NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health and social care directorate

Quality standards and indicators

Briefing paper

Quality standard topic: Chronic kidney disease (update)

Output: Prioritised quality improvement areas for development.

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1 Introduction

This briefing paper presents a structured overview of potential quality improvement areas for chronic kidney disease (update). It provides the committee with a basis for discussing and prioritising quality improvement areas for development into draft quality statements and measures for public consultation.

1.1 Structure

This briefing paper includes a brief description of the topic, a summary of each of the suggested quality improvement areas and supporting information.

If relevant, recommendations selected from the key development source below are included to help the committee in considering potential statements and measures.

1.2 Development sources

The key development sources referenced in this briefing paper are:

Chronic kidney disease: managing anaemia NICE guideline NG8 (2015)

This guideline updates and replaces NICE guideline CG114 (published February 2011). No review schedule presented.

Chronic kidney disease in adults: assessment and management NICE guideline CG182 (2014)

Next review: June 2017

Cardiovascular disease: risk assessment and reduction, including lipid modification NICE guideline CG181 (2014)

This guideline updates and replaces NICE guideline CG67 (September 2008) and technology appraisal guidance TA94 (January 2006).

Next review date: 2018

Planning, initiating and withdrawal of Renal Replacement Therapy Renal Association Guideline (2014)

Chronic kidney disease (stage 4 or 5): management of hyperphosphataemia NICE guideline CG157 (2013)

Following the surveillance review in December 2014, which checked the need to update CG157, the guideline was not updated.

Next review date: June 2017

2 Overview[1]

2.1 Focus of quality standard

This quality standard will cover the assessment for, and management of, chronic kidney disease. It will update and replace the existing NICE quality standard for chronic kidney disease (QS5). It will not cover renal replacement therapy, as this is covered by the renal replacement therapy services for adults quality standard (QS72), or acute kidney injury, as this is covered by the acute kidney injury quality standard (QS76).

This quality standard will cover all populations, subject to the availability of NICE or NICE-accredited source guidance.

2.2 Definition

Chronic kidney disease (CKD) describes abnormal kidney function and/or structure. It is common, frequently unrecognised and often exists together with other conditions (such as cardiovascular disease and diabetes). Moderate to severe CKD is also associated with an increased risk of other adverse outcomes, such as acute kidney injury, falls, frailty and mortality. The risk of developing CKD increases with age. CKD can progress to end-stage kidney disease in a small but significant percentage of people.

The classification of CKD has evolved over time. See appendix 1 for the 2013 Kidney Disease: Improving Global Outcomes (KDIGO) tables that show the glomerular filtration rates (GFR) and urinary albumin:creatinine ratios (ACR) used in their classification of the stages of CKD, and the classification from NICE guideline CG182. The classification of CKD is defined in appendix 2.

2.3 Incidence and prevalence

Diagnosis of people with kidney disease has improved since the introduction of national estimated GFR reporting and CKD indicators in the primary care Quality and Outcomes Framework (QOF), and also because there is increased public and health professional awareness of CKD. In 2015/16 the recorded prevalence in QOF[2] of CKD categories G3a to G5 for people aged 18 or over was 4.1%, which is 1,872,808 people out of 45,685,713 people aged 18+ registered with GP practices. Despite improved diagnosis, late presentation was still reported as 19% overall in the Renal Association's 2013 UK Renal Registry report[3].

[1] Unless referenced as from another source, the information in this section is from Chronic kidney disease in adults: assessment and management NICE guideline CG182 (2014)
[2] NHS Digital (2015) Quality and Outcomes Framework (QOF) - 2015-16
[3] Renal Association (2013) UK Renal Registry Sixteenth Annual Report

2.4 Management

CKD is usually asymptomatic, but it is detectable, and tests for CKD are simple and freely available. There is evidence that treatment can prevent or delay the progression of CKD, reduce or prevent the development of complications, and reduce the risk of cardiovascular disease. However, CKD is often unrecognised because there are no specific symptoms, and it is often not diagnosed or diagnosed at an advanced stage.

Late presentation of people with kidney failure increases morbidity, mortality and associated healthcare costs. The total cost of CKD in England in 2009–10 was estimated at between £1.44 and £1.45 billion, which was approximately 1.3% of all NHS spending in that year[4]. More than half of this amount was spent on renal replacement therapy for the 2% of people with CKD that progresses to kidney failure. It was estimated in the economic model that approximately 7000 excess strokes and 12,000 excess myocardial infarctions occurred in people with CKD in 2009–10 (relative to an age- and gender-matched population without CKD), with an estimated cost of between £174 and £178 million.

See appendices 1 and 2 for additional information and the glossary, which includes a definition of CKD and classification information.

2.5 National outcome frameworks

Tables 1 and 2 show the outcomes, overarching indicators and improvement areas from the frameworks that the quality standard could contribute to achieving.

