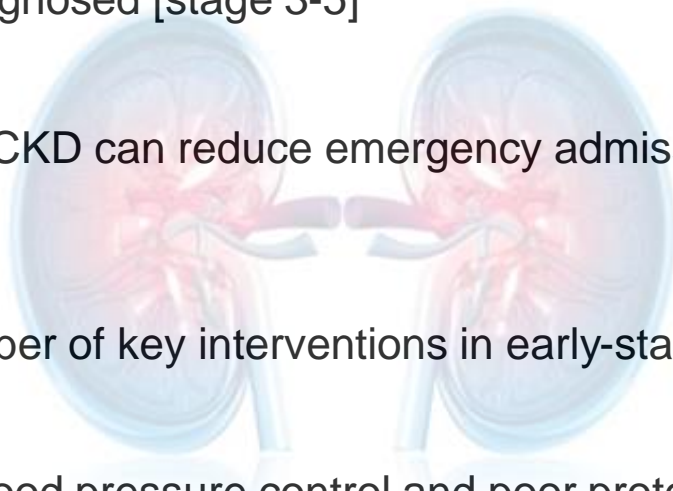
Albuminuria is a strong and independent risk for ESRD



- CKD, chronic kidney disease; CVD, cardiovascular disease; GFR, glomerular filtration rate; uACR, urine albumin-to-creatinine ratio.
- 1. Adapted from NICE Guidelines NG203 2021 <https://www.nice.org.uk/guidance/ng203>. Accessed May 2023; 2. Adapted from KDIGO 2022 Clinical Practice Guideline for Diabetes Management in Chronic Kidney Disease. Kidney International Supplements 2022;102(5S):S1-S127.

NICE impact report: Cardiovascular disease prevention [2019, no longer available]

- 1.2 million people with CKD are undiagnosed [stage 3-5]
- Effective coding and management of CKD can reduce emergency admission to hospital.
- Primary care is responsible for a number of key interventions in early-stage CKD.
- Many of those with CKD have poor blood pressure control and poor proteinuria control
- CKD, chronic kidney disease. NICE. NICE impact cardiovascular disease prevention. 2018. Available at: https://allcatsrgrey.org.uk/wp/download/governance/clinical_governance_2/nice-impact-cardiovascular-disease-prevention.pdf. Accessed May 2023.



Management of CKD in primary care¹

Systematic and proactive QI approach

Identification

- Case finding for unidentified CKD using eGFR and uACR
- CKD coding
 - Retro- and prospective
- Inequalities

Management

- Education – Cardiovascular health / lifestyle / modifiable risk-factors

QRISK

• ACEi, angiotensin converting enzyme inhibitor; ARB, angiotensin receptor blocker; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; EOL, end-of-life; LTC, long-term condition; SGLT2i, sodium glucose co-transporter 2 inhibitor; uACR, urine albumin creatinine ratio. 1. NICE 2021. Chronic kidney disease: assessment and management (NG203). Available at <https://www.nice.org.uk/guidance/ng203>. Accessed May 2023; 2. NICE 2019. NG136. Available at <https://www.nice.org.uk/guidance/ng136>. Accessed May 2023.

KFRE

Medical Optimisation

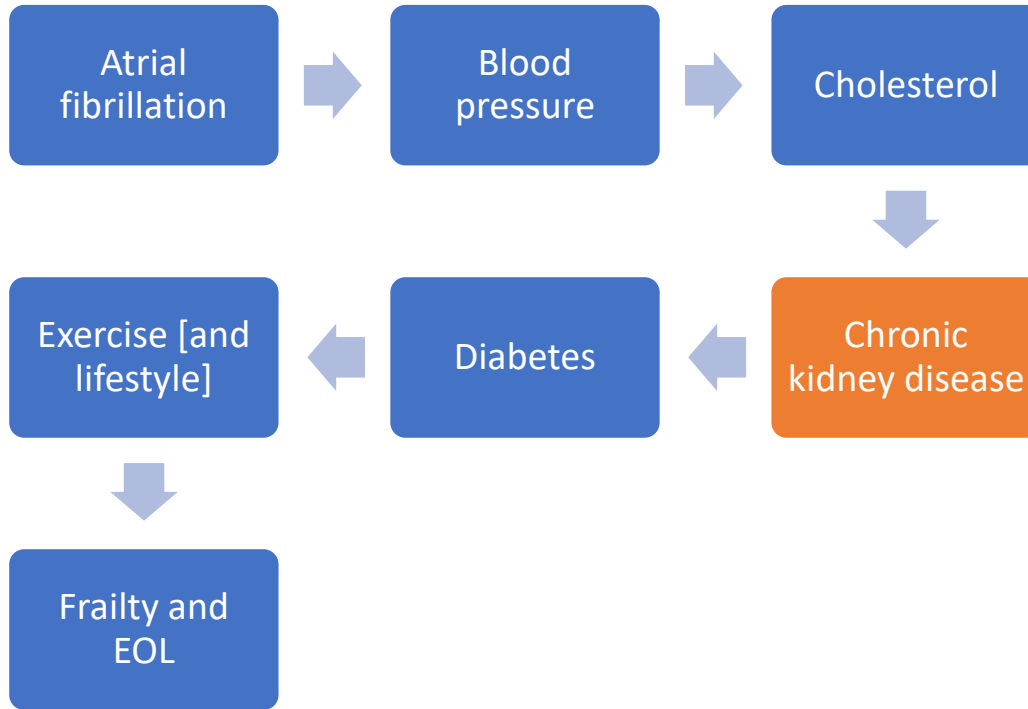
- Optimise BP
- Antiplatelet agents for secondary prevention
- RAASi
- SGLT2i
- Finerenone
- Lipid lowering therapy
- Optimise LTC

Frailty/EOL

ABC of CVD risk



New paradigm: ABC₂DEF



QRISK3 health warning – CKD is a high risk state

About you

Age (25-84):

Sex: Male Female

Ethnicity:

UK postcode: leave blank if unknown

Postcode:

Clinical information

Smoking status:

Diabetes status:

Angina or heart attack in a 1st degree relative < 60?

Chronic kidney disease (stage 3, 4 or 5)?

Atrial fibrillation?

On blood pressure treatment?

Do you have migraines?

Rheumatoid arthritis?

Systemic lupus erythematosus (SLE)?

Severe mental illness?
(this includes schizophrenia, bipolar disorder and moderate/severe depression)

On atypical antipsychotic medication?

Are you on regular steroid tablets?

A diagnosis of or treatment for erectile disfunction?

Leave blank if unknown

Cholesterol/HDL ratio:

Systolic blood pressure (mmHg):

Standard deviation of at least two most recent systolic blood pressure readings (mmHg):

Body mass index

Height (cm):

Weight (kg):

Your results

Your risk of having a heart attack or stroke within the next 10 years is:

4.8%

In other words, in a crowd of 100 people with the same risk factors as you, 5 are likely to have a heart attack or stroke within the next 10 years.

**Risk of
a heart attack or stroke**

Your score has been calculated using estimated data, as some information was left blank.

Your body mass index was calculated as 24.22 kg/m².

How does your 10-year score compare?

Your score	
Your 10-year QRISK [®] 3 score	4.8%
The score of a healthy person with the same age, sex, and ethnicity*	0.3%
Relative risk**	17.3
Your QRISK [®] 3 Healthy Heart Age***	53

* This is the score of a healthy person of your age, sex and ethnic group, i.e. with no adverse clinical indicators and a cholesterol ratio of 4.0, a stable systolic blood pressure of 125, and BMI of 25.

** Your relative risk is your risk divided by the healthy person's risk.

*** Your QRISK[®]3 Healthy Heart Age is the age at which a healthy person of your sex and ethnicity has your 10-year QRISK[®]3 score.

Cardiovascular mortality

	uACR < 1.0	uACR 1.0–2.9	uACR 3.0–29.9	uACR ≥ 30.0
eGFR > 105	0.9	1.3	2.3	2.1
eGFR 90–105	Ref	1.5	1.7	3.7
eGFR 75–90	1.0	1.3	1.6	3.7
eGFR 60–75	1.1	1.4	2.0	4.1
eGFR 45–60	1.5	2.2	2.8	4.3
eGFR 30–45	2.2	2.7	3.4	5.2
eGFR 15–30	14	7.9	4.8	8.1

3a
3b
4

QRISK3 lifetime



Welcome to QRISK[®]3-lifetime cardiovascular risk calculator: <https://qrisk.org/lifetime>

This calculator is only valid if you do not already have a diagnosis of coronary heart disease (including angina or heart attack) or stroke/transient ischaemic attack.

Reset UKCA

About you

Age (25-84):

Sex: Male Female

Ethnicity:

UK postcode: leave blank if unknown

Postcode:

Clinical information

Diabetes status:

Angina or heart attack in a 1st degree relative < 60?

Chronic kidney disease (stage 3, 4 or 5)?

Atrial fibrillation?

On blood pressure treatment?

Do you have migraines?

Rheumatoid arthritis?

