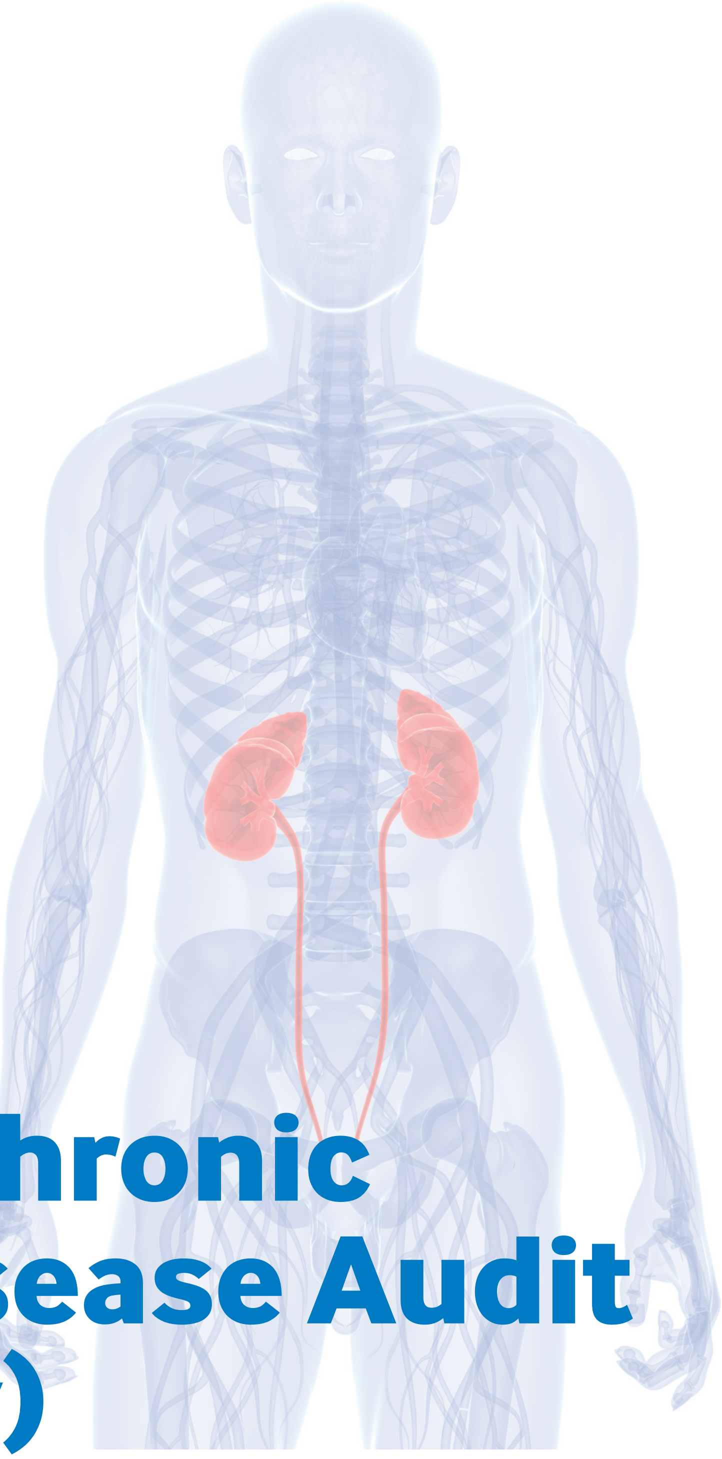
A quality improvement programme
for chronic kidney disease

National
CKDAudit



National Chronic Kidney Disease Audit (Summary)

// National Report (Part 1) January 2017

Commissioned by:
HQIP
Healthcare Quality
Improvement Partnership

Delivered by:
Queen Mary
University of London
LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE
UCL
INFORMATICA
SYSTEMS

//Foreword by Fiona Loud

Policy director, British Kidney Patient Association

The general public are not well aware of what the kidneys do and yet prevention and early detection of kidney disease can help to improve our outcomes as part of an integrated approach to vascular care. At the BKPA, we saw the first ever national audit into chronic kidney disease (CKD) practice as an important opportunity to improve kidney care and were both a supportive stakeholder in the original application for funding and an active participant throughout.