[4] Kerr M, Bray B, Medcalf J et al. (2012) Estimating the financial cost of chronic kidney disease to the NHS in England. Nephrology Dialysis Transplantation. 27 (Suppl. 3): iii73–80

Table 1 NHS outcomes framework 2016–17

Domain	Overarching indicators and improvement areas
1 Preventing people from dying prematurely	***Overarching indicators*** 1a Potential Years of Life Lost (PYLL) from causes considered amenable to healthcare i Adults ii Children and young people 1b Life expectancy at 75 i Males ii Females
2 Enhancing quality of life for people with long-term conditions	***Overarching indicator*** 2 Health-related quality of life for people with long-term conditions** ***Improvement areas*** **Ensuring people feel supported to manage their condition** 2.1 Proportion of people feeling supported to manage their condition **Improving functional ability in people with long-term conditions** 2.2 Employment of people with long-term conditions*, ** **Improving quality of life for people with multiple long-term conditions** *2.7 Health-related quality of life for people with three or more long-term conditions***

4 Ensuring that people have a positive experience of care	***Overarching indicators*** 4a Patient experience of primary care i GP services 4b Patient experience of hospital care *4d Patient experience characterised as poor or worse* *I Primary care* *ii Hospital care* ***Improvement areas*** **Improving hospitals' responsiveness to personal needs** 4.2 Responsiveness to inpatients' personal needs
Alignment with Adult Social Care Outcomes Framework and/or Public Health Outcomes Framework * Indicator is shared ** Indicator is complementary Indicators in italics in development	

Table 2 Public health outcomes framework for England, 2016–2019

Domain	Objectives and indicators
1 Improving the wider determinants of health	***Objective*** Improvements against wider factors which affect health and wellbeing and health inequalities ***Indicators*** 1.08 Employment for those with long-term health conditions including adults with a learning disability or who are in contact with secondary mental health services*, ** 1.09 Sickness absence rate
2 Health improvement	***Objective*** People are helped to live healthy lifestyles, make healthy choices and reduce health inequalities ***Indicators*** 2.23 Self-reported well-being
4 Healthcare public health and preventing premature mortality	***Objective*** Reduced numbers of people living with preventable ill health and people dying prematurely, whilst reducing the gap between communities ***Indicators*** 4.04 Under 75 mortality rate from all cardiovascular diseases (including heart disease and stroke)* 4.13 Health-related quality of life for older people
Alignment with Adult Social Care Outcomes Framework and/or NHS Outcomes Framework * Indicator is shared ** Indicator is complementary Indicators in italics in development	

3 Summary of suggestions

3.1 Responses

In total 8 stakeholders responded to the 2-week engagement exercise between 24 October and 7 November, including one who made no comment.

Stakeholders were asked to suggest up to 5 areas for quality improvement. Specialist committee members were also invited to provide suggestions. The responses have been merged and summarised in table 3 for further consideration by the Committee.

NHS Improvement's patient safety division submitted comments during stakeholder engagement, which are summarised in this paper and can be found in full in appendix 4.

Full details of all the suggestions provided are given in appendix 4 for information.

Table 3 Summary of suggested quality improvement areas

Suggested area for improvement	Stakeholders
Investigations for CKD • Who should be tested for CKD • Measuring kidney function	• BKPA, KRUK, RCN, SCM 2 • SCM 1
Monitoring and progression of CKD • Frequency of monitoring • CKD progression • Conservative care	• BKPA, RCN, SCM 1 • BKPA, NHS IPS, SCM 1, SCM 3, UKRA • SCM 3
Information, education and self-management	• KRUK, Renal Psych, RCN, SCM 2, SCM 3, SCM 4
Pharmacotherapy • Blood pressure control • Choice of antihypertensive agent • Statins for people with CKD	• KRUK, SCM 1, SCM 2, SCM 3 • AZ, KRUK, SCM 4 • SCM 2
Other complications • Anaemia management • Hyperphosphataemia	• SCM 2, SCM 3 • UKRA
Additional areas • Pneumonia vaccination • Coding • Staff training and guidance • Multidisciplinary care	• BKPA • BKPA, SCM 2 • SCM 4 • Renal Psych

Suggested area for improvement	Stakeholders
AstraZeneca, AZ BKPA, British Kidney Patient Association KRUK, Kidney Research UK NHS IPS, NHS Improvement: patient safety Renal Psych, Renal Psychologists RCN, Royal College of Nurses SCM, Specialist Committee Member UKRA, UK Renal Association	

3.2 Identification of current practice evidence

Bibliographic databases were searched to identify examples of current practice in UK health and social care settings; 1550 papers were identified for chronic kidney disease. In addition, 8 papers were suggested by stakeholders at topic engagement and 5 papers internally at project scoping.