Systemic lupus erythematosus (SLE)?

Severe mental illness? (this includes schizophrenia, bipolar disorder and moderate/severe depression)

On atypical antipsychotic medication?

Are you on regular steroid tablets?

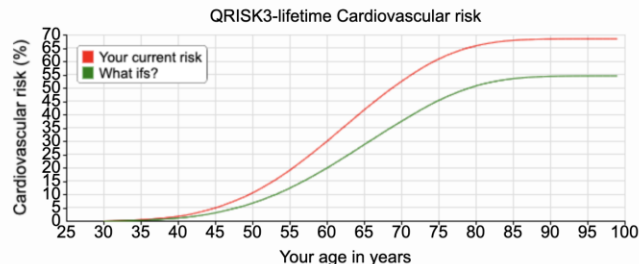
A diagnosis of or treatment for erectile dysfunction?

Modifiable risk factors - leave blank if unknown

	Current	What if?
Smoking status:	<input type="text" value="non-smoker"/>	<input type="text" value="non-smoker"/>
Cholesterol/HDL ratio:	<input type="text" value="5"/>	<input type="text" value="3"/>
Systolic blood pressure (mmHg):	<input type="text" value="140"/>	<input type="text" value="130"/>

Your results

Your QRISK3-lifetime score	Current	What if?
Your lifetime risk (i.e. by the time you are 99)	68.5%	54.6%
Your risk up to age 70	52.6%	37.6%



In other words, in a crowd of 100 people like you,

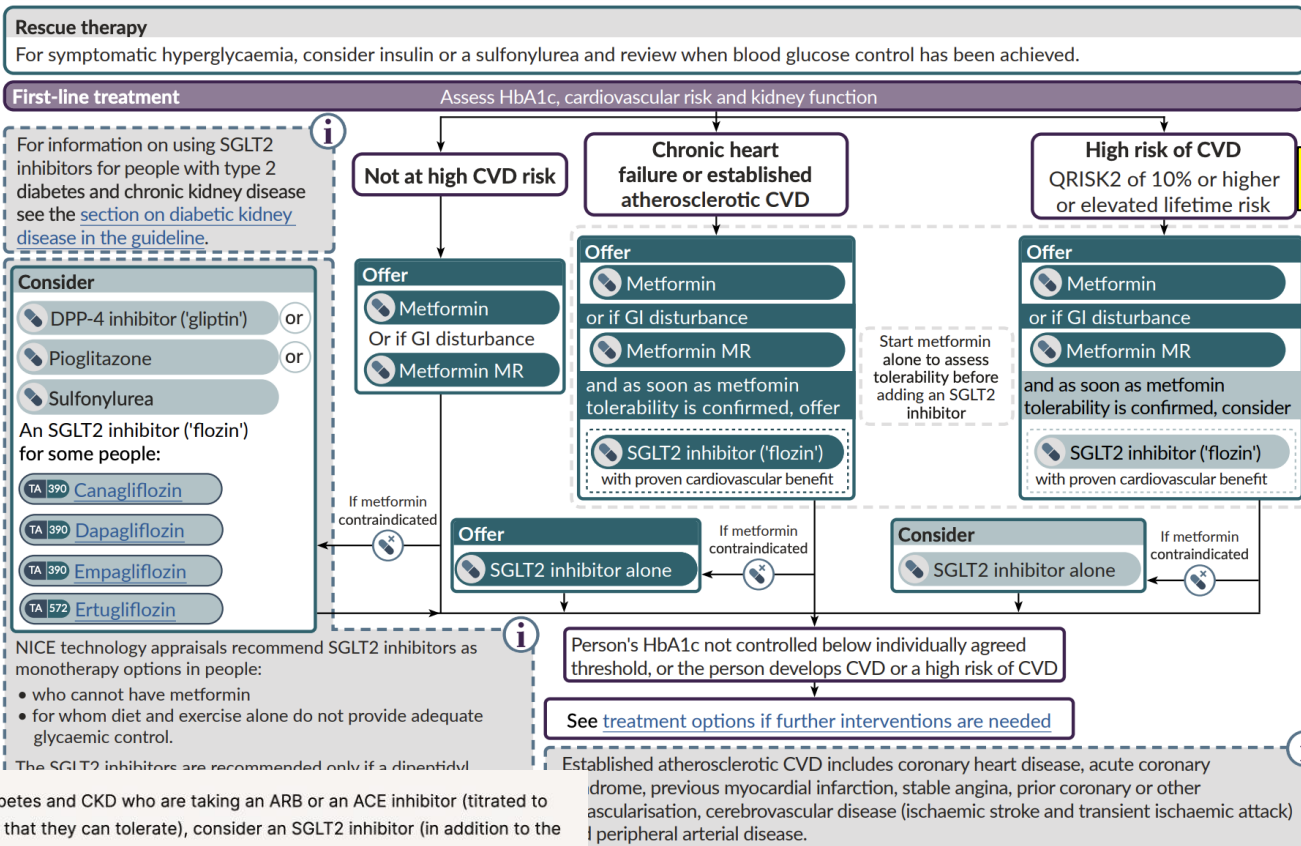
- 53 will develop heart disease or have a stroke/TIA by the time they are 70, and
- 69 will do so by the time they reach 99.

Your score has been calculated using estimated data, as some information was left blank.

(If you can only see one line in the graph, that's because the risk profiles are the same, and one line has been drawn on top of the other.)

NICE NG28

How to choose first-line medicines



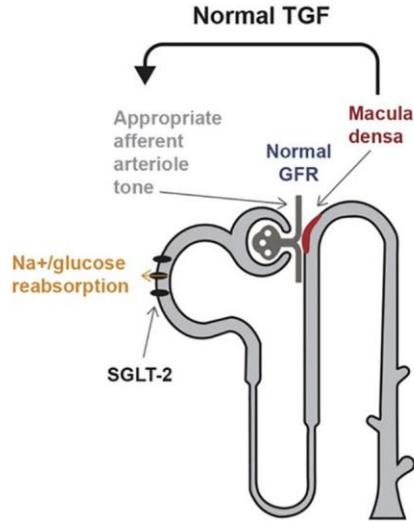
1.8.18 For adults with type 2 diabetes and CKD who are taking an ARB or an ACE inhibitor (titrated to the highest licensed dose that they can tolerate), consider an SGLT2 inhibitor (in addition to the ARB or ACE inhibitor) if:

- ACR is between 3 and 30 mg/mmol and
- they meet the criteria in the marketing authorisation (including relevant eGFR thresholds).

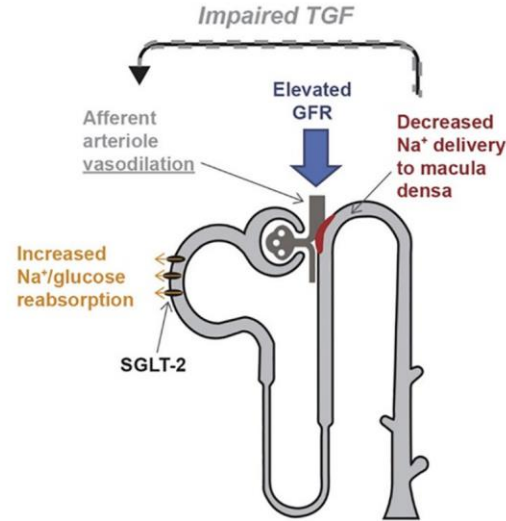
Review date: February 2022. Last updated: August 2022. This is a summary of the advice in the [NICE guideline on type 2 diabetes in adults: management](#). © NICE 2022. All rights reserved. Subject to [Notice of rights](#).

TGF: tubule glomerular feedback

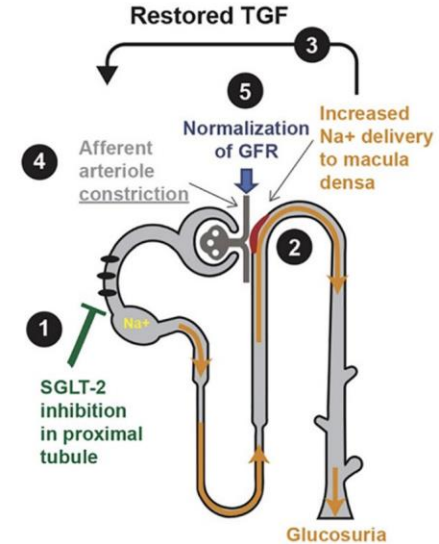
SGLT2i's



Normal physiology



Hyperfiltration in early stages of diabetic nephropathy



SGLT-2 inhibition reduces hyperfiltration via TGF

Kidney failure risk equation

- Kidney failure risk equation = KFRE
- Adopted for UK population. - www.kidneyfailurerisk.co.uk/
- Gives 5-year risk of end stage renal failure
- 5% referral threshold
- Doesn't give CVD risk



