Health Innovation
North East and North Cumbria

facts.ckd
Find Assess Correct Treat Sustain
Chronic Kidney Disease

Chronic Kidney Disease – Detect, Protect, Perfect

7th March 2024 12.00-13:00

House Keeping

- Please ensure your microphone and video are turned off during the session. This is to avoid any disruption during presentations and to assist with the quality of the connection.
- If you need to take a break, please feel free to drop off the call at any time and re-join.
- Live captions are available if required.
- The event is being recorded and will be shared.
- Please ask any questions you have through the chat facility. We will try to address questions during the event, but if we don't manage to do this we will follow up after the event.
- If you cannot see the chat, please email your question/s to sarah.black@healthinnovationnenc.org.uk

The Health Innovation Network

The Academic Health Science Network for the North East and North Cumbria has changed its name to Health Innovation North East and North Cumbria (HI NENC).

The new name – which came into effect on 1st October following the start of our new five-year licence – reflects the organisation's key role to continue to support the development and spread of innovation across the region's health service.

But while our name has changed, our vision remains the same: to improve health outcomes, reduce inequalities, and boost the regional economy. Working alongside partners across the system, we will continue to accelerate health innovation in the region, and beyond.

Established in 2013 by NHS England we are one of 15 Health Innovations.

Health Innovation
North East and North Cumbria

www.healthinnovationnenc.org.uk

Agenda

12.00 – 12.10 facts.ckd and HIN Strategic Priorities NENC
Prof Julia Newton (Chair)

12.10 – 12.40 The link between CKD and CVD (including optimised management of long-term conditions e.g. hypertension, ASCVD, diabetes and heart failure).
Prof Raj Thakkar

12.40 – 12.50 – KFRE and When to refer to Renal Service
Dr Sarah McCloskey

12.50 – 13.00 – Q&A

13.00 - Close

Primary Care Cardiovascular Society
Driving primary care to deliver the best in cardiovascular health

pccsuk.org

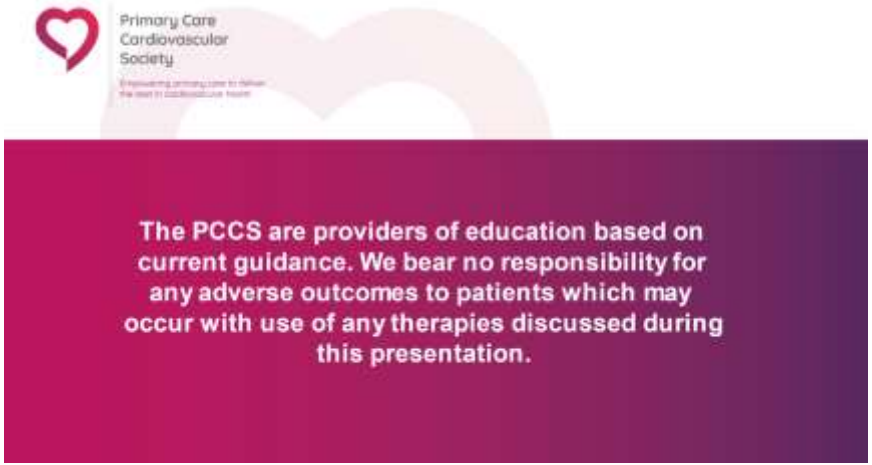
Addressing key risk factors for cardiovascular disease: **chronic kidney disease**

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/HVD, NHSE
National primary care workstream co-lead - cardiac transformation programme, NHSE
UK Clinical Director, Healthy.io
Industry consultant

Declarations

- Abbott
- AstraZeneca
- Bayer
- Boehringer Ingelheim
- Daiichi-Sankyo
- Novartis
- Amgen
- Medtronic
- Omron



Primary Care Cardiovascular Society

Driving primary care to deliver the best in cardiovascular health

Key topics

CKD as a risk factor for CVD

The importance of ACR testing [Prev/Sev/Risk]

How to improve outcomes

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/1.73m^2)

for at least 3 months"

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.

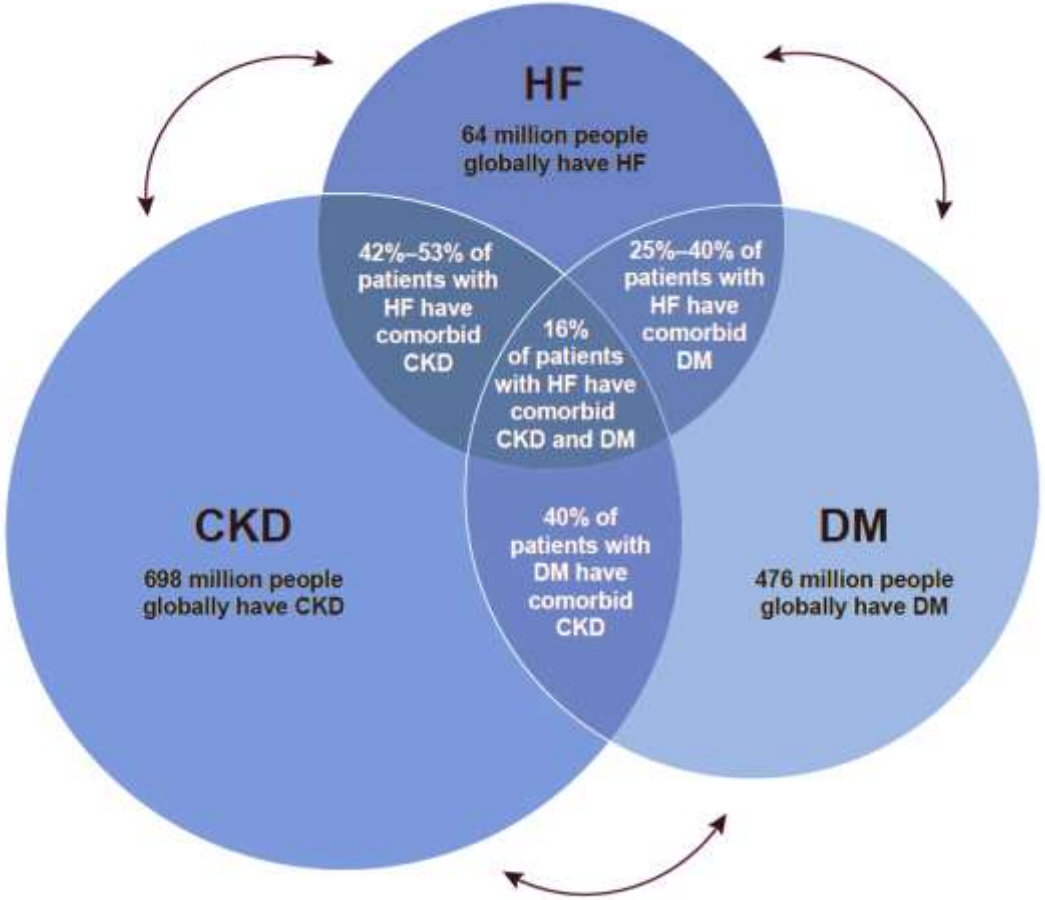
Primary Care Cardiovascular Society

Driving primary care to deliver the best in cardiovascular health

CKD Epidemic:

- Global prevalence of CKD has risen by 87% between 1990–2016
- Estimated further increase of 17% in prevalence of CKD by 2030
- 3rd fastest growing cause of death
- 5th ranked cause of death by 2040
- UK: 2020 (3.63 million) 2030 (4.38 million) (Xie et al., 2018)
- 34% of CKD cases are undiagnosed
- Higher rates of CKD in under-serve[illegible]es
- South Asians with diabetes 10x more likely to get kidney failure than Caucasians with diabetes

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

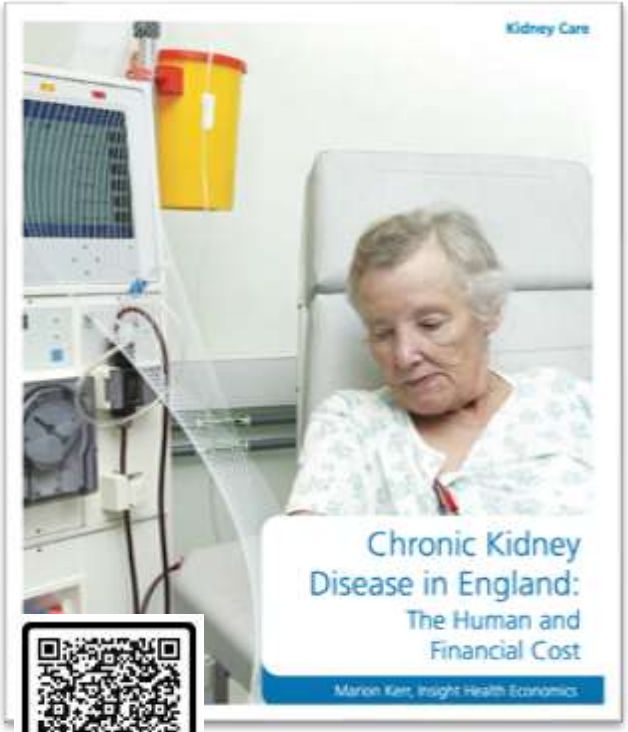


Review Article

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

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

Health Economics of CKD:



- **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.