Of these papers, 4 have been included in this report and are included in the current practice sections where relevant. Appendix 3 outlines the search process.

4 Suggested improvement areas

4.1 Investigations for CKD

4.1.1 Summary of suggestions

Who should be tested for CKD

Stakeholders highlighted the importance of identifying those at risk of CKD, for example people with diabetes, high blood pressure and acute kidney injury, and testing them for CKD. This will avoid worse outcomes, such as dialysis soon after referral, increased mortality and costs. Moderate to severe CKD is also underdiagnosed, which can lead to progression and adverse cardiovascular events.

Measuring kidney function

A stakeholder suggested that laboratories should use the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation for estimating glomerular filtration rate (GFR) to improve accuracy of diagnosis. It was raised that areas of the UK are using a different formula.

4.1.2 Selected recommendations from development source

Table 4 below highlights recommendations that have been provisionally selected from the development source that may support potential statement development. These are presented in full after table 4 to help inform the committee's discussion.

Table 4 Specific areas for quality improvement

Suggested quality improvement area	Suggested source guidance recommendations
Who should be tested for CKD	**Proteinuria** NICE CG182 Recommendation 1.1.21 **Who should be tested for CKD** NICE CG182 Recommendations 1.1.27, 1.1.28 (KPI) and 1.1.29
Measuring kidney function	**Creatinine-based estimate of GFR** NICE CG182 Recommendations 1.1.1 and 1.1.2 (KPI)

Who should be tested for CKD

Proteinuria

NICE CG182 Recommendation 1.1.21

Quantify urinary albumin or urinary protein loss as in recommendation 1.1.18 for:

- people with diabetes

- people without diabetes with a GFR of less than 60 ml/min/1.73 m2. [2008, amended 2014]

Who should be tested for CKD

NICE CG182 Recommendation 1.1.27

Monitor GFR at least annually in people prescribed drugs known to be nephrotoxic, such as calcineurin inhibitors (for example, cyclosporin or tacrolimus), lithium and non-steroidal anti-inflammatory drugs (NSAIDs). [2008, amended 2014]

NICE CG182 Recommendation 1.1.28 (key priority for implementation)

Offer testing for CKD using eGFRcreatinine and ACR to people with any of the following risk factors:

- diabetes
- hypertension
- acute kidney injury (see recommendation 1.3.9)
- cardiovascular disease (ischaemic heart disease, chronic heart failure, peripheral vascular disease or cerebral vascular disease)
- structural renal tract disease, recurrent renal calculi or prostatic hypertrophy
- multisystem diseases with potential kidney involvement – for example, systemic lupus erythematosus
- family history of end-stage kidney disease (GFR category G5) or hereditary kidney disease
- opportunistic detection of haematuria. [new 2014]

NICE CG182 Recommendation 1.1.29

Do not use age, gender or ethnicity as risk markers to test people for CKD. In the absence of metabolic syndrome, diabetes or hypertension, do not use obesity alone as a risk marker to test people for CKD. [2008, amended 2014]

Measuring kidney function

Creatinine-based estimate of GFR

NICE CG182 – Recommendation 1.1.1

Whenever a request for serum creatinine measurement is made, clinical laboratories should report an estimate of glomerular filtration rate (eGFRcreatinine) using a prediction equation (see recommendation 1.1.2) in addition to reporting the serum creatinine result[5]. [2014]

[5] eGFRcreatinine may be less reliable in certain situations (for example, acute kidney injury, pregnancy, oedematous states, muscle wasting disorders, and in people who are malnourished or have had an amputation) and has not been well validated in certain ethnic groups (for example, in people of Asian family origin).

NICE CG182 – Recommendation 1.1.2 (key priority for implementation)

Clinical laboratories should:

- use the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) creatinine equation to estimate GFRcreatinine, using creatinine assays with calibration traceable to standardised reference material
- use creatinine assays that are specific (for example, enzymatic assays) and zero-biased compared with isotope dilution mass spectrometry (IDMS)
- participate in a UK national external quality assessment scheme for creatinine. [new 2014]

4.1.3 Current UK practice

Who should be tested for CKD

The Quality and Outcomes Framework (QOF)[6] is an incentive scheme for GP practices. In 2015/16 QOF showed that recorded prevalence of CKD categories G3a to G5 for people aged 18 or over was 4.1%. The range for sub-regions was from 2.2% for London North West to 5.21% for NHS England Lancashire. It is estimated that 6.1% of the population aged 16 or over have CKD stage 3-5[7], which suggests that not all of the people who have CKD are on practice registers.