Primary Care
Cardiovascular
Society

Driving primary care to deliver
the best in cardiovascular health

@WYPartnership

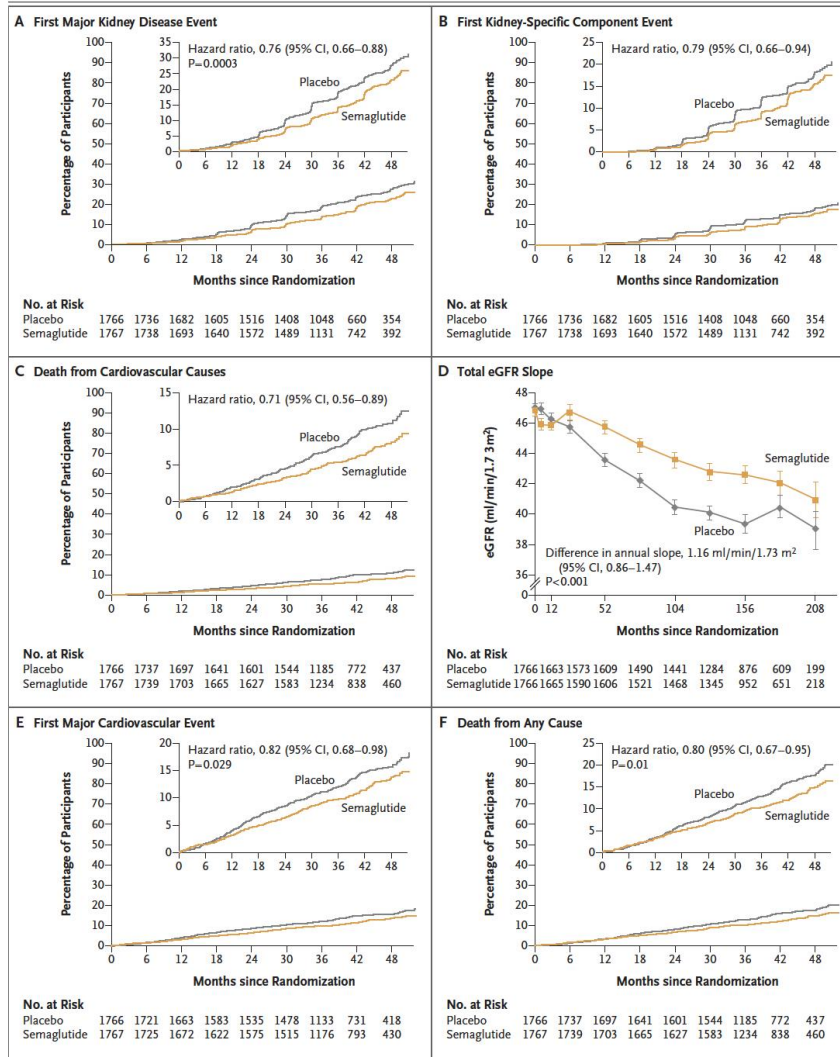
Semaglutide in DKD: FLOW study

Study: 3533 patients, 3.4 years, multi-centre RCT, semaglutide vs placebo

Primary outcome: composite of kidney failure (dialysis, transplantation, or an eGFR of <15 ml per minute per 1.73 m²), at least a 50% reduction in the eGFR from baseline, or death from kidney-related or cardiovascular causes.

Notes: 15% on SGLT2i

Outcomes: RRR=24%, NNT=20 (primary outcome) over 3 years



Summary



- CKD has a greater global prevalence than HF and diabetes combined
- CVD is the major cause of death in patients with CKD, rather than ESRD
- CKD is a major risk factor for CVD, even in the early stages

- CKD is under-diagnosed, under-coded and under-treated
- Failure to assess for CKD under-estimates CVD risk
- Albuminuria is an independent risk factor for CVD and should not be ignored

- **Need a pro-active approach to CKD management**
- Address underlying cause, lifestyle factors, optimise treatment: ACEi/ARBs, SGLT2i, finerenone, LLT and BP control
- Don't ignore frailty/EOL

Quality Improvement Programmes

Our PCCS QI programmes aim to bring together the key components of delivering high quality cardiovascular and kidney care across general practice.

Current QI topics include:

Chronic Kidney
Disease

Lipids

Heart failure

Coming soon!

COVID-19

Triglycerides

Each programme includes:

Prevention and
Diagnosis

Coding
and Searches

Treatment and
Management

Practical Tips

Patient
Identification

End of life



Primary Care
Cardiovascular
Society

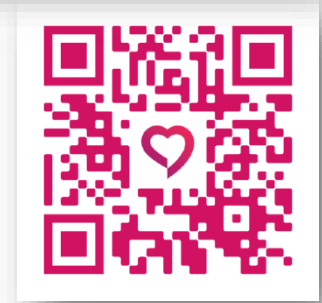
Empowering primary care to deliver

Check them out at www.PCCSUK.org



Thank you for your attention

 @DrRajThakkar



www.PCCSUK.org

West Yorkshire Minuteful Kidney & Hypertension Project

WYICB System Clinical Lead

Dr Sunil Daga



YORKSHIRE & HUMBER
Kidney Network

West Yorkshire
Health and Care Partnership



Project Outline

- Our approach in West Yorkshire - rationale on why a HTN cohort
- What our approach will be
- What are we hoping to achieve
- What support GP Practices can expect as part of this project

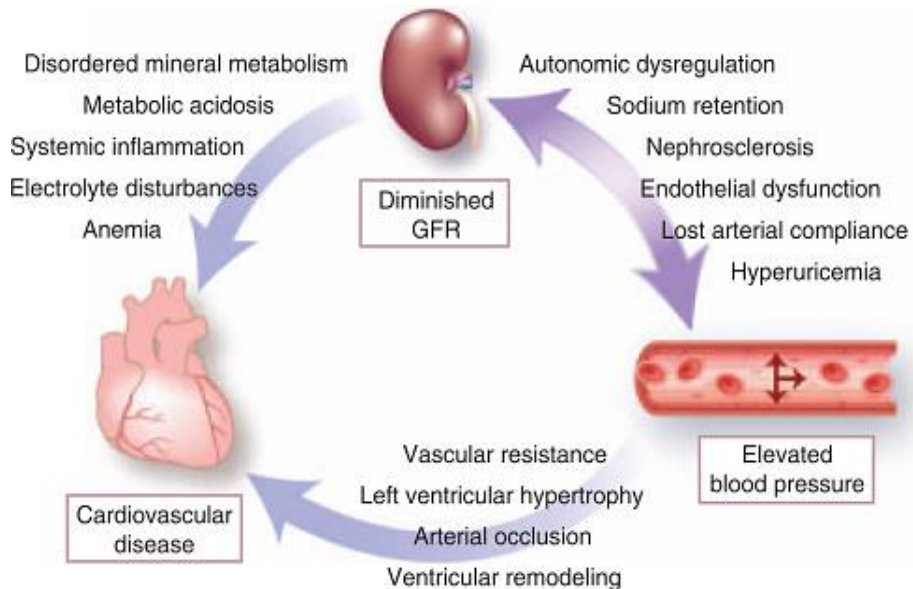


YORKSHIRE & HUMBER
Kidney Network

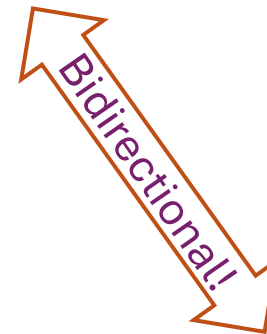
West Yorkshire
Health and Care Partnership