- **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.

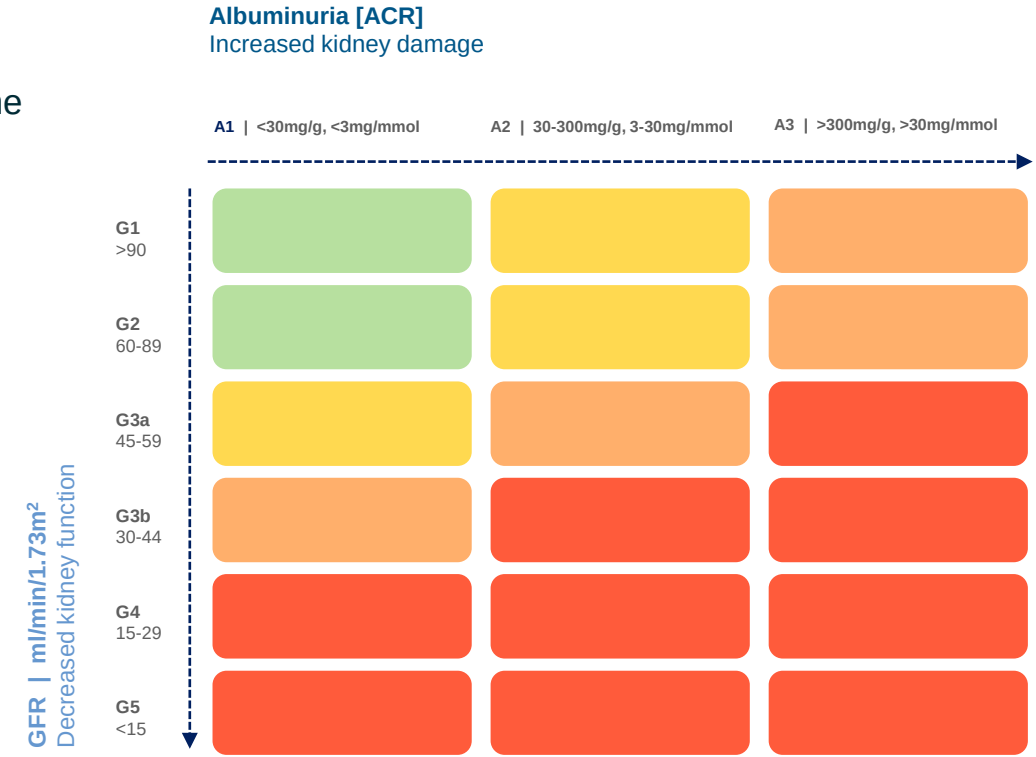
Diagnosing and Classifying CKD [NICE, CKD 2021]:

Primary Care Cardiovascular Society
Driving primary care to deliver the best in cardiovascular health

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

Key:

- Low risk
- Medium risk
- High risk
- Very high risk



Who should be tested for CKD?

NICE NG203, CKD

1.1.21: 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

The association of CKD with Cardiovascular Disease

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

Primary Care Cardiovascular Society
Driving primary care to deliver the best in cardiovascular health

38

unplanned hospital admissions per year

7

events of acute kidney injury per year

2 ICU

admissions to the Intensive Care Unit per year

6

cardiovascular events per year

7

deaths per year

National
A quality improvement programme for chronic kidney disease
CKDAudit

SCAN ME

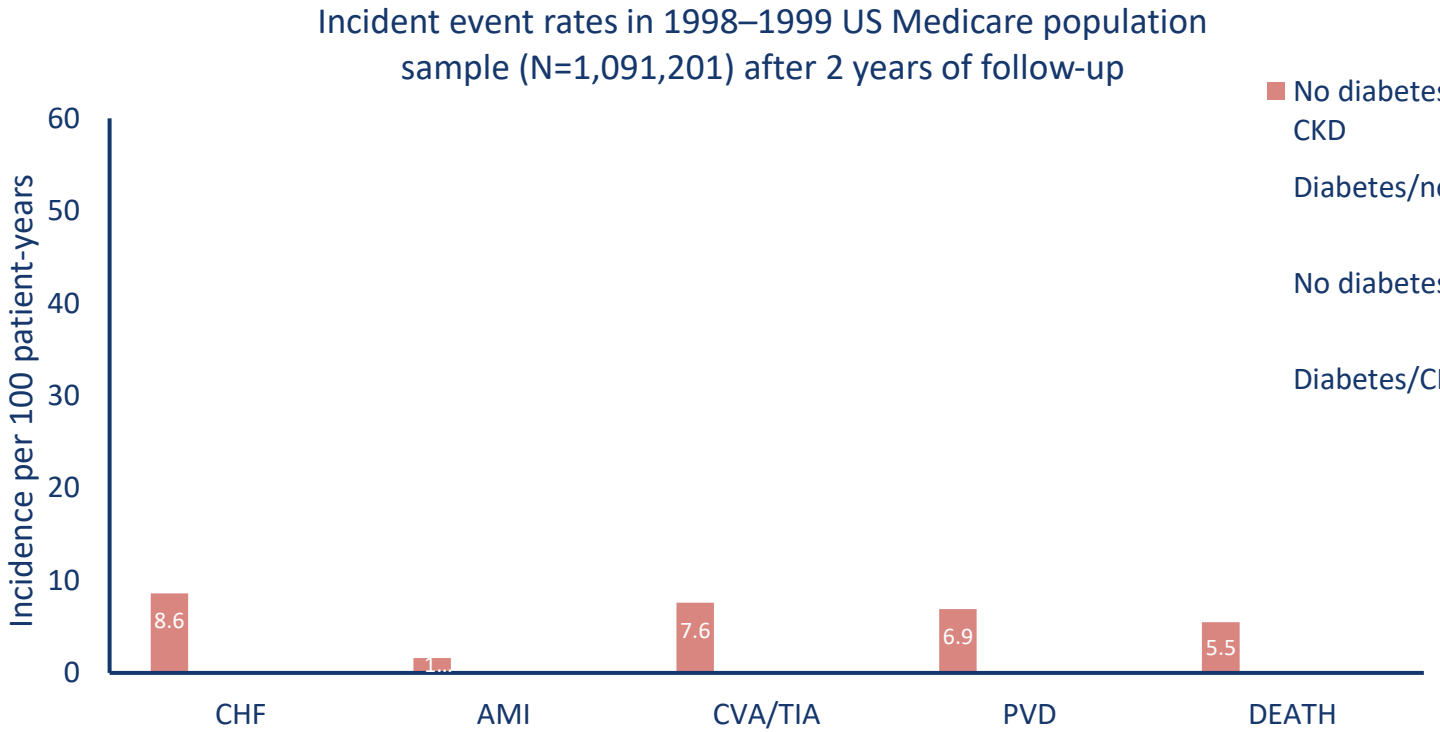
https://www.lshtm.ac.uk/media/10136

Kidney vasculature is a lens into the body's cardiovascular health:

- Approximately 10 km of capillaries in both kidneys
- 180L plasma filtered by kidneys in 24 hours
- 20-25% cardiac output
- CKD is a cardiovascular risk state
- Patients with CKD are 20x more likely to die from CVD than renal failure
- **CKD must be considered one of the strongest risk factors for the development of CVD***

*Tonelli M, Wiebe N, Culleton B, House A, Rabbat C, Fok M, McAlister F, Garg AX. Chronic kidney disease and mortality risk: a systematic review. J Am Soc Nephrol. 2006;17:2034–2047