The National CKD Audit[8] contains results based on data extracted in June 2016 from 911 practices. These practices care for over 6.5 million people in England and Wales. Data from this report has the following information on testing for CKD using eGFRcreatinine and ACR:

- 85.9% of people[9] with diabetes were tested in the last year using serum creatinine and 53.9% using urinary ACR tests[10]
- 93% of people who are at risk of CKD without diabetes had an eGFR test in the previous five years, whereas less than a third (27.1%) had an ACR test.
- 95.1% of people with hypertension had an eGFR test in the previous five years. However, only 29.7% had an ACR test.
- 96.1% of people with CVD had an eGFR test in the previous five years whereas 31.8% had an ACR test.

[6] NHS Digital (2015) Quality and Outcomes Framework (QOF) - 2015-16
[7] Public Health England (2014) Chronic Kidney Disease (CKD) prevalence model
[8] Health Quality Improvement Partnership (2017) National Chronic Kidney Disease Audit
[9] Percentages have been calculated as average across the at risk population, which is algebraically equivalent to a practice average weighted by size of the at-risk population
[10] This figure differs from the National Diabetes Audit which uses different methods to calculate this proportion

Figure 1: Practice variation in percentage of patients at risk of CKD but not on the CKD 3-5 Register who are receiving recommended eGFR testing (past year for diabetes and CNI/Li; past 5 years for others), by risk factor

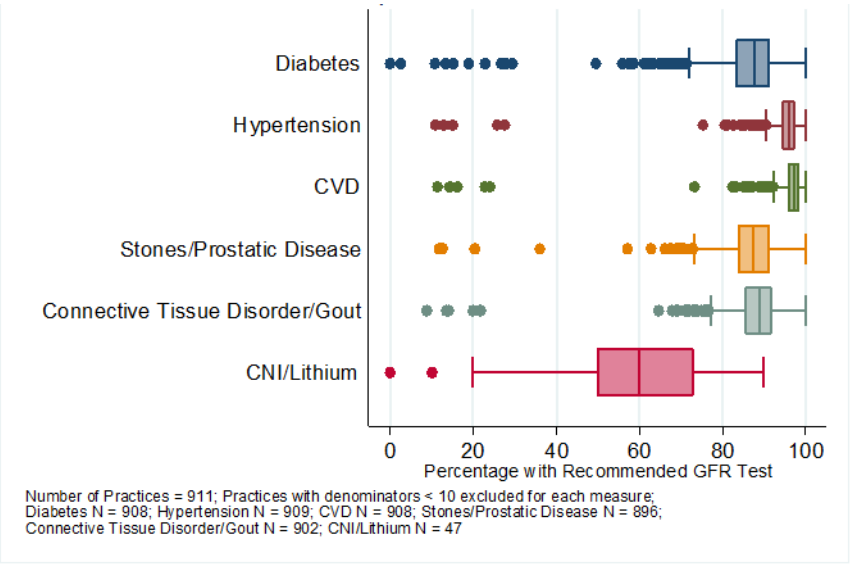
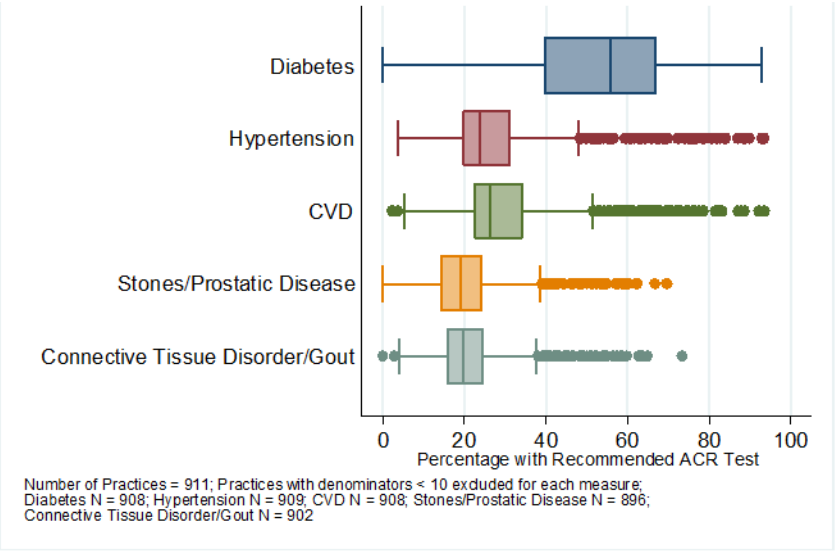


Figure 2: Practice variation in percentage of patients at risk of CKD but not on the CKD 3-5 Register who are receiving recommended urinary ACR testing (past year for diabetes; past 5 years for others), by risk factor



The National Diabetes Audit[11], based on 2014-15 information from around 4,700 GP practices (57%) and 99 specialist services, covering 1.9 million people with diabetes, reports that 80.5% of people with type 1 diabetes had a test for GFR and 55.9% for ACR. 94.5% of people with type 2 and other diabetes had a test for GFR and 74.6% for ACR.