For patients, identifying and then actively managing at risk people with CKD represents value for money. Early intervention can and will avoid far costlier interventions and increased mortality once disease has advanced. The burden of advanced kidney disease on patients and their families as well as on our healthcare system is disproportionate and, while we direct much of what we do as a charity to those with kidney failure, we are absolutely committed to the early identification and prevention of deterioration of kidney disease.

Historically there has been debate about the usefulness of identifying CKD and informing patients of their diagnosis. None of this has helped people who do have CKD and would benefit from treatment and advice about what they can do now to reduce their risk of complications later. There are some really important findings from this audit – the huge variation in identifying risk of kidney disease in those with diabetes and the even greater variation in checking for CKD in those with high blood pressure. This is despite the fact that diabetes and high blood pressure are the commonest causes of kidney disease.

As patients we need primary care and rely on our doctors to look out for us; we hope that the audit will give further weight and encourage general practice to increase urine tests for those at risk. We see this as a simple intervention to avoid deterioration, recommended by NICE as best practice, to target care where needed. Wherever you live in the country there should be the same opportunity to receive the right tests, advice and treatments.

A further reason to look out for and accurately diagnose those with CKD is avoiding the harm of acute kidney injury. If people are very unwell, knowing that they have kidney disease will be a very important prompt to review medications and watch out for sudden decline in kidney function. We were also concerned to see such a low uptake of the pneumonia vaccine at just 23.5%, which we hope will be significantly increased in future.

Finally, any audit is all about improvement and, while we hope that it will be possible for the full potential and follow-up to this important work to be delivered, I commend its findings. Focus, with individual practice feedback, and the support of the system, can and does make a meaningful improvement to looking after people with chronic kidney disease.

//Foreword by Dr Richard Fluck

Former National Clinical Director (Renal), NHS England and Chair, Think Kidneys, UK Renal Registry

This report on the national audit of the management of chronic kidney disease (CKD) in primary care is timely and welcome. Much has changed in the professional understanding of kidney disease since the Renal National Service Framework was published over a decade ago. The driver to that publication was the desire to improve the care of people with end stage renal disease but the second part of the NSF recognised the need to improve care for everyone with CKD. NICE first published guidelines in 2008 and the adoption of using estimating equations to derive glomerular filtration rate from serum creatinine and the simplification of urinary protein excretion testing highlighted a simple truth – most of CKD management is carried out in primary care. This audit has been designed to examine practice in this key area. It has examined how well primary care diagnose and recognise CKD, looked at variation in treatment patterns and developed systems to support improvement.

Chronic kidney disease is important. Returning to the NSF, it was recognised that progressive CKD was often not diagnosed in a timely way. The consequence of late presentation and late referral to specialists reduced the options to slow down the progression of kidney disease and also to prepare that person and their family for the possibility of kidney failure. Such late presentation occurred in about 1 in 3 people starting dialysis over a decade ago and is now less than 1 in 5. That improvement is down principally to the skills of primary care in understanding the need to detect and manage CKD.

That is an important risk yet is dwarfed by the risk that CKD brings to an individual. CKD is harmful – it can result in premature mortality and can complicate other illness. There is significantly higher risks of cardiovascular disease and CKD is a powerful non-traditional risk factor. This has been recognised in the Cardiovascular Disease Outcomes Strategy published in 2013 by the Department of Health. Markers of kidney disease form part of the NHS Health Check. The Joint British Societies recommendations on the prevention of Cardiovascular Disease (JBS3) published a risk calculator in 2014 that included CKD in the calculation of overall risk.

The third element of risk that CKD brings is the increased vulnerability to acute kidney injury (AKI). AKI is a serious health issue across the globe and in England is associated with over 100,000 deaths. A national project, Think Kidneys, has been established by NHS England and working with professionals and stakeholders to address this issue. One aspect that is now clear – CKD is a risk factor for AKI and AKI can result in or accelerate CKD.