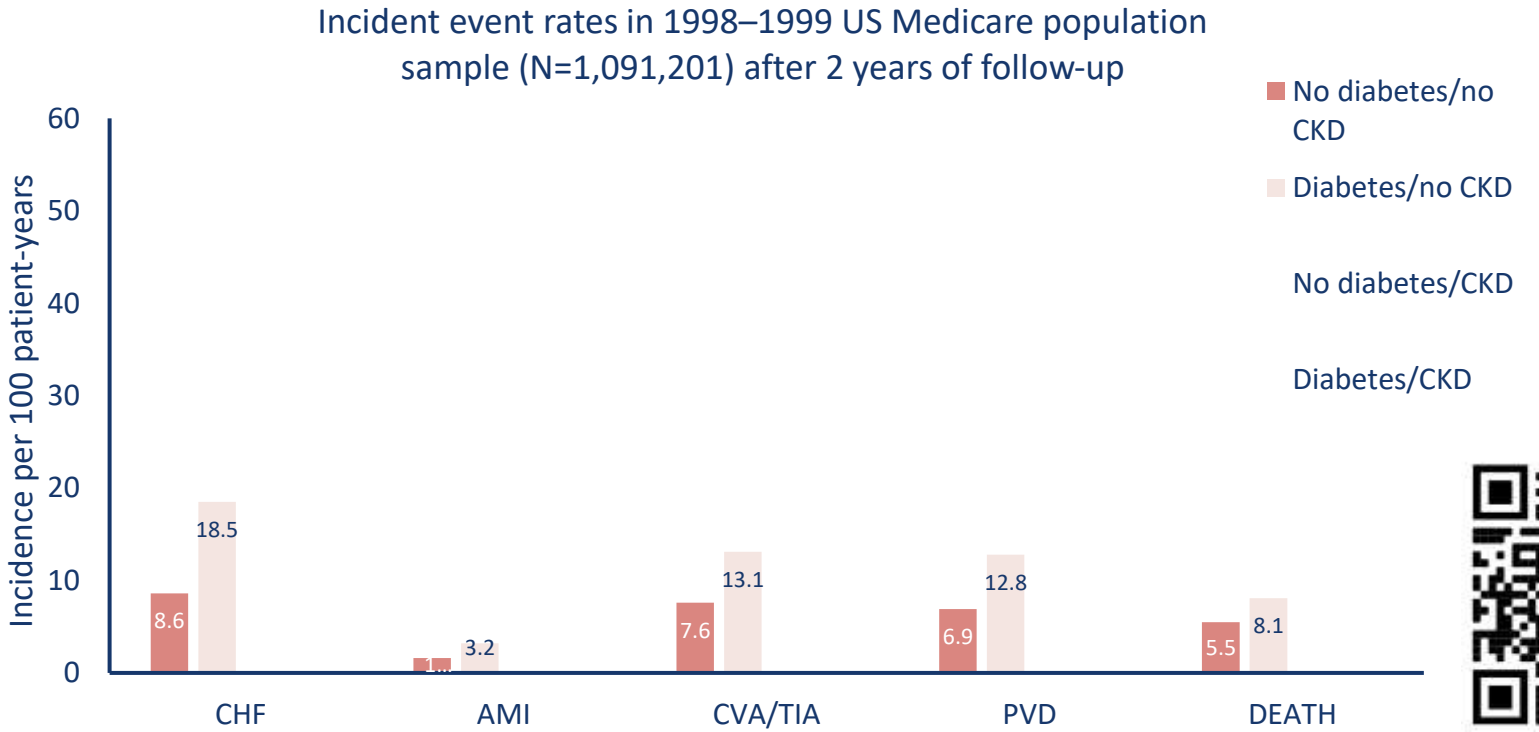
CKD vs diabetes



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

- CHF, congestive heart failure; AMI, acute myocardial infarction; CVA/TIA, cerebrovascular accident/transient ischemic attack; PVD, peripheral vascular disease;
- Adapted from Foley RN, et.al. Am. Soc. Nephrol. 2005.

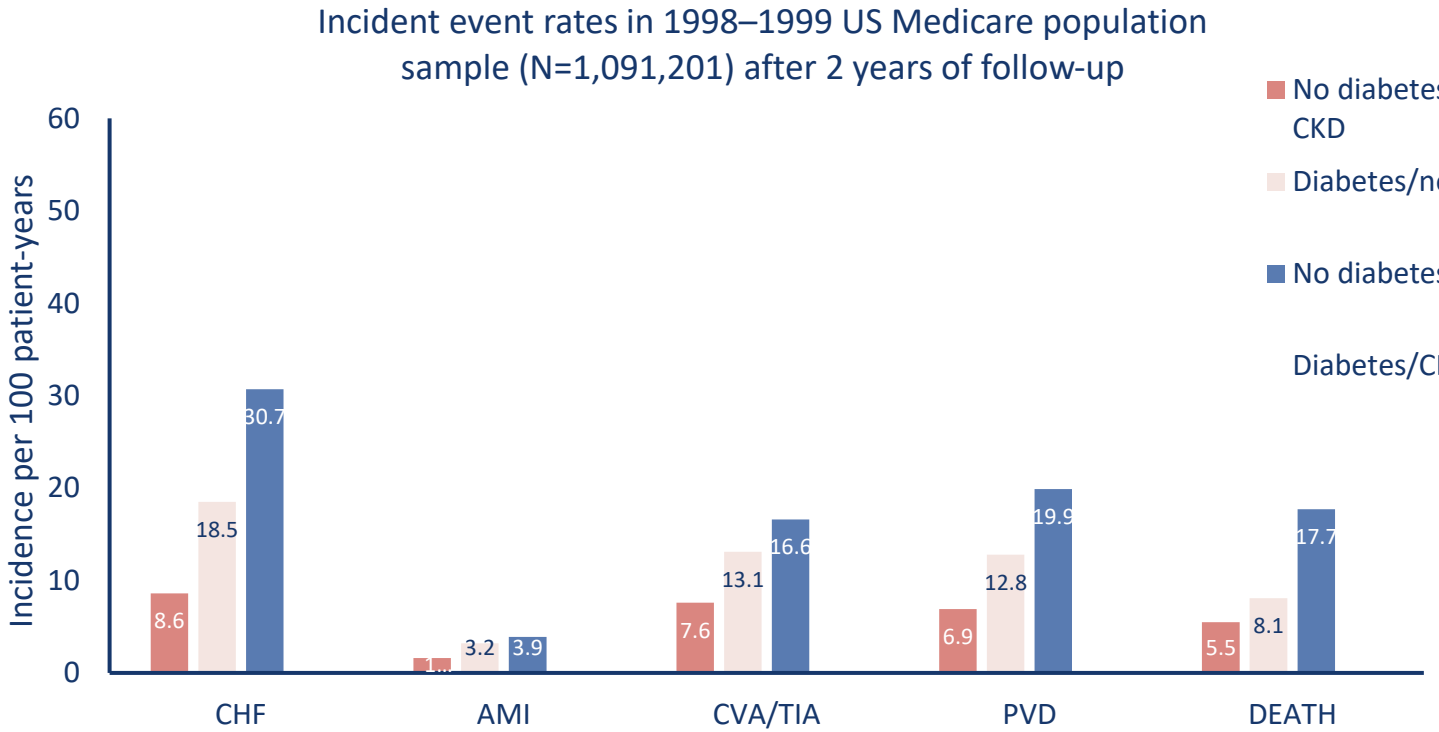
CKD vs diabetes



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

- CHF, congestive heart failure; AMI, acute myocardial infarction; CVA/TIA, cerebrovascular accident/transient ischemic attack; PVD, peripheral vascular disease;
- Adapted from Foley RN, et.al. Am. Soc. Nephrol. 2005.