[11] Healthcare Quality Improvement Partnership and Health and Social Care Information Centre (2016) National Diabetes Audit 2013-2014 and 2014-2015 Report 1: Care Processes and Treatment Targets

Measuring kidney function

No current practice information was found on the use of the CKD-EPI formula for estimating GFR.

4.1.4 Resource impact assessment

No significant resource impact is anticipated for this area. It was not identified as an area likely to cost more than £1 million in England when CG182 was published.

4.2 Monitoring and progression of CKD

4.2.1 Summary of suggestions

Frequency of monitoring

Stakeholders suggested that GFR and ACR should be monitored annually to check for progression of CKD. Stakeholders felt that ACR testing is valuable for identifying risk in people with, or at risk of, CKD to improve outcomes.

CKD progression

Stakeholders highlighted the importance of identifying the rate of CKD progression, as well as appropriate care according to the stage of progression, so that people can be treated appropriately and referred to a specialist if needed. The increased risk of CKD developing or progressing after having AKI was also raised by stakeholders.

Conservative care

A stakeholder highlighted that conservative care is an appropriate option for people with CKD instead of transplantation or dialysis.

4.2.2 Selected recommendations from development sources

Table 5 below highlights recommendations that have been provisionally selected from the development sources that may support potential statement development. These are presented in full after table 5 to help inform the committee's discussion.

Table 5 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Frequency of monitoring	**Frequency of monitoring** NICE CG182 Recommendations 1.3.1 and 1.3.2
CKD progression	**Investigating the cause of CKD and determining the risk of adverse outcomes** NICE CG182 Recommendation 1.2.4 **Indications for renal ultrasound** NICE CG182 Recommendation 1.2.5 **Defining progression** NICE CG182 Recommendations 1.3.3 – 1.3.6 **Risk factors associated with CKD progression** NICE CG182 Recommendations 1.3.7 and 1.3.8 **Referral criteria** NICE CG182 Recommendation 1.5.2 **Acute kidney injury and CKD** NICE CG182 Recommendations 1.3.9 (KPI) and 1.3.10
Conservative care	**End of life care: conservative kidney management and withdrawal from dialysis** Renal Association Guidelines: Planning, initiating and withdrawal of RRT Recommendation 6.2

Frequency of monitoring

NICE CG182 Recommendation 1.3.1

Agree the frequency of monitoring (eGFRcreatinine and ACR) with the person with, or at risk of, CKD; bear in mind that CKD is not progressive in many people. [new 2014]

NICE CG182 Recommendation 1.3.2

Use table 2 to guide the frequency of GFR monitoring for people with, or at risk of, CKD, but tailor it to the person according to:

- the underlying cause of CKD
- past patterns of eGFR and ACR (but be aware that CKD progression is often non-linear)
- comorbidities, especially heart failure
- changes to their treatment (such as renin–angiotensin–aldosterone system [RAAS] antagonists, NSAIDs and diuretics)
- intercurrent illness
- whether they have chosen conservative management of CKD. [new 2014]

Table 2 Frequency of monitoring of GFR (number of times per year, by GFR and ACR category) for people with, or at risk of, CKD

GFR categories (ml/min/1.73 m²), description and range	ACR categories (mg/mmol), description and range		
	A1 <3 Normal to mildly increased	A2 3–30 Moderately increased	A3 >30 Severely increased
G1 ≥90 Normal and high	≤1	1	≥1
G2 60–89 Mild reduction related to normal range for a young adult	≤1	1	≥1
G3a 45–59 Mild–moderate reduction	1	1	2
G3b 30–44 Moderate–severe reduction	≤2	2	≥2
G4 15–29 Severe reduction	2	2	3
G5 <15 Kidney failure	4	≥4	≥4

Increasing risk

Increasing risk

Abbreviations: GFR, glomerular filtration rate, ACR, albumin creatinine ratio

NB: ACR is an important indicator of cardiovascular risk and progression.

Adapted with permission from Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group (2013) KDIGO 2012 clinical practice guideline for the evaluation and management of chronic kidney disease. Kidney International (Suppl. 3): 1–150

CKD progression

Investigating the cause of CKD and determining the risk of adverse outcomes

NICE CG182 Recommendation 1.2.4

Use the person's GFR and ACR categories (see table 1) to indicate their risk of adverse outcomes (for example, CKD progression, acute kidney injury, all-cause mortality and cardiovascular events) and discuss this with them. [new 2014]

Indications for renal ultrasound

NICE CG182 Recommendation 1.2.5

Offer a renal ultrasound scan to all people with CKD who:

- have accelerated progression of CKD (see recommendation 1.3.3). [2008, amended 2014]

Defining progression

NICE CG182 Recommendation 1.3.3

Define accelerated progression of CKD as:

- a sustained decrease in GFR of 25% or more and a change in GFR category within 12 months **or**
- a sustained decrease in GFR of 15 ml/min/1.73 m^2 per year. [new 2014]

NICE CG182 Recommendation 1.3.4

Take the following steps to identify the rate of progression of CKD:

- Obtain a minimum of 3 GFR estimations over a period of not less than 90 days.
- In people with a new finding of reduced GFR, repeat the GFR within 2 weeks to exclude causes of acute deterioration of GFR – for example, acute kidney injury or starting renin–angiotensin system antagonist therapy. [2008, amended 2014]

NICE CG182 Recommendation 1.3.5

Be aware that people with CKD are at increased risk of progression to end-stage kidney disease if they have either of the following:

- a sustained decrease in GFR of 25% or more over 12 months **or**
- a sustained decrease in GFR of 15 ml/min/1.73 m^2 or more over 12 months. [2008, amended 2014]

NICE CG182 Recommendation 1.3.6

When assessing CKD progression, extrapolate the current rate of decline of GFR and take this into account when planning intervention strategies, particularly if it suggests that the person might need renal replacement therapy in their lifetime. [2008, amended 2014]

Risk factors associated with CKD progression

NICE CG182 Recommendation 1.3.7

Work with people who have any of the following risk factors for CKD progression to optimise their health:

- cardiovascular disease
- proteinuria
- acute kidney injury
- hypertension
- diabetes
- smoking
- African, African-Caribbean or Asian family origin
- chronic use of non-steroidal anti-inflammatory drugs (NSAIDs)
- untreated urinary outflow tract obstruction. [new 2014]

NICE CG182 Recommendation 1.3.8

In people with CKD the chronic use of NSAIDs may be associated with progression and acute use is associated with a reversible decrease in GFR. Exercise caution when treating people with CKD with NSAIDs over prolonged periods of time. Monitor the effects on GFR, particularly in people with a low baseline GFR and/or in the presence of other risks for progression. [2008]

Referral criteria

NICE CG182 Recommendation 1.5.2

People with CKD in the following groups should normally be referred for specialist assessment:

- GFR less than 30 ml/min/1.73 m^2 (GFR category G4 or G5), with or without diabetes
- ACR 70 mg/mmol or more, unless known to be caused by diabetes and already appropriately treated
- ACR 30 mg/mmol or more (ACR category A3), together with haematuria
- sustained decrease in GFR of 25% or more, and a change in GFR category or sustained decrease in GFR of 15 ml/min/1.73 m^2 or more within 12 months

- hypertension that remains poorly controlled despite the use of at least 4 antihypertensive drugs at therapeutic doses (see also Hypertension [NICE guideline CG127])
- known or suspected rare or genetic causes of CKD
- suspected renal artery stenosis. [2008, amended 2014]

Acute kidney injury and CKD

NICE CG182 Recommendation 1.3.9 (key priority for implementation)

Monitor people for the development or progression of CKD for at least 2–3 years after acute kidney injury, even if serum creatinine has returned to baseline. [new 2014]

NICE CG182 Recommendation 1.3.10

Advise people who have had acute kidney injury that they are at increased risk of CKD developing or progressing. [new 2014]

Conservative care

Renal Association Guideline: Planning, initiating and withdrawal of RRT Recommendation 6.2

Conservative Kidney Care: We recommend that patients with advanced chronic kidney disease (CKD Stage 4 & 5) who opt not to dialyse should undergo conservative kidney management. Patients who have imminent or immediate end-of-life care needs should be identified and their care prioritised

4.2.3 Current UK practice

Frequency of monitoring

The Quality and Outcomes Framework (QOF)[12] included an indicator in 2014/15, which has since been removed, that recorded the percentage of patients on the CKD register whose notes have a record of a urine albumin:creatinine ratio (or protein:creatinine ratio) test in the preceding 12 months. This was recorded for 75.4% of patients (80.2% underlying achievement net of exception-reporting). The range for sub-regions was from 68.7% for the Essex Area Team to 79.3% for the Merseyside Area Team.

The National CKD Audit[13] reports that most people (81.3%) with coded CKD stages 3-5 had a repeat blood test of their kidney function in the last year. 31.1% of people with coded CKD stages 3-5 had an ACR urinary test result in the previous year.

[12] NHS Digital (2015) Quality and Outcomes Framework (QOF) - 2014-15
[13] Health Quality Improvement Partnership (2017) National Chronic Kidney Disease Audit

CKD progression

The National CKD Audit[14] found electronic evidence of a referral in 33.5% of people requiring referral to a specialist (coded and un-coded). However, it is known that the quality of coded referral in GP records is an underestimate – most of the relevant information may not be recorded on practice systems in a way the audit software could extract.

Conservative care

No current practice information was found on access to conservative kidney management.