There is a recognition that CKD is harmful, that progress has been made and yet that progress is patchy with variation across the country at primary care level. So this audit is important because it is not only attempting to measure what is happening but why it is happening and therefore how can outcomes for individuals be improved in a systematic way. It has been designed to measure at the level of an individual practice and across the country and to provide support to improve care.

This has not been an easy journey for the project team or the many practices that have taken part – this has been a very complicated project. It has, however, produced the largest sample of patients with CKD in primary care globally. It has provided insights into processes of care and it has tested how data may be collected and analysed on a large scale. The existing data will be used in further research and analysis, both within England and Wales, to maximise the benefit of this work. The challenge, as this project comes to a close, is to translate these findings into a sustainable plan to improve care for people with chronic kidney disease.

//Executive summary

Chronic Kidney Disease (CKD) is a long-term irreversible deterioration in the function of the kidneys often found in patients who also have diabetes and high blood pressure. It affects approximately 5.5% of adults and is more common in older people. CKD is an important condition because it can contribute to cardiovascular disease (CVD) and predispose to sudden worsening of kidney function (known as acute kidney injury) at times when patients are unwell for other reasons. Although only a small number of cases progress to end stage renal disease requiring dialysis (or a kidney transplant if possible), this is very difficult for individual patients and their families, and very costly for the health economy.

CKD is often without symptoms until the very advanced stages and is only picked up by performing tests on blood and urine. The management of CKD is based on identifying patients at high risk, regular monitoring of their kidney function, avoidance of treatments that may further damage their kidneys and taking appropriate steps to protect their general health. This audit was designed to help GPs achieve these four goals.

Patients with CKD can be identified by testing blood and urine:

- The ability of the kidneys to clean the blood can be assessed by measuring the blood levels of a waste produced called creatinine. The creatinine level can be used to estimate the rate that the kidneys are filtering blood (giving an "estimated glomerular filtration rate" or eGFR).
- Kidney damage can also be detected by measuring any leakage of a protein (albumin) into the urine using a test called the albumin to creatinine ratio (or ACR).

To accurately diagnose CKD and improve health outcomes, it is important that of both tests are performed as recommended by NICE.

Patients identified with CKD should then be coded accurately in the electronic patient record (using "Read codes"). **Accurate coding facilitates appropriate follow up and management by activating electronic alerts in GP computer systems to support safer prescribing.**

CKD can have widespread health implications. Having identified CKD patients and correctly coded them, specific treatments should be initiated. **The outcomes for patients with CKD can be improved by controlling blood pressure, reducing cholesterol, providing appropriate vaccinations and careful prescribing to avoid medicines toxic to the kidney.**

This report details the findings of the audit programme, which compared GP practice performance against NICE quality standards[1]. We asked:

1. Are people with risk factors being tested for CKD?
2. Are people with CKD being correctly identified and given an appropriate CKD Read code?
3. For people with CKD:
    - Are blood pressure targets being met?
    - Is appropriate CVD risk management being initiated?
    - Are annual CKD reviews being performed?
    - Are appropriate immunisations being given?

This National CKD Audit was commissioned by the Healthcare Quality Improvement Partnership (HQIP)[2], as part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP), and was delivered by Informatica Systems in collaboration with London School of Hygiene & Tropical Medicine, University College London and Queen Mary (University of London).

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[1] National Institute for Health and Care Excellence, 2011; updated in 2014; Guideline 182, National Institute for Health and Care Excellence, 2014b)

[2] HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement, and in particular to increase the impact that clinical audit has on healthcare quality in England and Wales. HQIP holds the contract to manage and develop the NCA Programme, comprising more than 30 clinical audits that cover care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual audits, also funded by the Health Department of the Scottish Government, DHSSPS Northern Ireland and the Channel Islands. The NCKDA is funded by NHS England and the Welsh Government.

Originally designed to achieve full national coverage of general practices across England and Wales, the audit encountered technical challenges accessing primary care data. Therefore this report includes data from 911 practices representing approximately 74% of all Welsh practices and 8% of those in England. Approximately 100 additional practices received local benefits, but their data was not available in time for the national report.