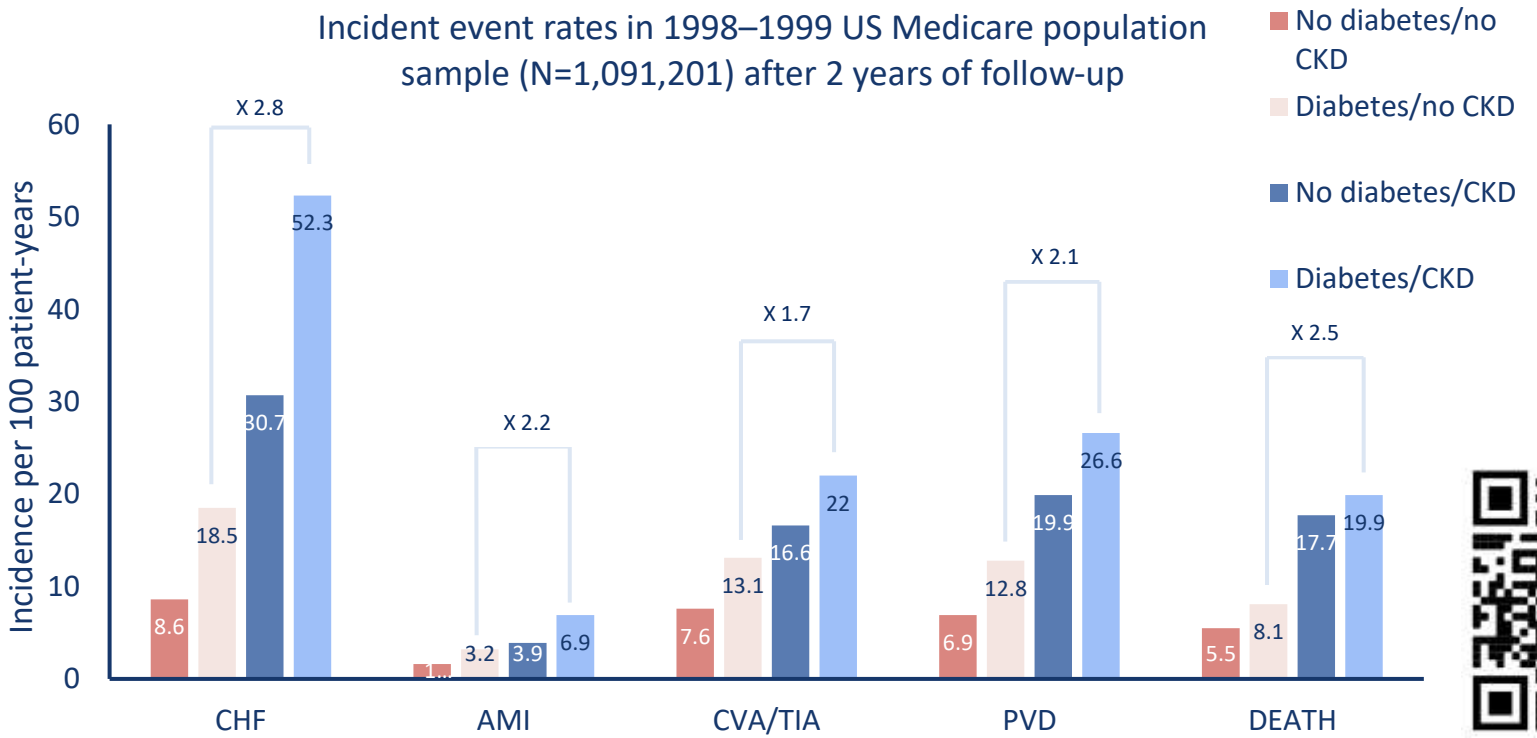
CKD vs diabetes



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

- CHF, congestive heart failure; AMI, acute myocardial infarction; CVA/TIA, cerebrovascular accident/transient ischemic attack; PVD, peripheral vascular disease;
- Adapted from Foley RN, et.al. Am. Soc. Nephrol. 2005.

CKD vs diabetes



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

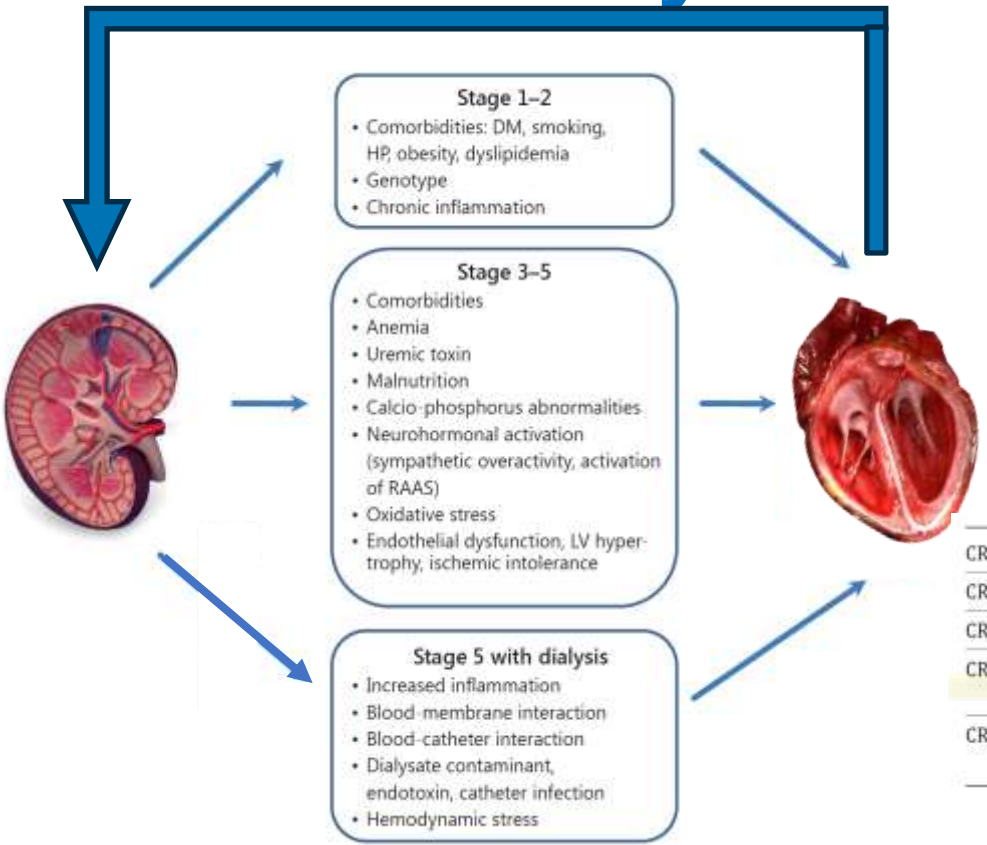
- CHF, congestive heart failure; AMI, acute myocardial infarction; CVA/TIA, cerebrovascular accident/transient ischemic attack; PVD, peripheral vascular disease;
- Adapted from Foley RN, et.al. Am. Soc. Nephrol. 2005.

Diabetic kidney disease

- ~40% diabetics develop DKD[1–3]
  - DKD is the commonest cause of ESRD worldwide
  - DKD in T2DM often diagnosed late
  - Often co-exists with obesity and AF
- – Significant number have albuminuria.[4,5]
  - Worse with uncontrolled HTN
  - Improves with good sugar and BP control
- – Complex[2]
  - Inflammation
  - RAAS activation and glomerular hyperfiltration
  - Glomerulosclerosis, fibrosis

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; 6. Wang et al., Atrial Fibrillation and Diabetes Mellitus: JACC Review Topic of the Week. Journal of the American College of Cardiology 2019;74:1107-1115.

Cardiorenal syndromes



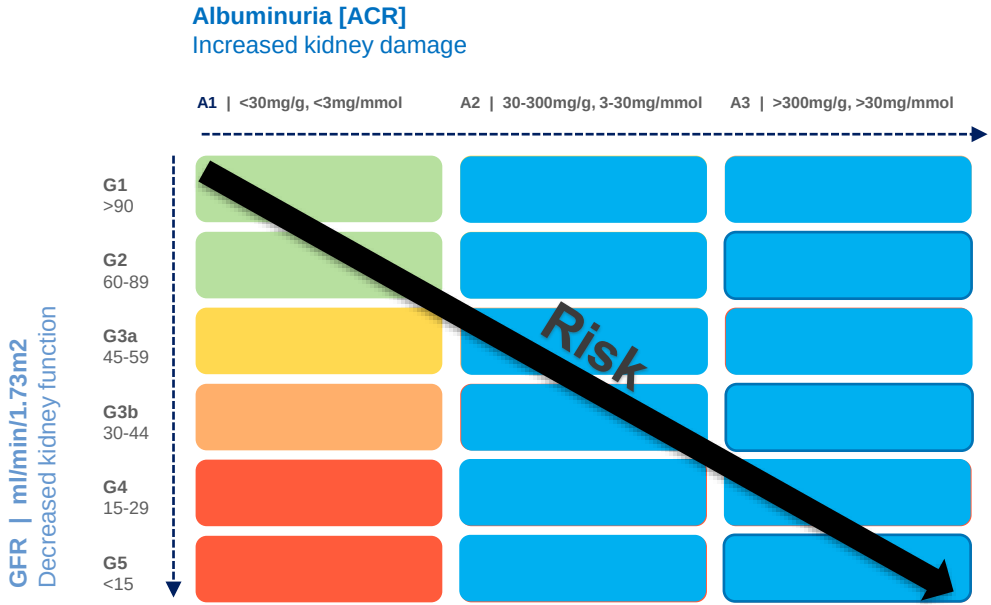
Hypertension	Valve disease	Heart failure, LVH, cardiomyopathy, myocardial fibrosis
CAD, Stroke, PVD	AF, Sudden cardiac death – fatal arrhythmias	Inflammation

CRS type 1	Acute worsening of heart function causing acute kidney injury and/or dysfunction
CRS type 2	Chronic abnormalities in cardiac function leading to progressive CKD
CRS type 3	Sudden worsening of renal function causing acute cardiac injury and/or dysfunction
CRS type 4	Condition of primary CKD leading to a reduction in cardiac function (ventricular hypertrophy, diastolic dysfunction) and/or increased risk of cardiovascular events
CRS type 5	Systemic disorders (e.g. sepsis) that concurrently induce cardiac and kidney injury and/or dysfunction

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

Clementi A et al. Cardiorenal Med 2013;3:63–70; 2. McCullough PA and Ronco C (eds.). Textbook of Cardiorenal Medicine. 1st

What happens if we don't check the urine for albuminuria?



Underdiagnosis

Under-estimation of severity

Under-estimation of risk + Missed opportunity for treatment

Key | Low risk | Medium risk | High risk | Very high risk

Albuminuria is a strong and independent risk predictor for end-stage renal disease (ESRD), CVD and death

Adjusted relative risk (RR) for eGFR cohorts by uACR level

All-cause mortality

	uACR < 1.0	uACR 1.0–2.9	uACR 3.0–29.9	uACR ≥ 30.0
eGFR > 105	1.1	1.5	2.2	5.0
eGFR 90–105	Ref	1.4	1.5	3.1
eGFR 75–90	1.0	1.3	1.7	2.3
eGFR 60–75	1.0	1.4	1.8	2.7
eGFR 45–60	1.3	1.7	2.2	3.6
eGFR 30–45	1.9	2.3	3.3	4.9
eGFR 15–30	5.3	3.6	4.7	6.6

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

Renal failure (ESRD)

	uACR < 1.0	uACR 1.0–2.9	uACR 3.0–29.9	uACR ≥ 30.0
eGFR > 105	Ref	Ref	7.8	18
eGFR 90–105	Ref	Ref	11	20
eGFR 75–90	Ref	Ref	3.8	48
eGFR 60–75	Ref	Ref	7.4	67
eGFR 45–60	5.2	22	40	147
eGFR 30–45	56	74	294	763
eGFR 15–30	433	1044	1056	2286

CVD, cardiovascular disease; eGFR, estimated glomerular filtration rate; ESRD, end-stage renal disease; uACR, urine albumin-to-creatinine ratio.