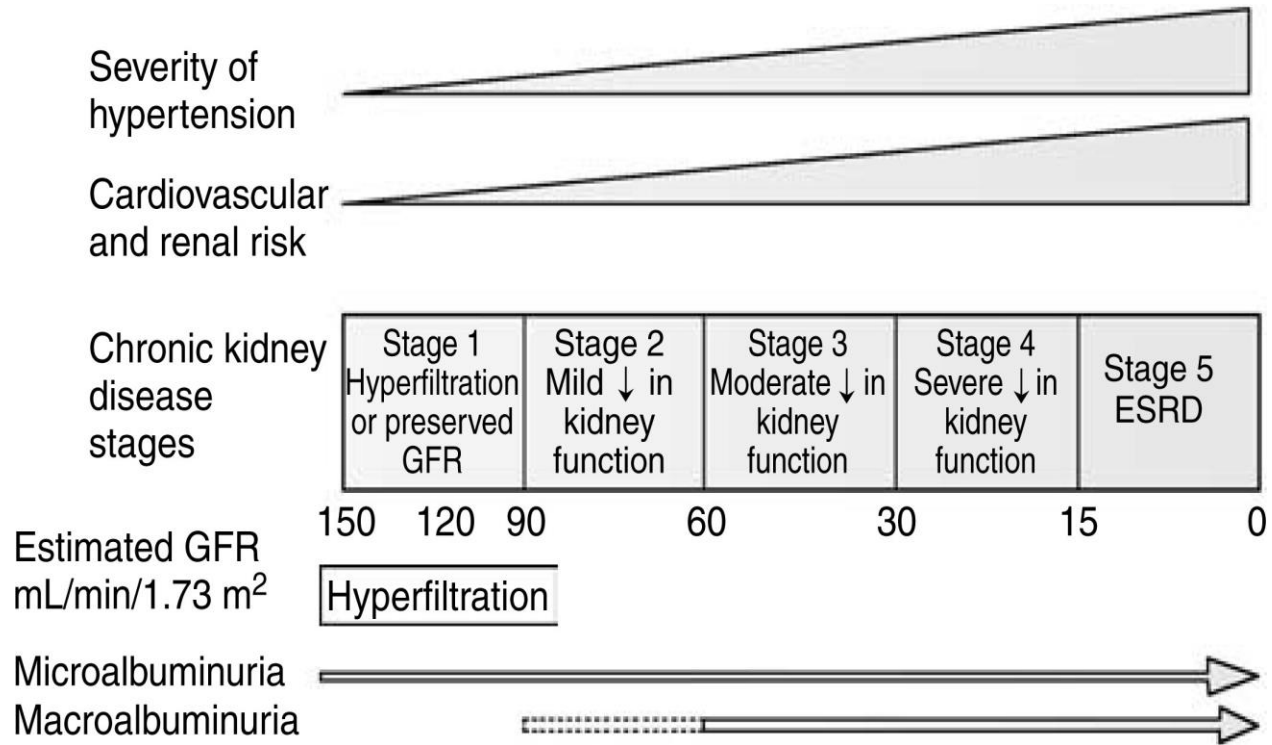
Hypertension and Kidneys

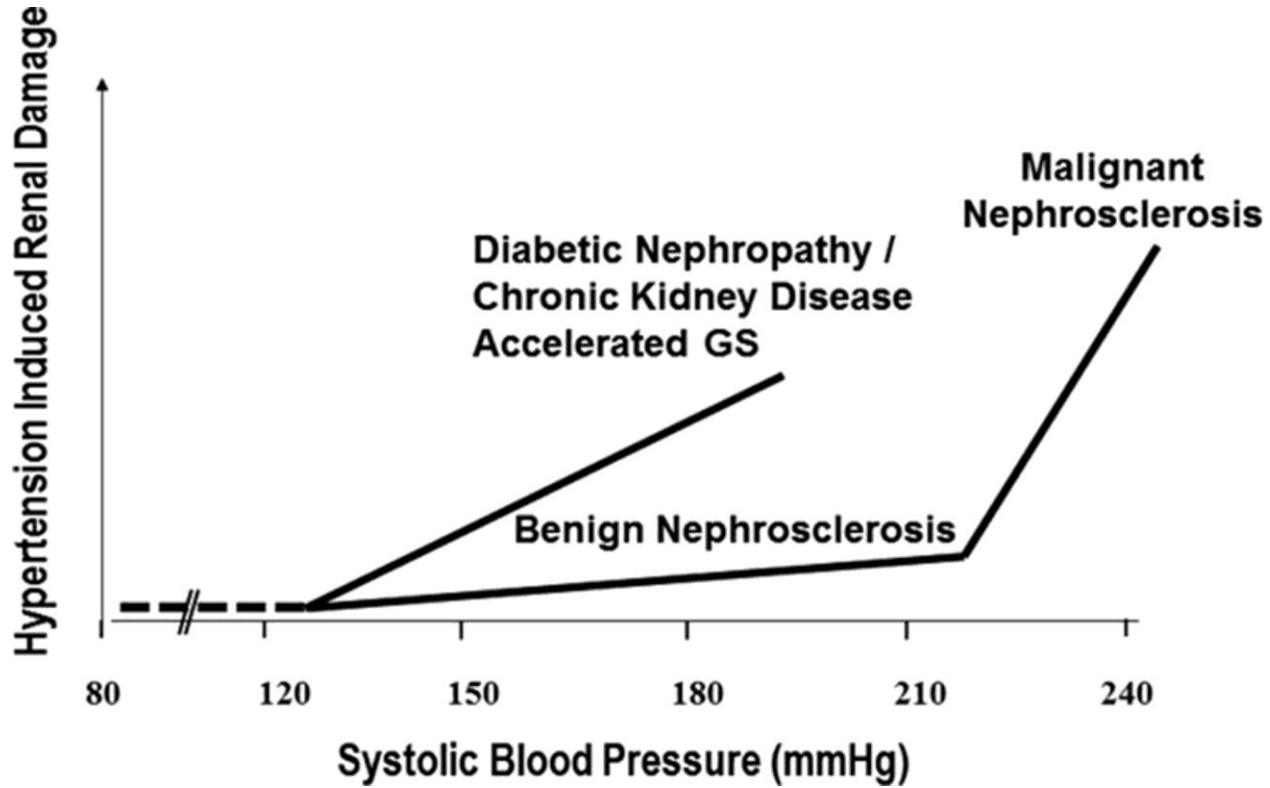


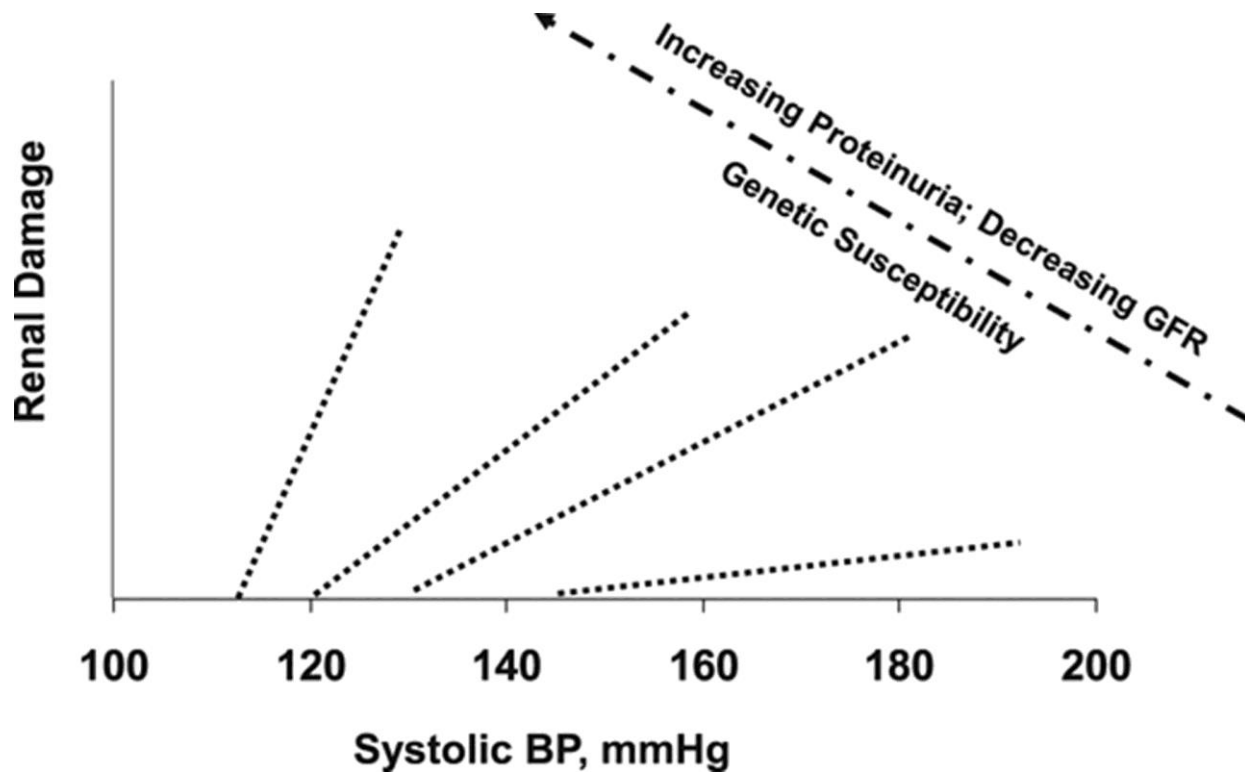
Hypertension 80-85%



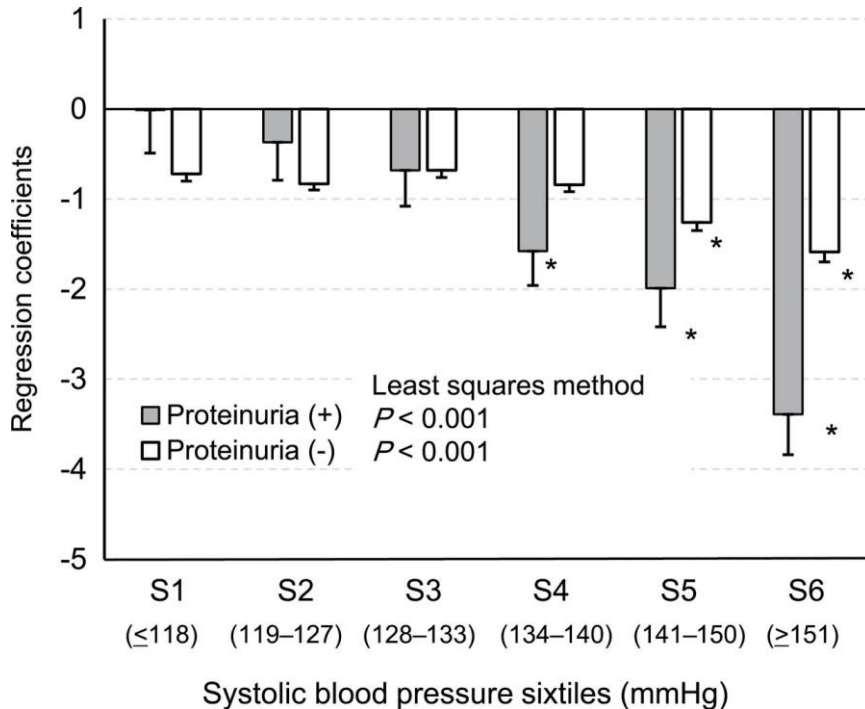
CKD 10-25%* eGFR or proteinuria
8-10% CKD 3-5
124% increase 1990-2019#







Systolic blood pressures at baseline and the 2-year change in the estimated glomerular filtration rates. ...