The National CKD Audit provides a snapshot of performance in primary care against agreed evidence based targets. The audit involved an initial pilot period (September 2014 until February 2015) in which data extraction was tested and an integrated quality improvement component was designed and refined. Following national roll out (March 2015 to July 2016), data was extracted from practices twice; giving time for feedback of results and implementation of the quality improvement tools in the interim. The final data extraction, on which the audit results and recommendations contained in this report are based, took place in June 2016. A further report from the audit, due later in 2017, will use linked primary and secondary care data to report on referrals to secondary care and hospital admissions.

Findings and Recommendations

The audit recommendations are directed at general practices and clinical commissioning groups (CCGs), as well as secondary care providers. They are also relevant to patients and patient support groups. There are three main recommendations from the audit presented with a summary of the supporting findings from the audit:

Recommendation 1. For people at high risk of CKD, GPs should review practice to ensure that they are including both blood tests for eGFR and urinary testing for albumin to creatinine ratio (ACR).

Relevant audit findings:

- On average GPs test 86% of people with diabetes for CKD (using annual blood tests), but only 54% have the relevant annual urine tests.
- For other groups (such as those with hypertension), ACR rates are below 30%.

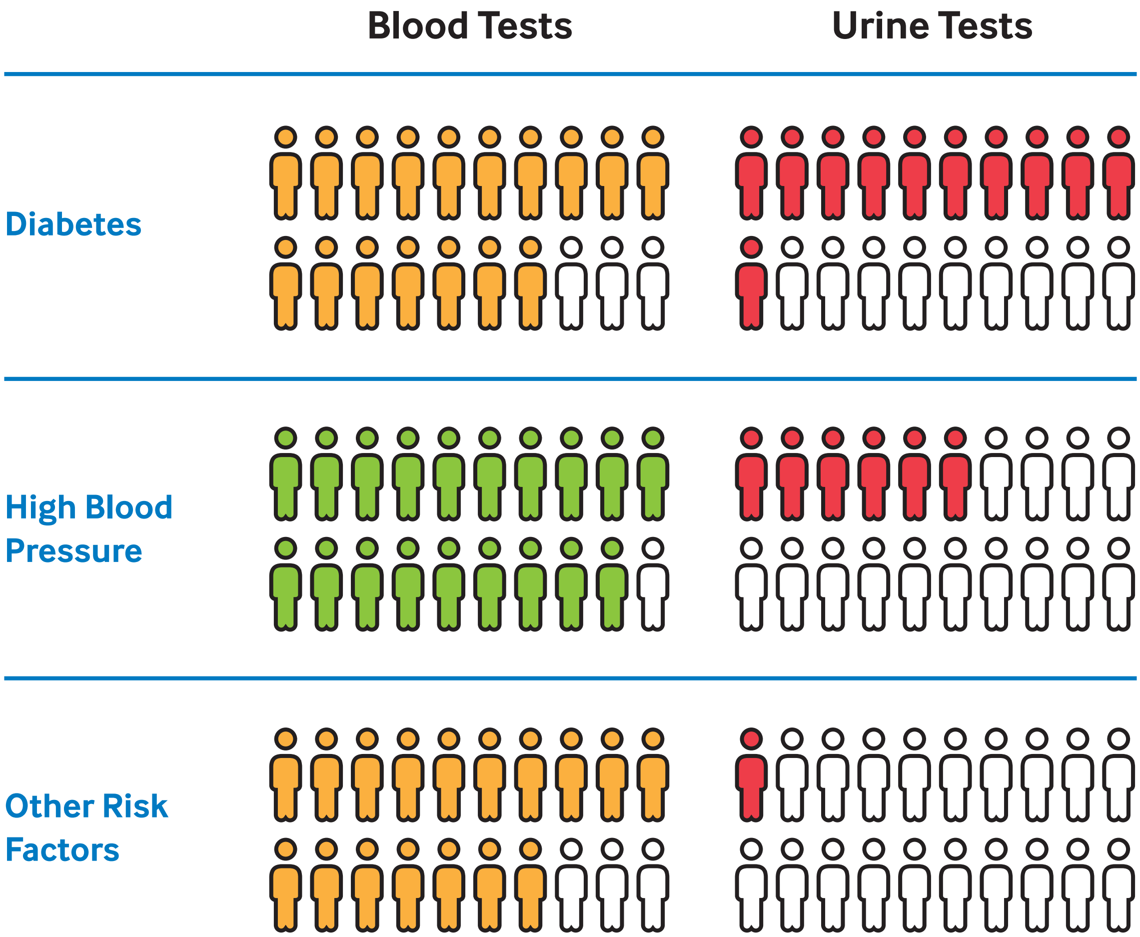
Testing for CKD

Performing blood and urine tests in those at risk is the best way to identify people with CKD.