Adapted from Levey AS, et al. The definition, classification, and prognosis of chronic kidney disease: a KDIGO Controversies Conference report. Kidney Int. 2011; 80:17–28.

Identification and management in primary care

Identification

- CKD coding
- Case finding for unidentified CKD using eGFR and ACR
- Inequalities

Management

- Education – Cardiovascular health / lifestyle / modifiable risk-factors
- QRISK3
- KFRE

Medical Optimisation

- Blood Pressure Optimisation
- Lipid lowering therapy [QOF]
- Maximum Renin Angiotensinogen Aldosterone inhibition [Stop-ACEi study]
- Sodium Glucose Transporter-2 inhibitor and finerenone
- Optimise LTC
- Frailty/EOL

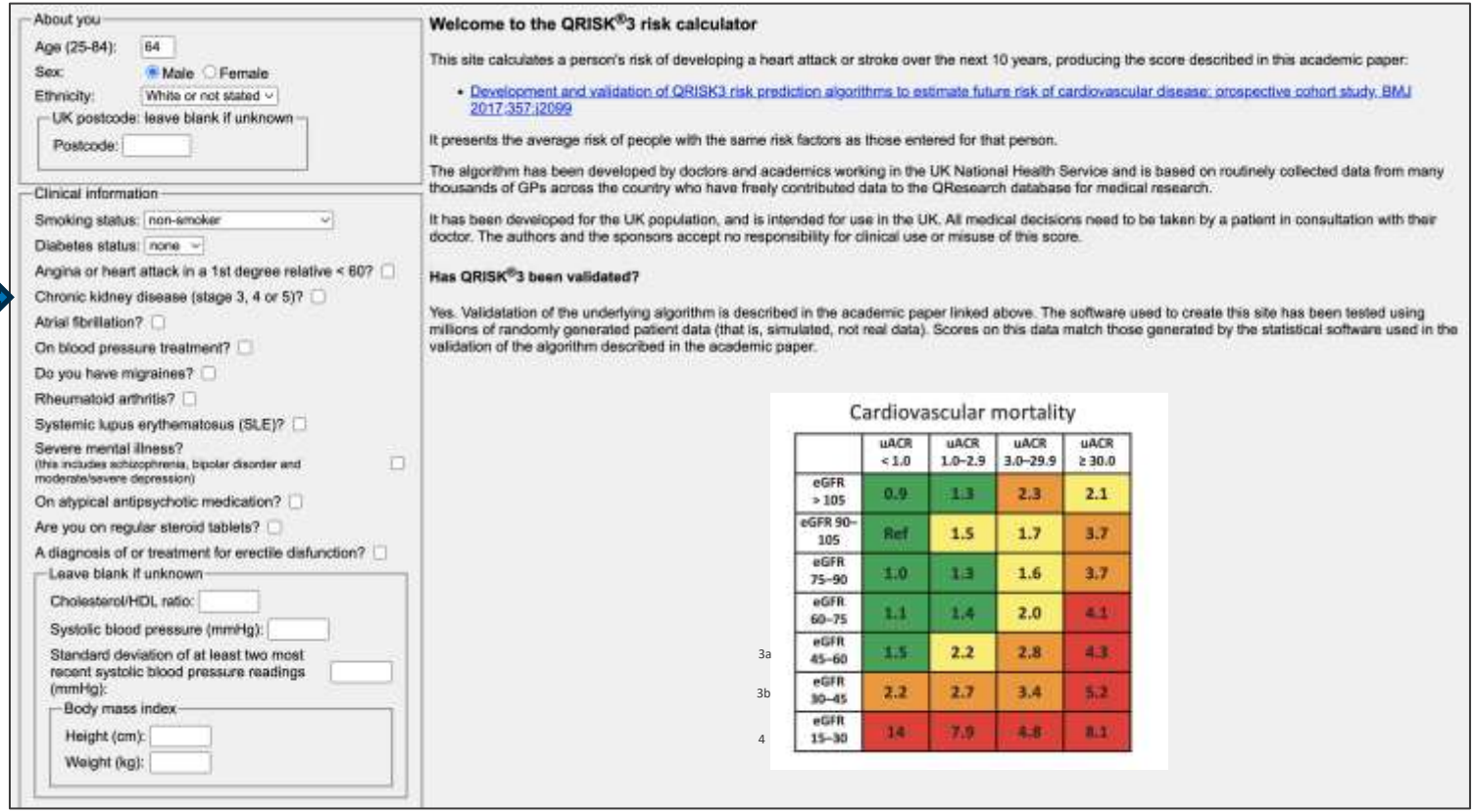
Primary Care Cardiovascular Society

Driving primary care to deliver the best in cardiovascular health

The problem with QRISK3

Primary Care Cardiovascular Society

Driving primary care to deliver the best in cardiovascular health



About you

Age (25-84): 64

Sex: Male Female

Ethnicity: White or not stated

UK postcode: leave blank if unknown

Postcode:

Clinical information

Smoking status: non-smoker

Diabetes status: none

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):

Welcome to the QRISK®3 risk calculator

This site calculates a person's risk of developing a heart attack or stroke over the next 10 years, producing the score described in this academic paper:

- Development and validation of QRISK3 risk prediction algorithms to estimate future risk of cardiovascular disease: prospective cohort study. BMJ 2017;357:j2099

It presents the average risk of people with the same risk factors as those entered for that person.

The algorithm has been developed by doctors and academics working in the UK National Health Service and is based on routinely collected data from many thousands of GPs across the country who have freely contributed data to the QResearch database for medical research.

It has been developed for the UK population, and is intended for use in the UK. All medical decisions need to be taken by a patient in consultation with their doctor. The authors and the sponsors accept no responsibility for clinical use or misuse of this score.

Has QRISK®3 been validated?

Yes. Validatation of the underlying algorithm is described in the academic paper linked above. The software used to create this site has been tested using millions of randomly generated patient data (that is, simulated, not real data). Scores on this data match those generated by the statistical software used in the validation of the algorithm described in the academic paper.

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
3a eGFR 45–60	1.5	2.2	2.8	4.3
3b eGFR 30–45	2.2	2.7	3.4	5.2
4 eGFR 15–30	14	7.9	4.8	8.1

Kidney failure risk equation

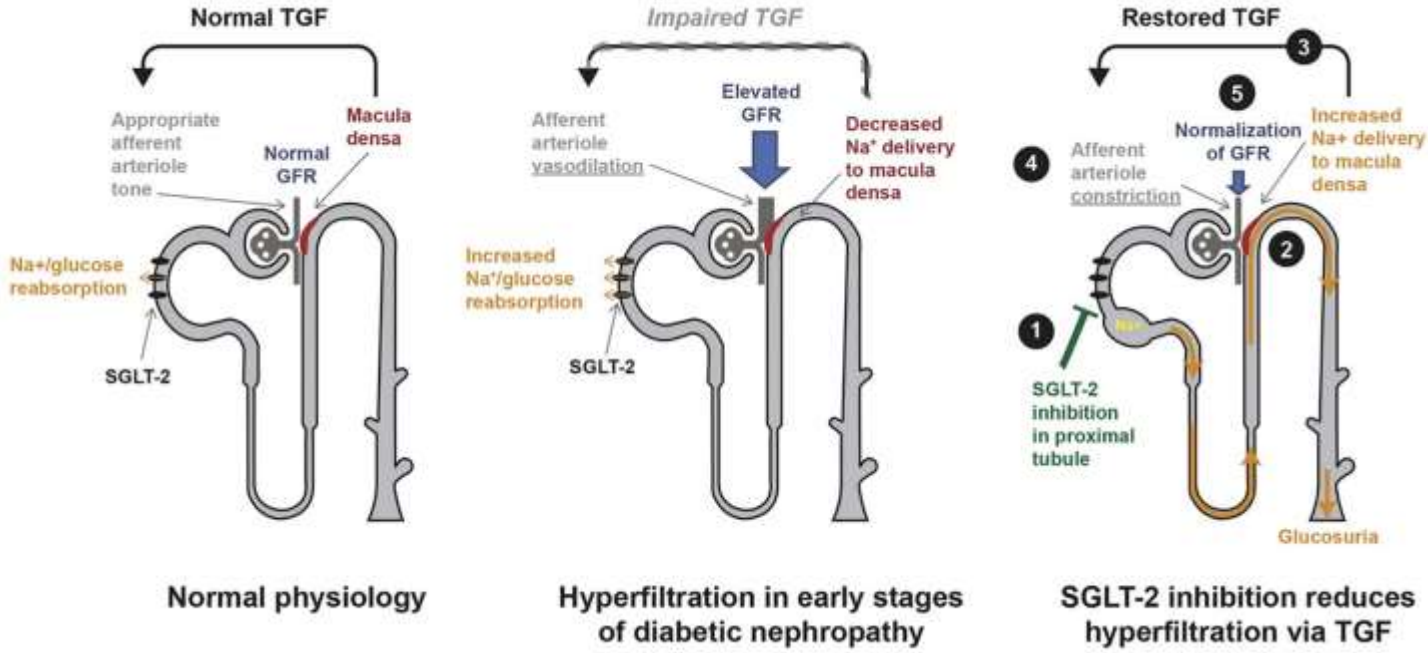
- Kidney failure risk equation = KFRE
- Adopted for UK population. - www.kidneyfailurerisk.co.uk/
- Gives 5-year risk of end stage renal failure
- 5% referral threshold
- Doesn’t give CVD risk