Adjusted for sex, age, body mass index, diastolic blood pressure, estimated glomerular filtration rates, uric acid levels, glycated hemoglobin levels, triglycerides, low-density lipoprotein levels, high-density lipoprotein levels, smoking, alcohol consumption, and the use of antihypertensive medications at baseline

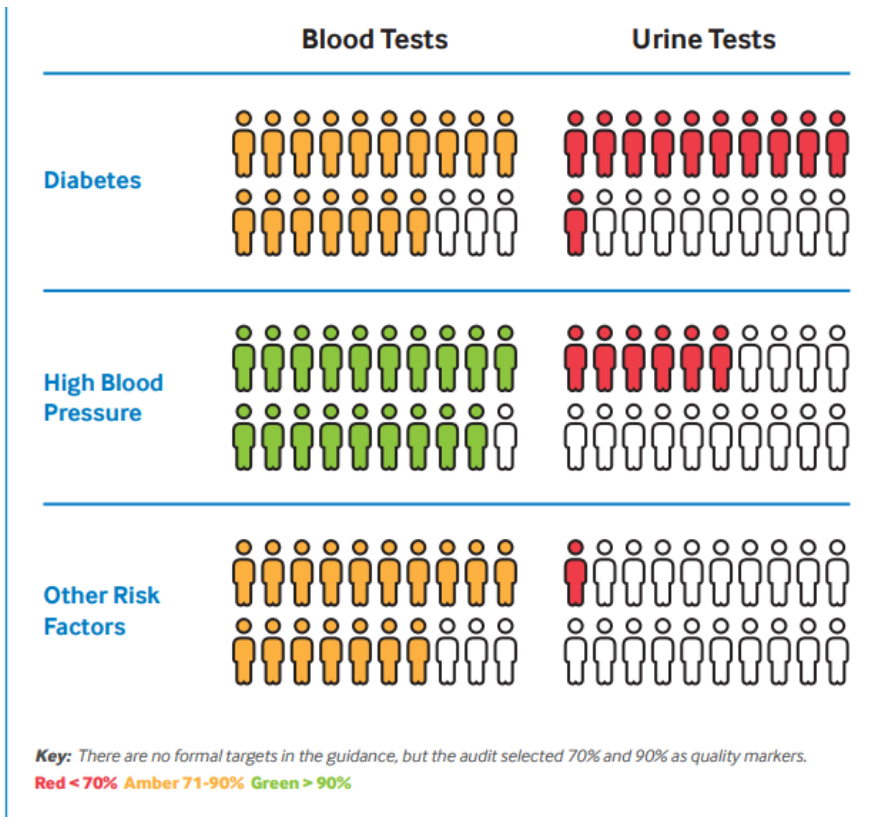
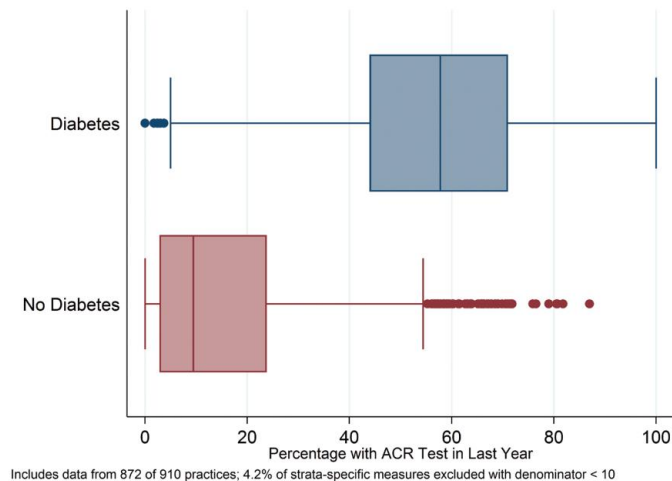
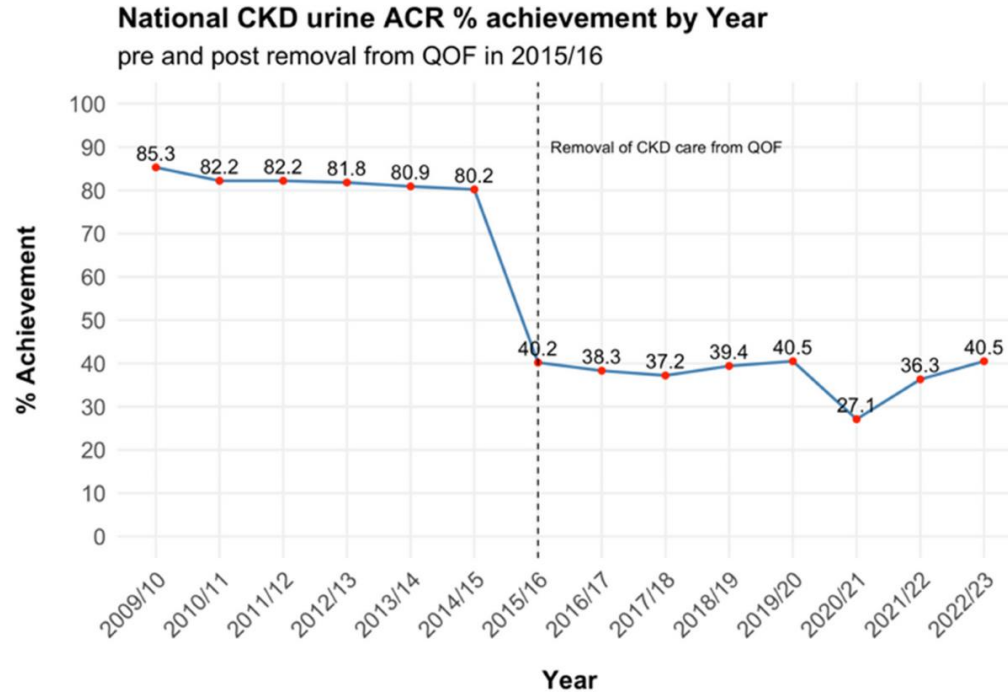


Figure 20. Practice variation in percentage with coded CKD stage 3-5 who have repeat urinary ACR tests stratified by diabetes

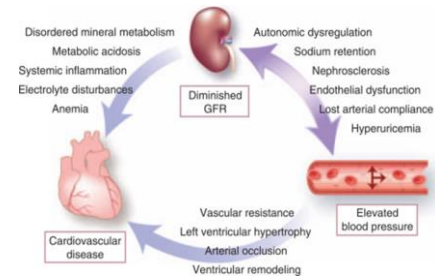


Current state



Stewart, S. et al. Chronic kidney disease: detect, diagnose, disclose—a UK primary care perspective of barriers and enablers to effective kidney care. *BMC Med* 2024

Risks



- AKI
- Progressive CKD -RRT
- All-cause mortality,
- Cardiovascular mortality,
- All-cause hospitalizations,
- Myocardial infarction,
- Stroke,
- Heart failure,
- Atrial fibrillation, and
- Peripheral artery disease

KDIGO: Prognosis of CKD by GFR and albuminuria categories

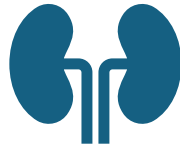
				Persistent albuminuria categories Description and range		
				A1	A2	A3
				Normal to mildly increased	Moderately increased	Severely increased
				<30 mg/g <3 mg/mmol	30–300 mg/g 3–30 mg/mmol	>300 mg/g >30 mg/mmol
GFR categories (ml/min/1.73 m ²) Description and range	G1	Normal or high	≥90			
	G2	Mildly decreased	60–89			
	G3a	Mildly to moderately decreased	45–59			
	G3b	Moderately to severely decreased	30–44			
	G4	Severely decreased	15–29			
	G5	Kidney failure	<15			

Green: low risk (if no other markers of kidney disease, no CKD); Yellow: moderately increased risk; Orange: high risk; Red: very high risk. GFR, glomerular filtration rate.