The NCKDA measured whether those at risk of CKD had undergone blood and urine testing.

Blood tests were performed most of the time but urine tests often were not.

The charts below show the proportion of patients with different risk factors for CKD who have had blood and urine tests.



Key: *There are no formal targets in the guidance, but the audit selected 70% and 90% as quality markers.*

Red < 70% Amber 71-90% Green > 90%

Recommendation 2. GPs should review practice to improve the coding of patients with CKD.

Relevant audit findings:

- 70% of biochemically confirmed cases of CKD were given an appropriate Read code.
- There is high variability in the accuracy of coding. The proportion of CKD cases that were uncoded ranged between 0% to 80%.
- 11% of people given a CKD stage 3-5 Read code had biochemical evidence that they did not have CKD stage 3-5.
- Computerised quality improvement tools, such as those used in this programme, can be used to improve CKD identification and to assist GPs with appropriate coding, which in turn supports improvements in management.

The reasons for incomplete or inaccurate coding are complex, and are discussed further in chapters 5 and 6, but may include:

- Practices not testing those patients at risk;
- Failure to adjust the eGFR measurement for patients of black ethnicity;
- Patients fluctuating around the eGFR threshold for CKD;
- Process issues around coding, and the requirements for 2 eGFR measures below 60mL/min/1.7m^2.

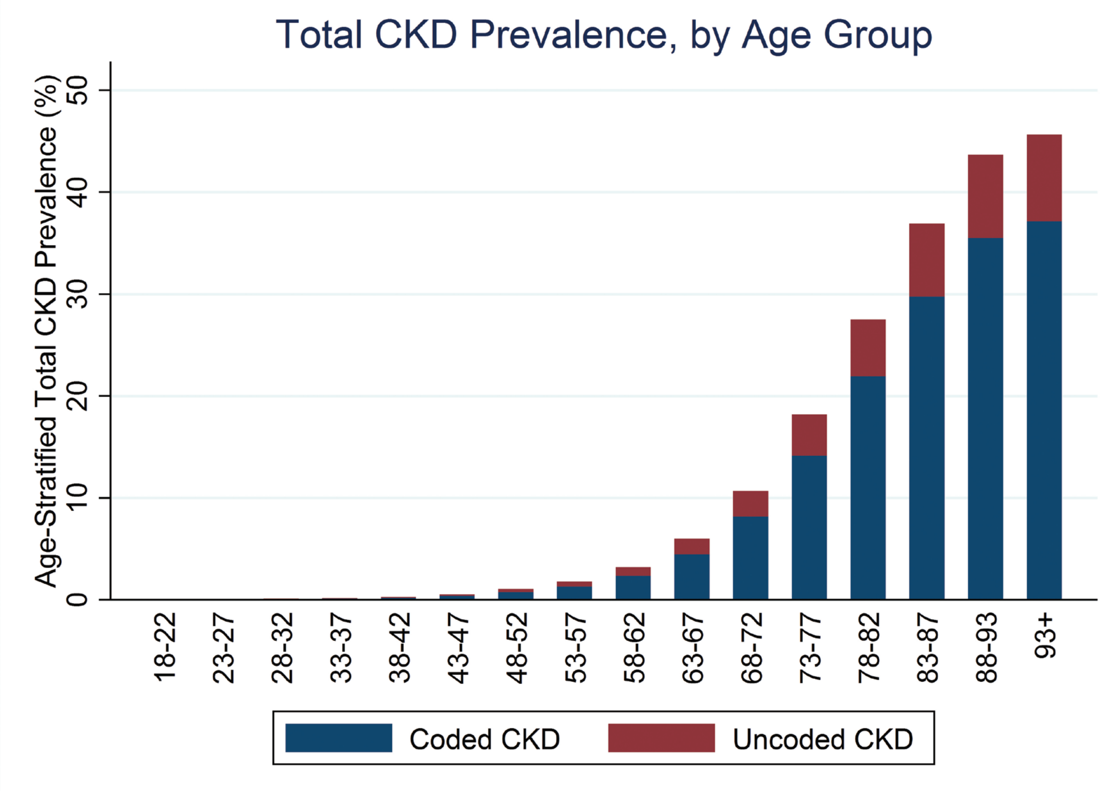
Recommendation 3. Having identified patients with CKD, effort should be focused on regular review, management of high blood pressure, prescribing cholesterol lowering treatments, and performing vaccinations to improve health outcomes.