Primary Care Cardiovascular Society

Driving primary care to deliver the best in cardiovascular health

SGLT2i in diabetes

TGF: tubule glomerular feedback



J Osteopath Med 2021; 121(2): 229–239

Quality improvement ideas in CKD

Primary Care Cardiovascular Society

Driving primary care to deliver the best in cardiovascular health

Population health

- Code patients with CKD
- Actively look for patients at risk of having CKD using eGFR and ACR
- Ensure patients with CKD are auscultated for valve disease
- Have a high index of suspicion for heart failure

Management

- Ensure patients with CKD esp with albuminuria are optimised
- Optimise CVD risk at an early stage
- Optimise secondary prevention
- Identify frailty early

Summary

CKD is a strong predictor of adverse cardiovascular outcomes

CKD is a greater risk factor for CVD than diabetes

It is important to look for CKD in at risk patients [NICE].

Testing for eGFR alone is not enough –failure to test for albuminuria underestimates prevalence, severity of CKD and risk

Coding patients with CKD can reduce admissions and death

Address underlying cause, lifestyle factors, ACEi/ARBs, SGLT2i, finerenone, LLT and BP control

Identify frailty early

Primary Care Cardiovascular Society

Driving primary care to deliver the best in cardiovascular health

Thank you for your attention

@DrRajThakkar

Primary Care Cardiovascular Society

Driving primary care to deliver the best in cardiovascular health

www.PCCSUK.org

South Tyneside and Sunderland
NHS Foundation Trust

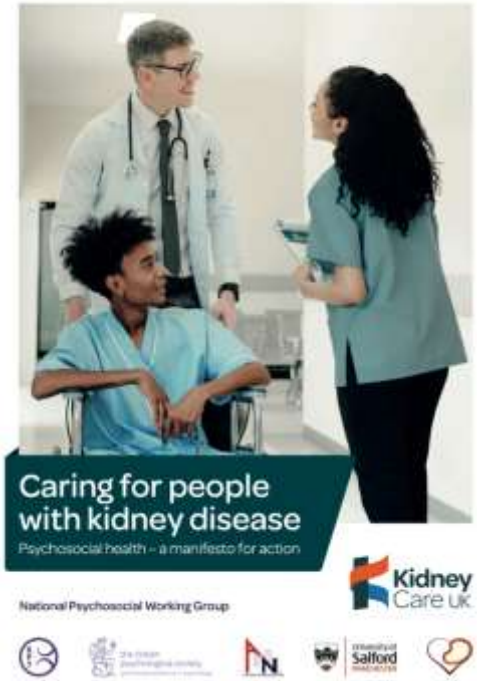
CKD Webinar

Dr Sarah McCloskey
Consultant Nephrologist and Physician
NENC Renal Network CKD Lead

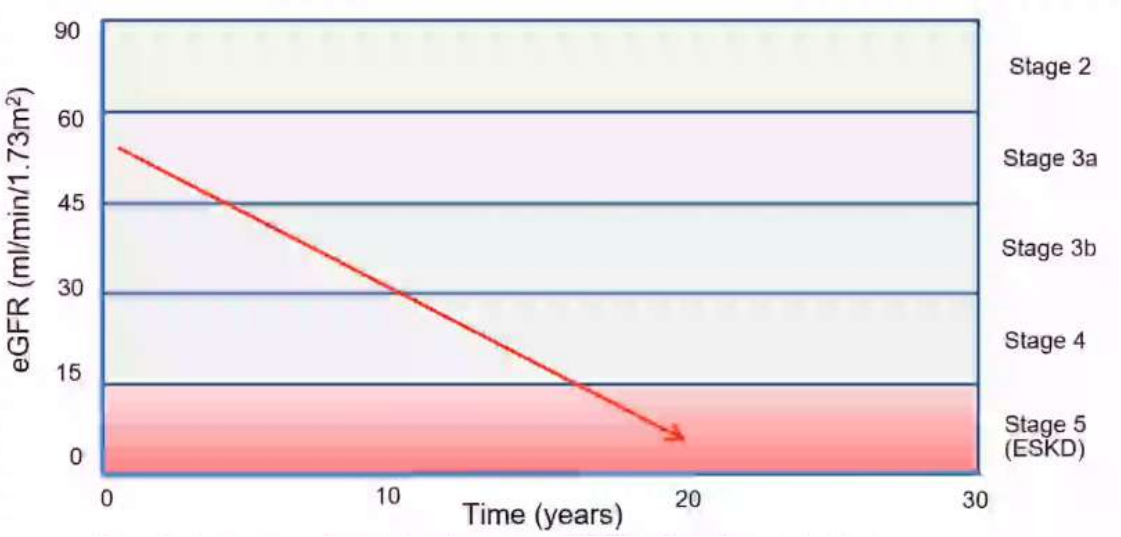
The path to excellence

Why does CKD matter?

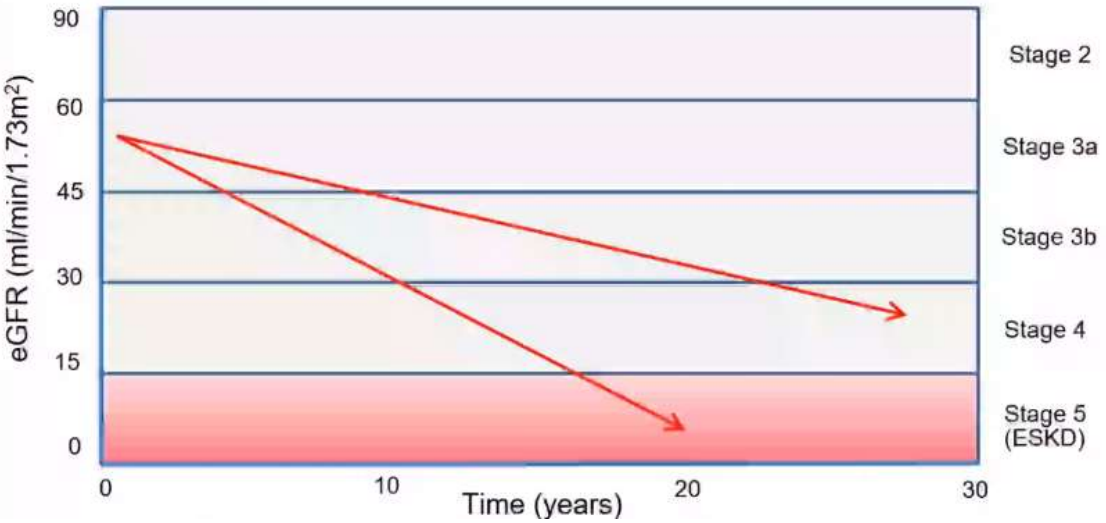
- CKD is a lifetime illness
- ↑ rate of mental health illnesses
- Lower QoL across all domains (esp. dialysis)
- ↓ employment prospects
- Impact on fertility in ESRD