CKD3-5 (Sept 2023)



Prevalence 3.56% (n –
3.89%) =75k



Urine albumin:creatinine
ratio (or protein:creatinine
ratio) test in the preceding
12 months – 52.69%
(national 40.45%)



Cases with HTN and
proteinuria on RAASi
73.32% (n = 69.84%)

WY Minuteful Kidney & Hypertension Project

Total kits = 35,000
individuals in West Yorkshire

Kit allocation: adjusted for
practice registered
population & IMD; higher no.
kits to Lower IMD Practices)

Eligible population:
Hypertension and no uACR
in previous 12months

Phase 1 implementation:
prioritising those with > 3
LTCs

Healthy.IO initially
approaching IMD 1 GP
Practices with greatest gap
in actual to 77% BP
treatment to target
(CVDPrevent)

Healthy.IO's MinuteKidney (At Home ACR Testing Service) has been in operation across England for over 4 years now. Here are some key statistics on our journey so far:

- 450,000+ Patients Onboarded
- 250,000+ Patients Tested
- Worked in over half of England's ICB's.
- 95% of Patients want to test with us again next year, after using our service
- We've tested everyone from aged 18 -104!
- 86% of GP Practices want to use us again, after working with us.

We are tried and tested, and now we are working again in West Yorkshire



Send a kit

ACR (albumin to creatinine ratio) test kit sent to the individual's home



Get Tested

Individual completes the test using a smartphone app



Fast results

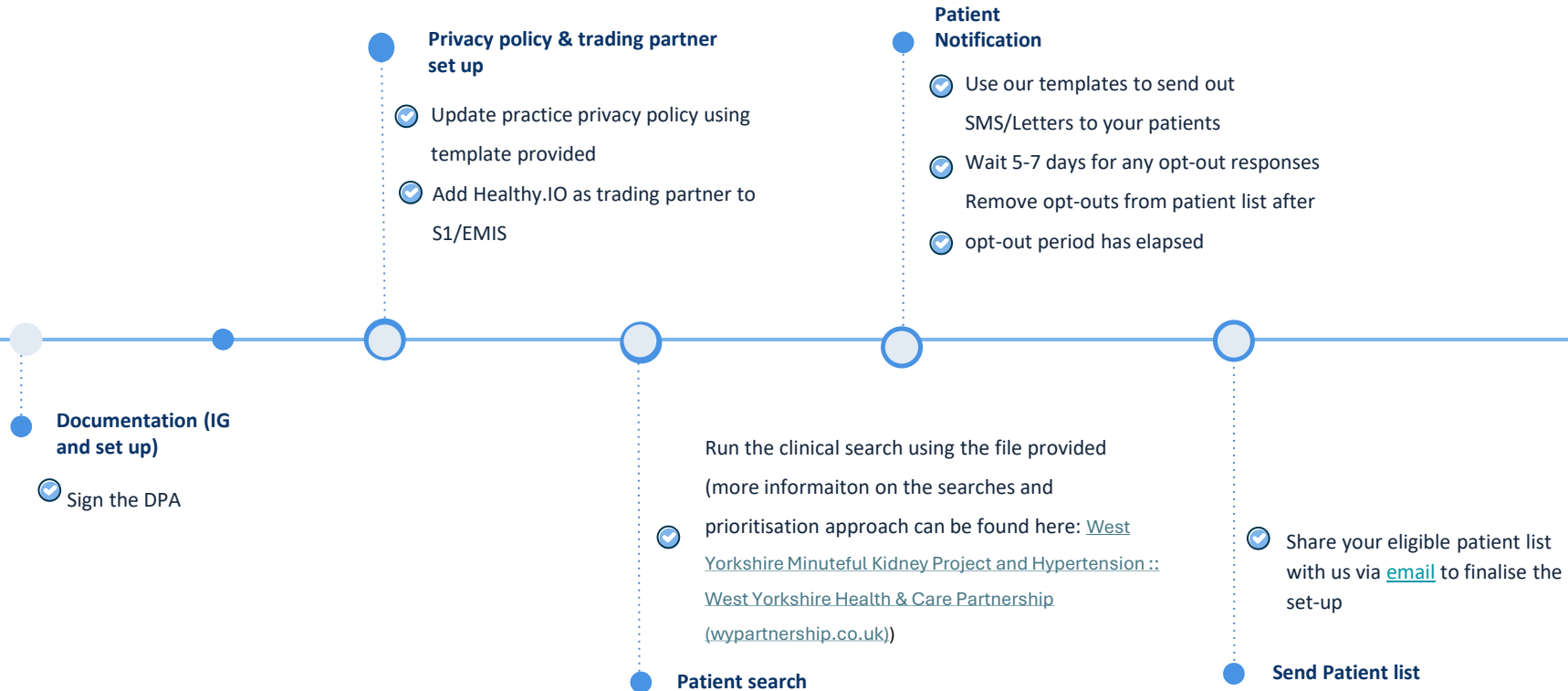
Results immediately available for the clinician to review

Inside the Minuteful Kidney Kit

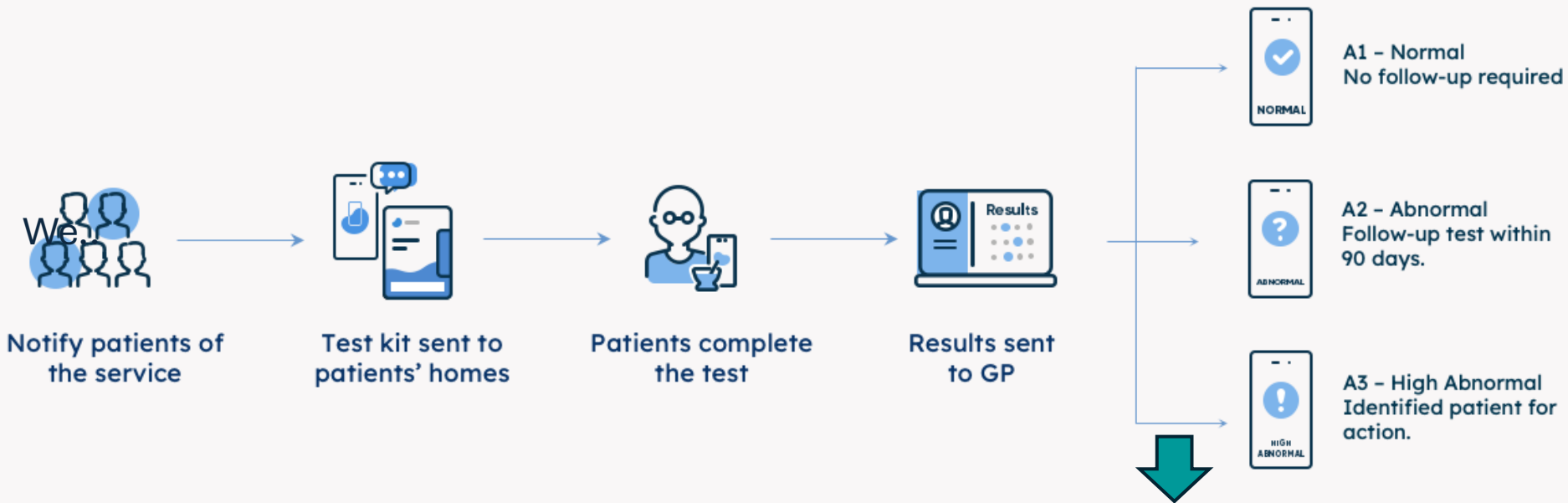
- ✓ Minuteful Kidney Test App
- ✓ Urine cup & lid
- ✓ Absorbing Pad
- ✓ Colour-board
- ✓ ACR Reagent strip (Dipstick)
- ✓ User manual



Getting started in a few simple steps



What happens after we receive your Patient List



For more information on West Yorkshire recommended follow up times (including need to consider other markers of CKD over and above abnormal uACR) please refer to:

[Post_uACR_Home_Test_Follow_Up_Process_v1.0.docx \(live.com\)](https://live.com/Post_uACR_Home_Test_Follow_Up_Process_v1.0.docx)

and

[WY_Guideline_for_management_of_CKD_in_adults_310124.docx \(live.com\)](https://live.com/WY_Guideline_for_management_of_CKD_in_adults_310124.docx)

Progress to date – 7.10.24



47 Practices who have submitted patients

(39 Practices are in mobilisation and need further practice actions to progress to completion)