Relevant audit findings:

- Whilst over 80% of those with CKD had had an eGFR test in the previous year, only 31% had a repeat ACR test. For people without diabetes, ACR testing rates are less than 15%.
- Among groups with the highest risk of developing progressive CKD (i.e. those with diabetes or an ACR >70mg/mmol) 70% had BP values above the recommended target range. Achievement of optimal blood pressure varied widely between practices.
- 69% of people with identified CKD were prescribed statin medication in accordance with NICE guidelines. The lowest rates (40%) were among younger people without diabetes, a group that may have the most to gain from an informed offer of statin therapy for CVD prevention.
- Whilst 75% of people with identified CKD had a flu vaccination in accordance with NICE Guidance, only 23% of people with CKD stages 4 and 5 had the recommended pneumococcus vaccination.

CKD Coding

Overall we found between 5 and 6% of the adult population had CKD and around three quarters of the people with CKD had been given an appropriate code by their GP practice.

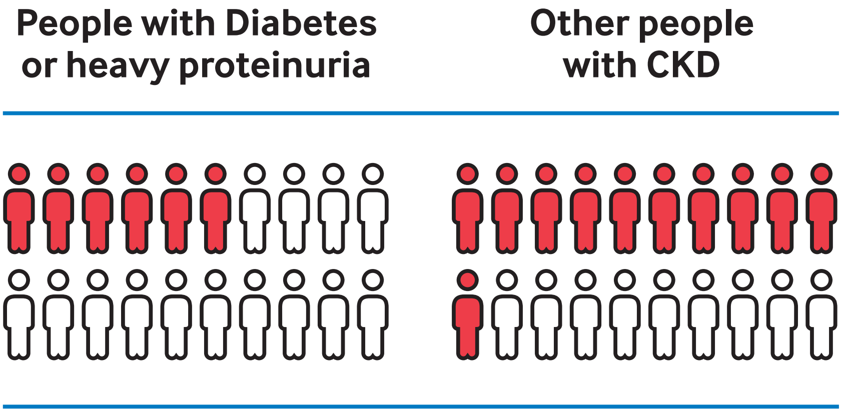


This chart shows the number of people with CKD in each age group. The blue bars show those coded with CKD by their GP and the red bars are an estimate of those that remain uncoded.

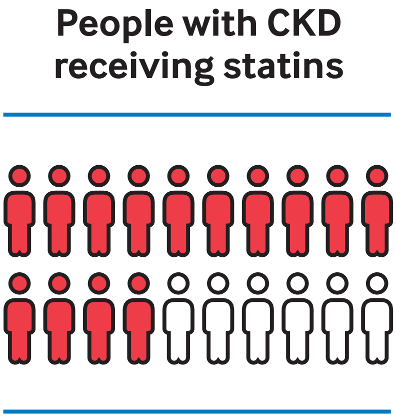
CKD Management

The NCKDA found that the blood pressure of most patients with CKD at highest risk of kidney failure doesn’t meet targets.

The charts below show the proportion of people with CKD achieving blood pressure targets. A lower target is advised in those with diabetes or proteinuria but fewer people achieve this.



It is recommended that people with CKD should receive cholesterol lowering treatments or ‘statins’.



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