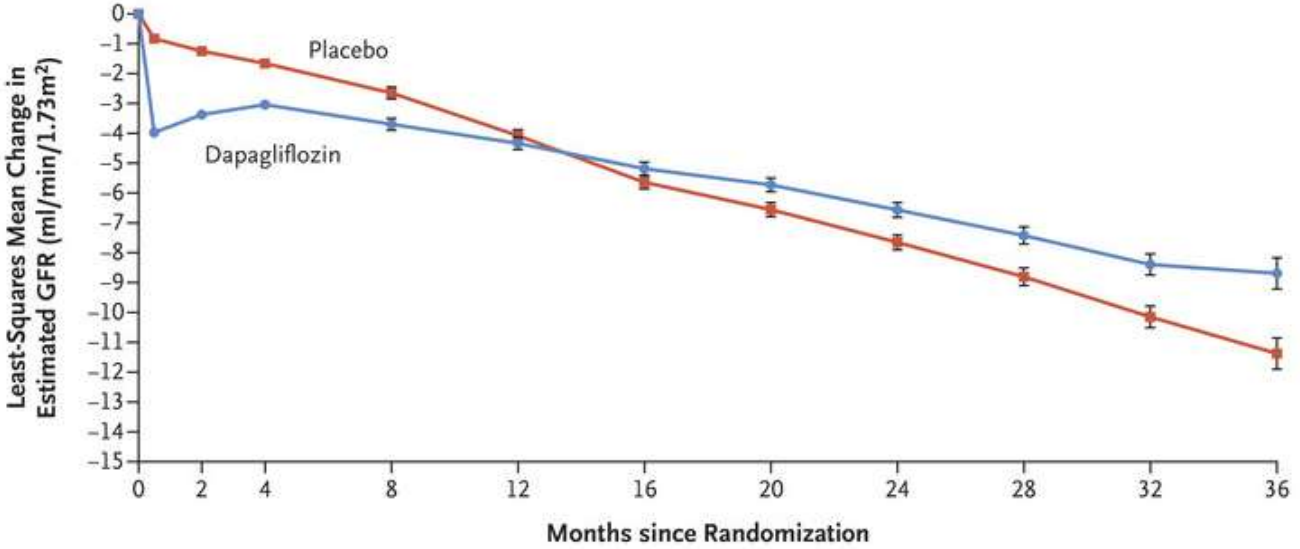


Early identification and intervention



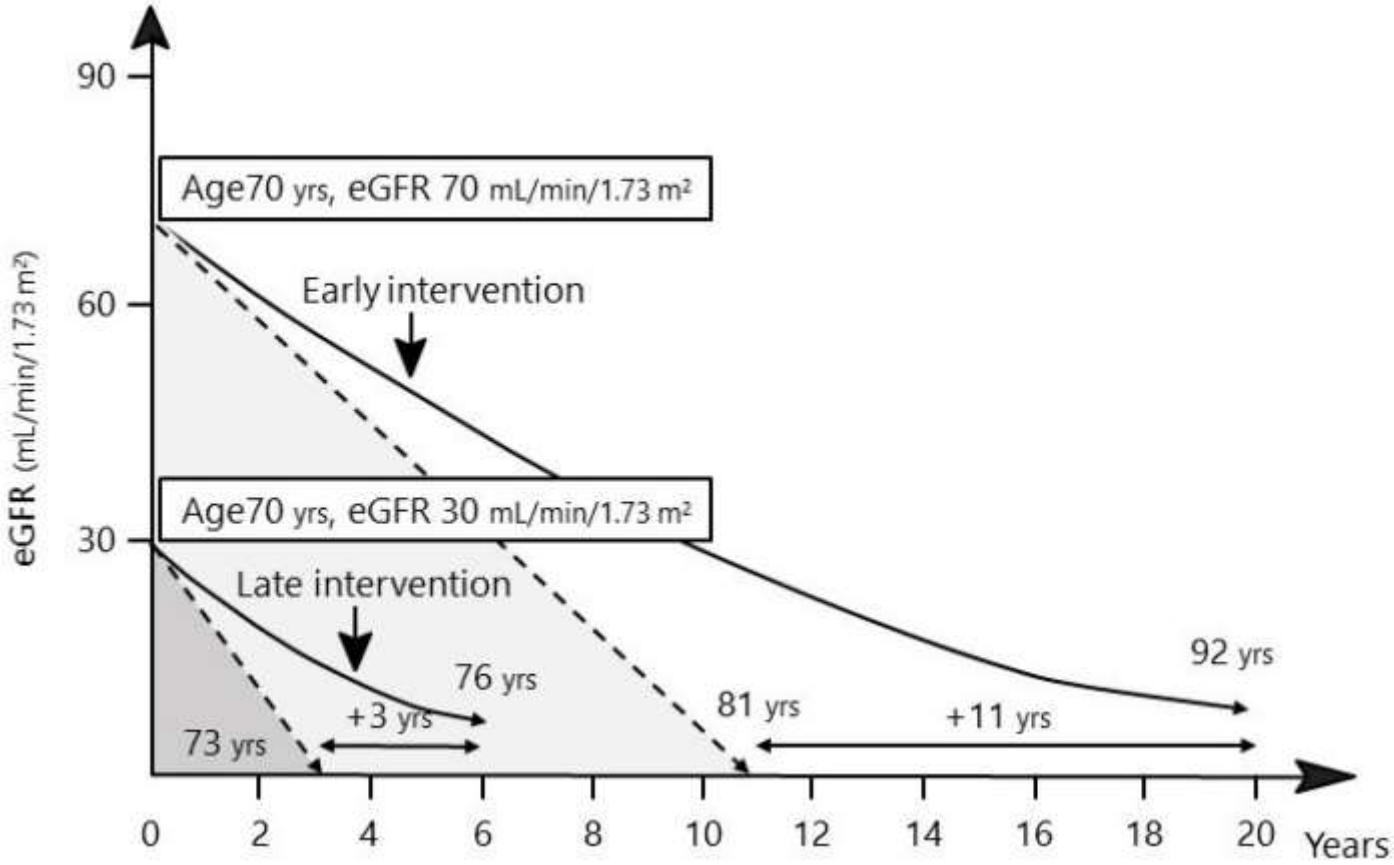
Early identification and intervention





No. of Participants											
Placebo	2152	2029	1981	1866	1795	1753	1672	1443	935	447	157
Dapagliflozin	2152	2031	2001	1896	1832	1785	1705	1482	978	496	157

Dapagliflozin in Patients with CKD NEJM Oct 2020

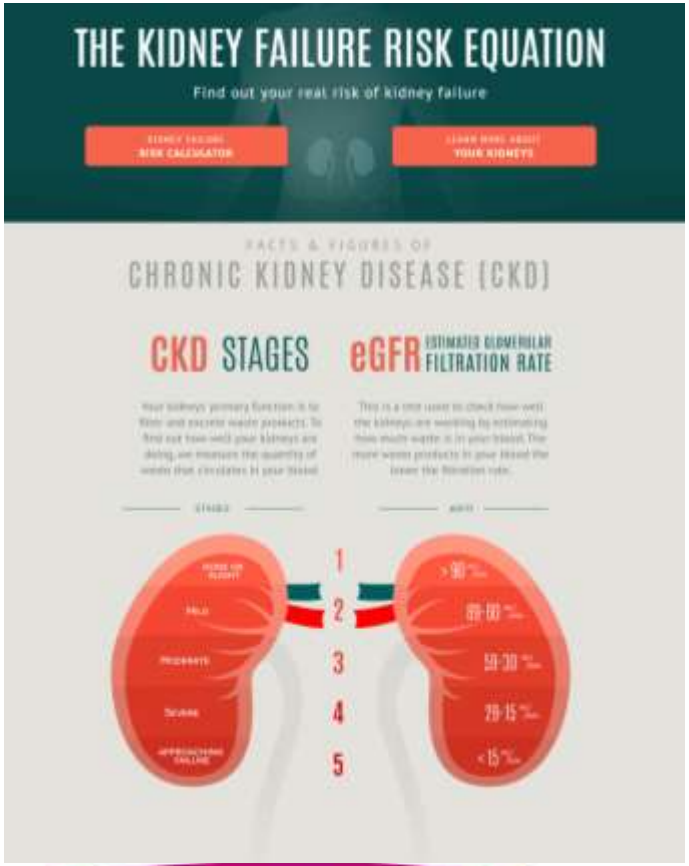

90
60
30
eGFR (mL/min/1.73 m²)
Age70 yrs, eGFR 70 mL/min/1.73 m²
Early intervention
Age70 yrs, eGFR 30 mL/min/1.73 m²
Late intervention
92 yrs
76 yrs
81 yrs
+3 yrs
+11 yrs
73 yrs
0
2
4
6
8
10
12
14
16
18
20
Years

NICE CKD Guidelines

- Screening at risk groups
- Kidney Failure Risk Equation instead of eGFR threshold for referral
- Statin treatment
- SGLT2i

Risk factors for CKD

- Nephrotoxic medication (annually)
- Diabetes
- Hypertension
- AKI
- CVD
- Structural renal tract disease, recurrent renal calculi or prostatic hypertrophy
- Multisystem diseases with renal involvement
- Gout
- FHx ESKD or hereditary kidney disease
- Incidental haematuria or proteinuria



https://kidneyfailurerisk.co.uk/

YOUR RESULTS

88 mg/mmol
URINE ALBUMIN

M
SEX

42
AGE

45 mL/min/1.73 m2
EGFR

ASSESSMENT

STAGE 3

MODERATE DECREASE IN FUNCTION

CKD STAGES

ESTIMATED GLOMERULAR FILTRATION RATE

Patient risk of progression to kidney failure requiring dialysis or transplant:

AT 2 YEARS	AT 5 YEARS
1.9 %	6.5 %

NICE Referral Criteria:

Taking into account the individual's wishes and other health conditions, considering referral to a hospital kidney doctor if:

- 5-year KFRE predicted risk over 5% risk KFRE

HOW CAN I REDUCE MY RISK OF KIDNEY FAILURE?