4.2.4 Resource impact assessment

No significant resource impact is anticipated for this area. It was not identified as an area likely to cost more than £1 million in England when CG182 was published.

[14] Health Quality Improvement Partnership (2017) National Chronic Kidney Disease Audit

4.3 Information, education and self-management

4.3.1 Summary of suggestions

Information, education and self-management

Stakeholders highlighted the importance of people with CKD receiving tailored information following their diagnosis, in particular people with stage 3 CKD, so that they can understand and manage their condition better, and have better outcomes. People should also be supported to self-manage CKD. Stakeholders reported that opportunities for discussion, support and education provision following diagnosis vary. Stakeholders also raised psychosocial support as an area that is key but where there is variation in access.

4.3.2 Selected recommendations from development source

Table 6 below highlights recommendations that have been provisionally selected from the development source that may support potential statement development. These are presented in full after table 6 to help inform the committee's discussion.

Table 6 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Information, education and self-management	**Information and education** NICE CG182 Recommendations 1.4.1 – 1.4.5 **Self-management** NICE CG182 Recommendations 1.4.10 and 1.4.11

Information and education

NICE CG182 Recommendation 1.4.1

Offer people with CKD education and information tailored to the severity and cause of CKD, the associated complications and the risk of progression. [2008]

NICE CG182 Recommendation 1.4.2

When developing information or education programmes, involve people with CKD in their development from the outset. The following topics are suggested.

- What is CKD and how does it affect people?
- What questions should people ask about their kidneys?
- What treatments are available for CKD, what are their advantages and disadvantages and what complications or side effects may occur as a result of treatment/medication?
- What can people do to manage and influence their own condition?

- In what ways could CKD and its treatment affect people's daily life, social activities, work opportunities and financial situation, including benefits and allowances available?
- How can people cope with and adjust to CKD and what sources of psychological support are available?
- When appropriate, offer information about renal replacement therapy (such as the frequency and length of time of dialysis treatment sessions or exchanges and pre-emptive transplantation) and the preparation required (such as having a fistula or peritoneal catheter).
- Conservative management and when it may be considered. [2008]

NICE CG182 Recommendation 1.4.3

Offer people with CKD high-quality information or education programmes as appropriate to the severity of their condition to allow time for them to fully understand and make informed choices about their treatment. [2008]

NICE CG182 Recommendation 1.4.4

Healthcare professionals providing information and education programmes should ensure they have specialist knowledge about CKD and the necessary skills to facilitate learning. [2008]

NICE CG182 Recommendation 1.4.5

Healthcare professionals working with people with CKD should take account of the psychological aspects of coping with the condition and offer access to appropriate support – for example, support groups, counselling or a specialist nurse. [2008]

Self-management

NICE CG182 Recommendation 1.4.10

Ensure that systems are in place to:

- inform people with CKD of their diagnosis
- enable people with CKD to share in decision-making about their care
- support self-management (this includes providing information about blood pressure, smoking cessation, exercise, diet and medicines) and enable people to make informed choices. [new 2014]

NICE CG182 Recommendation 1.4.11

Give people access to their medical data (including diagnosis, comorbidities, test results, treatments and correspondence) through information systems, such as Renal PatientView, to encourage and help them to self-manage their CKD. [new 2014]

4.3.3 Current UK practice

No current practice data was found on provision of information and education and support for self-management.

4.3.4 Resource impact assessment

No significant resource impact is anticipated for this area. It was not identified as an area likely to cost more than £1 million in England when CG182 was published.

4.4 Pharmacotherapy

4.4.1 Summary of suggestions

Blood pressure (BP) control

Stakeholders raised the importance of controlling BP to improve prognosis in CKD, particularly for people with diabetes or proteinuria. However, it was suggested that BP targets are not being met.

Choice of antihypertensive agent

Stakeholders suggested that angiotensin-converting enzyme (ACE) inhibitors and angiotensin‑receptor blockers (ARBs) should be used to improve outcomes, but there is variation in their usage. It was also mentioned that identification and management of hyperkalemia, which is a side effect of these treatments, varies, but is important to prevent adverse effects.

Statins for people with CKD

A stakeholder stated that the risk of cardiovascular disease should be lowered for people with CKD by lipid lowering, but prescribing of statins varies.

4.4.2 Selected recommendations from development sources

Table 7 below highlights recommendations that have been provisionally selected from the development sources that may support potential statement development. These are presented in full after table 7 to help inform the committee's discussion.