8473 Patients Onboarded



8315 Patients eligible to take the Minuteful Kidney Test

58.5% of eligible patients are from IMD 1 – 3 based practices



4782 Patients Tested



8695 Minuteful Kidney Test Kits sent to patients

55.7% of tested patients are from IMD 1-3 based

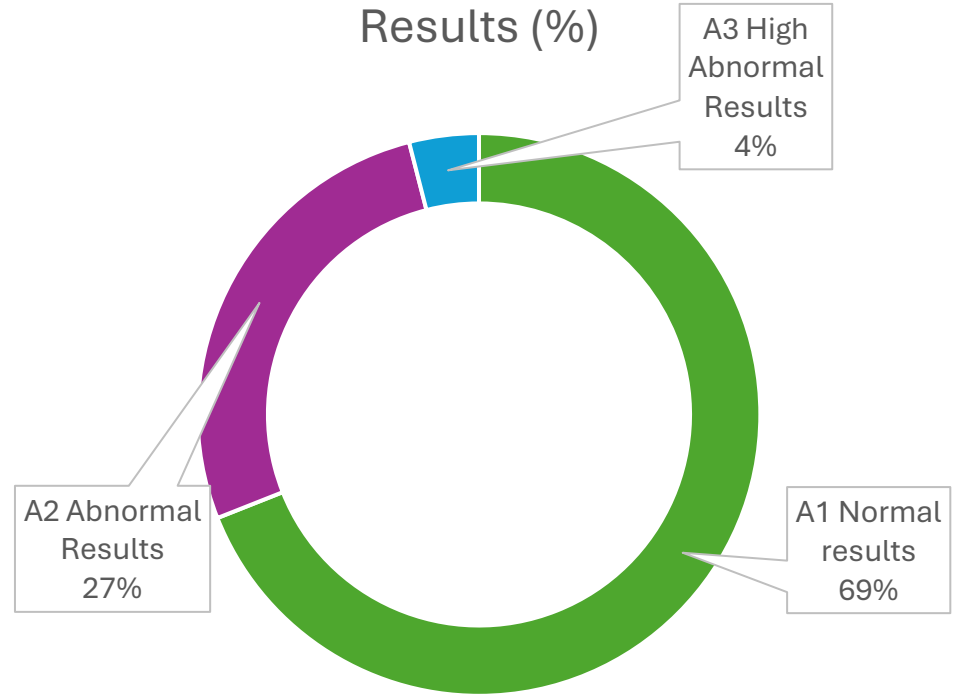
More kits sent than eligible pts as 100 shared for use in community events with LTHT and second kits sent to several individuals who were unable to effectively complete the test with their first kit



Overall Project Average for Testing Adherence – 57.5% (and growing)

Received results breakdown to date – 7.10.24

Result	Number of patients
A1 Normal results	3310
A2 Abnormal Results	1297
A3 High Abnormal Results	175



■ A1 Normal results ■ A2 Abnormal Results ■ A3 High Abnormal Results ■

HTAAF West Yorkshire – IMD Adherence Split

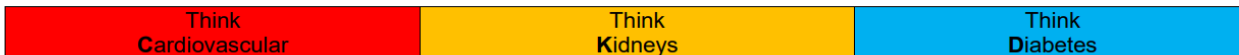
Eligible/Tested/Adherence Rate & Positive Test (Abnormal or High Abnormal) rate – as of 27th September 2024

UK IMD - Adherence

IMD decile 2019	1	2	3	4	5	6	7	8	9	10	1-5	6-10
Eligible	2,089	1,212	1,051	429	203	1,550	499	100	435	104	4,984	2,688
Tested	1,048	664	548	184	69	758	345	66	304	68	2,513	1,541
Adherence rate	50.2%	54.8%	52.1%	42.9%	34.0%	48.9%	69.1%	66.0%	69.9%	65.4%	50.4%	57.3%
Positive rate	28.7%	33.3%	29.9%	29.3%	33.3%	28.6%	29.0%	27.3%	28.0%	30.9%	30.4%	28.6%

One guideline!

West Yorkshire Guideline for the Management of Chronic kidney Disease (CKD) for Adults



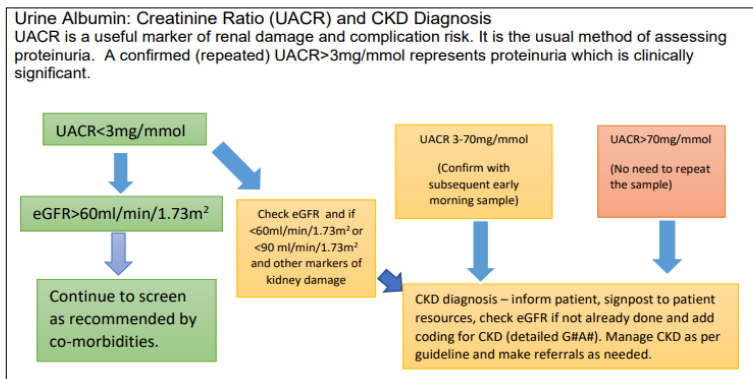
What is CKD? CKD is the presence of one of the following for >3 months	
Markers of Kidney Damage (one or more)	<ul style="list-style-type: none"> Albuminuria (UACR ≥ 3 mg/mmol) confirmed on an early morning urine sample if UACR < 70 mg/mmol. Urine sediment abnormalities e.g., presence of red (could indicate glomerular disease) or white blood cells (could indicate interstitial nephritis or infection e.g. pyelonephritis), tubular epithelial cells (could indicate parenchymal disease) Electrolyte and other abnormalities due to tubular disorders Abnormalities detected by histology. Structural abnormalities detected by imaging. History of kidney transplantation
Decrease eGFR	eGFR of < 60 ml/min/1.73 m ² (eGFR categories G3a–G5)

<p>Offer Screening for CKD using eGFR, serum creatinine and Urine Albumin: Creatinine Ratio (UACR) to people with any of the following risk factors:</p> <ul style="list-style-type: none"> All people living with diabetes at least annually For those with an eGFR < 60 ml/min/1.73m² a UACR should be requested Hypertension—annually as part of hypertension reviews https://cks.nice.org.uk/topics/hypertension/diagnosis/investigations/ Cardiovascular disease (ischaemic heart disease, chronic heart failure, peripheral arterial disease or cerebral vascular disease) annually as part of routine reviews History of acute kidney injury (monitor yearly for 3 years even if function back to baseline) Structural renal tract disease, recurrent renal calculi or prostatic hypertrophy Multi-system disease e.g., Systemic lupus erythematosus, vasculitis, myeloma Family history of end-stage kidney disease (GFR category G5) or hereditary kidney disease Haematuria /Proteinuria (opportunistic detection) Treated with nephron-toxic agents (NSAIDs, Lithium, Calcineurin inhibitors, Aminosaliclates etc)
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Every patient at the time of a clinician diagnosing CKD should have a urine dipstick because haematuria raises possibility of systemic renal disease or structural renal abnormalities which needs further assessment.

Haematuria

- Use dipstick reagent strips rather than urine microscopy.
- Evaluate further if a result of 1+ or more (initially repeat dipstick in 2 weeks)
- Result is not useful if the person is menstruating if someone has a catheter or has a known infection.



KFRE (Kidney Failure Risk Equation)
[The Kidney Failure Risk Equation](#)

Healthcare professionals can use the Kidney failure risk equation to determine 2 and 5 year risk of treated kidney failure (dialysis and transplantation) for a patient with CKD stage 3a-5
There are also videos available on this website to explain risk to people living with CKD www.kidneyfailurerisk.co.uk
NB: KFRE must be calculated using eGFR EPI (not MDRD)

How do we categorise CKD, how often should we test and when should we refer/seek advice?

When reviewing results, place the test results in clinical context including consideration of why the blood tests were taken. If history of acute illness, then assess and manage accordingly. Consider acute kidney injury (AKI) and the possibility of obstruction if rapidly declining eGFR. Think Kidneys <https://www.thinkkidneys.nhs.uk/aki/resources/primary-care/>, <https://www.thinkkidneys.nhs.uk/campaign/>

Frequency of Monitoring (number of times per year shown in table as <i>italised number</i>)				Urinary Albumin Creatinine Ratio (UACR)		
				normal or mildly increased	moderately increased	severely increased
				<30mg/g or <3mg/mmol	30-300mg/g or 3-30mg/mmol	>300mg/g or 30mg/mmol
				A1	A2	A3
EGFR categories	G1	normal or high	≥90	1 if CKD	1 monitor	2 A&G/Refer
	G2	mildly decreased	60-89	1 if CKD	1 monitor	2 A&G/Refer
	G3a	mildly to moderately decreased	45-59	1 Monitor	2 monitor	3 refer
	G3b	moderately decreased	30-44	2 Monitor	3 monitor	3 refer
	G4	severely decreased	15-29	3 A&G/Refer	3 A&G/Refer	4+ refer
	G5	kidney failure	<15	4+ refer	4+ refer	4+ refer

A&G = Advice and Guidance or refer NB: G1A1 and G2A1 only classed as CKD if also have additional Markers of Kidney Disease e.g. renal stone disease.

WHEN TO REFER

Where referral required, this should be to renal services if the patient does not have diabetes, or to combined diabetes/renal clinic for patient with diabetes (unless suspected or known non-diabetic kidney disease or eGFR <20ml/min/1.73 m2 in which case referral should be to renal service)

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

- 5-year risk of needing renal replacement therapy of greater than 5% (measured using the 4-variable [Kidney Failure Risk Equation](#))
- ACR of 70 mg/mmol or more, unless known to be caused by diabetes and already appropriately treated
- 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 m2 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
- known or suspected rare or genetic causes of CKD
- suspected renal artery stenosis.
- Patients with eGFR <30 ml/min/1.73 m2 will usually require referral; but with eGFR ≥30 ml/min/1.73 m2 referral will depend on other factors as above.