There are things you can do to reduce your risk of kidney failure over the next five years. Click below to see how the following will decrease your risk.

- ○ Your current 5 year risk based on the answers you provided is **6.51%**
- ○ Achieving good blood pressure control can reduce your 5 year risk from **6.51%** to **5.14%.**
- ○ An ACE inhibitor (pril) or ARB (sartan) can reduce your 5 year risk from **6.51%** to **4.56%.**
- ◉ An SGLT2 inhibitor (gliflozin) can reduce your 5 year risk from **6.51%** to **3.58%.**

The benefits of these changes can add up over time.

NENC Guideline For Use Of Sodium Glucose Co-transporter 2 Inhibitors (SGLT2i) in Adults

Introduction & Scope

Aims of this document:

- To guide prescribing of SGLT2 inhibitors within each individual drug's current license
- To advise on appropriate choice of SGLT2 inhibitor
- To ensure safe and appropriate prescribing of SGLT2 inhibitors for patients
- To ensure that the necessary safety information is given to all patients

It is important to note this is only a guide and not exhaustive, appropriate clinical judgement and referral to other reference sources may be appropriate in individual patient cases. This resource is only for use in adults.

Licenses for SGLT2 inhibitors are changing rapidly. Always check the up-to-date licenses.

The information in this guidance was correct at the time of publication.

What are SGLT2 inhibitors?

- An established class of medications which are licensed for the treatment of:
  - Insufficiently controlled type 2 diabetes (T2DM)
  - Symptomatic chronic heart failure (HF) with reduced ejection fraction (HFrEF), with mildly reduced ejection (HFmrEF), or with preserved ejection fraction (HFpEF) (with or without T2DM)
  - Chronic kidney disease (CKD) (with or without T2DM)
- SGLT2 inhibitors have been shown to reduce the risk of cardiovascular events in people living with T2DM and atherosclerotic cardiovascular disease (ASCVD) i.e., coronary heart disease, acute coronary syndrome, previous myocardial infarction, stable angina, prior coronary or other revascularisation, cerebrovascular disease (ischaemic stroke and transient ischaemic attack) and peripheral arterial disease
- They act by preventing the absorption of glucose and sodium, mainly from the proximal renal tubule in the kidney
- Glucose and sodium are, therefore, lost in urine
- People do not become hyponatraemic (unless co-prescribed diuretics) as most of the sodium is reabsorbed in the distal tubule
- This effect results in decreasing the blood glucose level, weight loss, an osmotic diuresis and a drop in blood pressure

Step 1: Identify if the person is suitable for an SGLT2 inhibitor – decide which SGLT2 inhibitor to use

Which SGLT2 inhibitor should I use?

Choice of SGLT2 inhibitor depends on co-morbidities.

One significant co-morbidity:

T2DM	HFrEF	HFpEF or HFmrEF	CKD*
Dapagliflozin or Empagliflozin	Dapagliflozin or Empagliflozin	Dapagliflozin	Dapagliflozin

Two significant co-morbidities:

	T2DM	HFrEF	HFpEF or HFmrEF	CKD*	CKD**	ASCVD***
T2DM		Dapagliflozin or empagliflozin	Dapagliflozin	Dapagliflozin	Dapagliflozin	Empagliflozin or dapagliflozin
HFrEF	Dapagliflozin or empagliflozin			Dapagliflozin	Dapagliflozin	Empagliflozin or dapagliflozin
HFpEF or HFmrEF	Dapagliflozin			Dapagliflozin	Dapagliflozin	Dapagliflozin
CKD*	Dapagliflozin	Dapagliflozin	Dapagliflozin			Dapagliflozin
CKD**	Dapagliflozin	Dapagliflozin	Dapagliflozin			
ASCVD***	Empagliflozin or dapagliflozin	Empagliflozin or dapagliflozin	Dapagliflozin	Dapagliflozin		

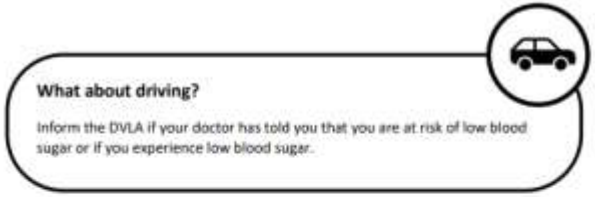
Three or more significant co-morbidities (T2DM and/or ASCVD and/or HF and/or CKD*):

Dapagliflozin (or empagliflozin if no CKD)

We would not advocate switching between SGLT2 inhibitors if co-morbidity changes.

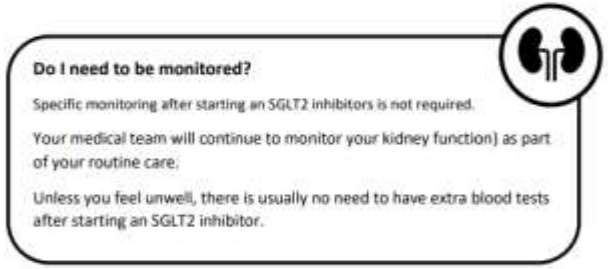
The above suggestions for initial therapy are based on licences and clinical trial data including cardiovascular outcome trials.

Criteria For Use:



What about driving?

Inform the DVLA if your doctor has told you that you are at risk of low blood sugar or if you experience low blood sugar.



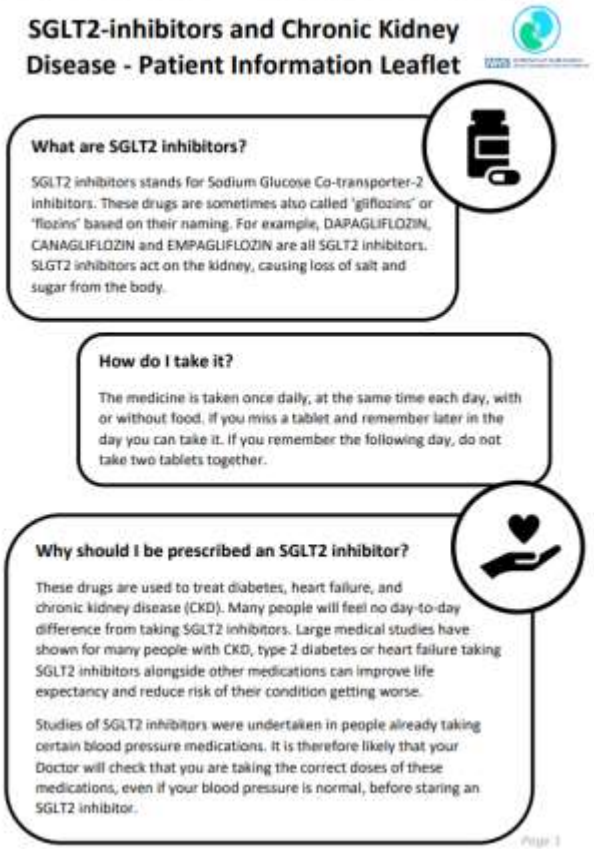
Do I need to be monitored?

Specific monitoring after starting an SGLT2 inhibitors is not required.

Your medical team will continue to monitor your kidney function) as part of your routine care.

Unless you feel unwell, there is usually no need to have extra blood tests after starting an SGLT2 inhibitor.

Northern Treatment Advisory Group
https://ntag.nhs.uk



SGLT2-inhibitors and Chronic Kidney Disease - Patient Information Leaflet

What are SGLT2 inhibitors?

SGLT2 inhibitors stands for Sodium Glucose Co-transporter-2 inhibitors. These drugs are sometimes also called 'gliflozins' or 'flozins' based on their naming. For example, DAPAGLIFLOZIN, CANAGLIFLOZIN and EMPAGLIFLOZIN are all SGLT2 inhibitors. SLGT2 inhibitors act on the kidney, causing loss of salt and sugar from the body.

How do I take it?

The medicine is taken once daily, at the same time each day, with or without food. If you miss a tablet and remember later in the day you can take it. If you remember the following day, do not take two tablets together.

Why should I be prescribed an SGLT2 inhibitor?

These drugs are used to treat diabetes, heart failure, and chronic kidney disease (CKD). Many people will feel no day-to-day difference from taking SGLT2 inhibitors. Large medical studies have shown for many people with CKD, type 2 diabetes or heart failure taking SGLT2 inhibitors alongside other medications can improve life expectancy and reduce risk of their condition getting worse.

Studies of SGLT2 inhibitors were undertaken in people already taking certain blood pressure medications. It is therefore likely that your Doctor will check that you are taking the correct doses of these medications, even if your blood pressure is normal, before staring an SGLT2 inhibitor.

Q&A session

- Any questions?

Upcoming events…

Health Innovation
North East and North Cumbria

facts.ckd
Find Assess Correct Treat Sustain
Chronic Kidney Disease

Using digital systems to detect and manage patients for CKD

23rd April 2024 12.00-13:00

Scan for more information