Patient Information

How to Look after your kidneys <https://www.kidneycareuk.org/order-or-download-booklets/ckd-health-check-look-after-your-kidneys-and-keep-yourself-well/>

Chronic Kidney Disease <https://www.kidneycareuk.org/order-or-download-booklets/chronic-kidney-disease/>


A healthy diet and lifestyle for kidneys <https://www.kidneycareuk.org/order-or-download-booklets/healthy-diet-and-lifestyle-your-kidneys/>

Medicines for chronic kidney disease <https://www.kidneycareuk.org/order-or-download-booklets/medicines-chronic-kidney-disease/>

Medicines for high blood pressure <https://www.kidneycareuk.org/order-or-download-booklets/medicines-high-blood-pressure/>

Diabetes and kidney disease <https://www.kidneycareuk.org/order-or-download-booklets/diabetes-and-kidney-disease/>

4 Key things in 4 months to Save Lives for Adults with CKD (ideally do in every patient with eGFR<60 or UACR ≥ 3 mg/mmol)

Month 1	Month 2	Month 3	Consider at month 4 onwards
<p>Maximum intensity RAS/ RAAS blockade and Optimise Lipids</p> <p>Start ACE-inhibitor or ARB in the following populations:</p> <ol style="list-style-type: none"> Adults with hypertension and an ACR>30mg/mmol (category A3 or above) Adults with diabetes and an ACR>3mg/mmol (category A2) Adults without diabetes and ACR>70mg/mmol (also refer to nephrology) <p>Titrate to maximum tolerated licensed dose (<i>NICE, NG203</i>) Ideally do this within one month (see rapid titration protocol for RAAS blockade below)</p> <p>Atorvastatin 20mg once daily should be offered as initial therapy for primary and secondary prevention and national guidelines followed for review and titration. Optimise lipid lowering therapies according to national lipid lowering guidance NHS Accelerated Access Collaborative » Summary of national guidance for lipid management (england.nhs.uk)</p>	<p>Start SGLT2i (Referring to 'safe and effective use of SGLT2is' guidance)</p> <p>Person with Type 2 Diabetes</p> <p>Start Dapagliflozin 10mg once daily ensuring the person has an eGFR 25-75 mL/min/1.73m² recognising that glycaemic benefits will be limited at an eGFR <45ml/min/1.73m²</p> <p>OR</p> <p>Start Empagliflozin 10mg once daily ensuring the person has an eGFR 20-90ml/min/1.73m² recognising that glycaemic benefits will be limited at an eGFR<45ml/min/1.73m²</p> <p>OR</p> <p>Start Empagliflozin 10mg once daily ensuring the person has either:</p> <ol style="list-style-type: none"> An eGFR 20 mL/min/1.723m² to less than 45ml/min/1.73m² OR An eGFR 45ml/min/1.73m² - 90ml/min/1.73m² and UACR ≥ 22.6mg/mmol. <p><i>(NB: Agents are listed in alphabetical rather than preferential order)</i></p> <p>Follow the guidance in the document 'Safe and Effective Use of SGLT2is'</p> <p>*We would not advocate switching SGLT2is so in those already established (including those on Canagliflozin) we would advise they continue and those already established on empagliflozin 25mg once daily should continue unless indicated to drop dose.</p> <p>Specialist initiation only if history of: transplantation; on immunological therapy; polycystic kidney disease; haemodialysis.</p>	<p>Optimise Blood Pressure and Other Cardiovascular Risk Factors</p> <p>Initiate further blood pressure agents to treat to target</p> <ul style="list-style-type: none"> UACR < 70mg/mmol: <130/80mmHg UACR>70mg/mmol: Ideally <120/80mmHg taking into consideration frailty and co-morbidities. <p>Caution in the elderly/frail – consider reviewing the targets</p> <p>Encourage home monitoring of Blood Pressure (NB targets are 5mmHg lower for HBPM)</p> <p>In those who have had a cardiovascular event, ensure offered aspirin with appropriate gastric protection (in some cases a H2 receptor antagonist may be preferred e.g., if having electrolyte abnormalities or in the instance of acute interstitial nephritis (ANI). Famotidine is the H2 receptor antagonist of choice in this situation).</p> <p>Aspirin may be considered for primary prevention in those at high cardiovascular risk. Initiation should be balanced with consideration of the increased bleeding risk, including thrombocytopenia with low eGFR.</p> <p>In those with established CAD or PAD at high risk of ischaemic events (see NICE) consider 2.5mg bd rivaroxaban alongside aspirin. Only if eGFR>15ml/min.</p>	<p>Consider referral for Finerenone</p> <p>Only for people living with Type 2 Diabetes and who also has:</p> <ul style="list-style-type: none"> stage 3 or 4 CKD (eGFR ≥25- <60ml/min/1.73m²) with albuminuria (UACR ≥3mg/mmol) been optimised on standard care (RAAS blockade and SGLT2ihibitors) <p>Finerenone can only be initiated if serum potassium ≤4.8mmol/L or if serum potassium >4.8 to 5 mmol/L then initiation can be considered with additional monitoring in the first 4 weeks based on patient characteristics and potassium levels.</p> <p>Initiate the lower dose of Finerenone 10mg if eGFR 25-59ml/min/1.73m²</p>
<p>Lifestyle advice – diet, exercise, weight management, smoking cessation </p>			

Support for Participating GP Practices – Place Clinical Leads

Please make contact with your Place Clinical Leads to discuss how they may support your practice:

- Bradford Place Lead – Nicholas Bird; nicholas.bird@bradford.nhs.uk
- Calderdale Place Lead – Victoria Briggs; victoria.briggs@cht.nhs.uk
- Kirklees Place Lead - Indira Kasibhatla; indira.kasibhatla@nhs.net
- Wakefield Place Lead – Dr Pravin Jayakumar; pravin.jayakumar@nhs.net
- Leeds Place Lead – Alice Pennock; alice.pennock@nhs.net

Support for Participating GP Practices

- WY Minuteful Kidney & HTN resource page [West Yorkshire Minuteful Kidney and Hypertension Project :: West Yorkshire Health & Care Partnership \(wypartnership.co.uk\)](#)
- Further Healthy.IO led onboarding webinars: PCN/Place level
- Clinical lead (System and Place) led MDT
- Access to other CKD training
- Cognitant “Kidney Essentials” web resources
- [A-Z of Hospital Services \(sth.nhs.uk\)](#) – The Yorkshire & Humber Kidney Network’s homepage

Cognitant “Kidney Essentials” Online Resource

An interactive web resource for patients to learn about chronic kidney disease (CKD), how to manage the condition, and what to expect if you have been diagnosed. This content has been produced in partnership with healthcare professionals and patients and is available in multiple languages.

West Yorkshire ICB have a 12 month license for use among primary and secondary care.

For more information visit - [West Yorkshire Kidney Health :: West Yorkshire Health & Care Partnership \(wypartnership.co.uk\)](http://WestYorkshireKidneyHealth::WestYorkshireHealth&CarePartnership(wypartnership.co.uk))

**Kidney Essentials,
Chronic Kidney
Disease**

NHS
NHS West Yorkshire
Integrated Care Board

YH
KN
YORKSHIRE & HUMBER
Kidney Network

To access interactive information,
scan the QR code or visit
www.healthinote.com/ckd-wyk

Do you have chronic kidney disease?
Use this interactive information to find out more about what chronic kidney disease (CKD) is, how it is managed and what to expect.

Available in multiple languages
English Polskie र्थिनाघी नेपाली اردو

This resource is intended to provide information only.
For specific questions about your treatment, please
speak to your care team.

Call to Action

Place engagement to date:

- 4 practices completed from Calderdale (02T) sub-region (New info: Calderdale subregion has an avg adherence rate of 57.7%)
- 6 from 03R Wakefield. (New info: Wakefield sub region has an avg adherence rate of 54.3%)
- 19 from 15F Leeds. (New info: Leeds subregion has an avg adherence rate of 64.3%)
- 12 from 36J Bradford (New info: Bradford subregion has an avg adherence rate of 49.8%)
- 6 From XC24Y Kirklees (New info: Kirklees subregion has an avg adherence rate of 55.2%)

Practice completions are therefore split:

- 40.4% - Leeds
- 12.7% - Wakefield
- 12.7% - Kirklees
- 25.5% - Bradford
- 8.5% - Calderdale

Q&A

@DrRajThakkar

@Sunildaga23

@Sarahdebiase



liver
health



YORKSHIRE & HUMBER
Kidney Network

West Yorkshire
Health and Care Partnership



Evaluation:

Adele to send link through



YORKSHIRE & HUMBER
Kidney Network

West Yorkshire
Health and Care Partnership