Table 7 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Blood pressure control	**Blood pressure control** NICE CG182 Recommendations 1.6.1 – 1.6.2
Choice of antihypertensive agent	**Choice of antihypertensive agent** NICE CG182 Recommendations 1.6.3 - 1.6.11
Statins for people with CKD	**Statins** NICE CG182 Recommendation 1.6.15 **People with CKD** NICE CG181 Recommendation 1.3.27

Blood pressure control

NICE CG182 Recommendation 1.6.1

In people with CKD aim to keep the systolic blood pressure below 140 mmHg (target range 120–139 mmHg) and the diastolic blood pressure below 90 mmHg[15]. [2008]

NICE CG182 Recommendation 1.6.2

In people with CKD and diabetes, and also in people with an ACR of 70 mg/mmol or more, aim to keep the systolic blood pressure below 130 mmHg (target range 120–129 mmHg) and the diastolic blood pressure below 80 mmHg[4]. [2008]

Choice of antihypertensive agent

NICE CG182 Recommendation 1.6.3

Offer a low-cost renin–angiotensin system antagonist to people with CKD and:

- diabetes and an ACR of 3 mg/mmol or more (ACR category A2 or A3)
- hypertension and an ACR of 30 mg/mmol or more (ACR category A3)
- an ACR of 70 mg/mmol or more (irrespective of hypertension or cardiovascular disease)[4]. [new 2014]

NICE CG182 Recommendation 1.6.4

Do not offer a combination of renin–angiotensin system antagonists to people with CKD. [new 2014]

NICE CG182 Recommendation 1.6.5

Follow the treatment recommendations in Hypertension (NICE guideline CG127) for people with CKD, hypertension and an ACR of less than 30 mg/mmol (ACR categories A1 and A2), if they do not have diabetes. [new 2014]

NICE CG182 Recommendation 1.6.6

To improve concordance, inform people who are prescribed renin–angiotensin system antagonists about the importance of:

- achieving the optimal tolerated dose of renin–angiotensin system antagonists **and**
- monitoring eGFR and serum potassium in achieving this safely. [2008]

[15] The GDG searched for and appraised evidence on blood pressure control, and did not set out to establish definitive safe ranges of blood pressure in CKD. The evidence presented in the full guideline does not therefore include safety of low blood pressure, but some such evidence does exist. The GDG set out a range of blood pressure targets, given in these recommendations, which in their clinical experience will inform good practice in CKD.

NICE CG182 Recommendation 1.6.7

In people with CKD, measure serum potassium concentrations and estimate the GFR before starting renin–angiotensin system antagonists. Repeat these measurements between 1 and 2 weeks after starting renin–angiotensin system antagonists and after each dose increase. [2008]

NICE CG182 Recommendation 1.6.8

Do not routinely offer a renin–angiotensin system antagonist to people with CKD if their pretreatment serum potassium concentration is greater than 5.0 mmol/litre. [2008, amended 2014]

NICE CG182 Recommendation 1.6.9

When hyperkalaemia precludes use of renin–angiotensin system antagonists, assessment, investigation and treatment of other factors known to promote hyperkalaemia should be undertaken and the serum potassium concentration rechecked. [2008]

NICE CG182 Recommendation 1.6.10

Concurrent prescription of drugs known to promote hyperkalaemia is not a contraindication to the use of renin–angiotensin system antagonists, but be aware that more frequent monitoring of serum potassium concentration may be required. [2008]

NICE CG182 Recommendation 1.6.11

Stop renin–angiotensin system antagonists if the serum potassium concentration increases to 6.0 mmol/litre or more and other drugs known to promote hyperkalaemia have been discontinued. [2008]

Statins for people with CKD

Statins

NICE CG182 Recommendation 1.6.15

Follow the recommendations in Lipid modification (NICE guideline CG181) for the use of statins in CKD. [new 2014]

People with CKD

NICE CG181 Recommendation 1.3.27

Offer atorvastatin 20 mg for the primary or secondary prevention of CVD to people with CKD[16].

- Increase the dose if a greater than 40% reduction in non-HDL cholesterol is not achieved (see recommendation 1.3.28) and eGFR is 30 ml/min/1.73 m^2 or more.
- Agree the use of higher doses with a renal specialist if eGFR is less than 30 ml/min/1.73 m^2. [new 2014]

4.4.3 Current UK practice

Blood pressure (BP) control

The Quality and Outcomes Framework (QOF)[17] included an indicator in 2014/15, which has since been removed, that recorded the percentage of patients on the CKD register in whom the last blood pressure reading (measured in the preceding 12 months) is 140/85 mmHg or less. This was achieved for 74.5% of patients (81.2% underlying achievement net of exception-reporting). The range for sub-regions was from 71.3% for the Devon, Cornwall and Isles of Scilly Area Team to 77.9% for the Merseyside Area Team.

The National CKD Audit[18] reports that 53.1% of people with CKD stage 3-5 had BPs below the recommended target (140 mmHg). 16.1% of patients had no BP result from the previous year.

Only 29.2% of people with CKD stage 3-5 and who should meet the lower BP target (130/80mmHg), met it. 6.9% had no available BP measurement in the previous year.

[16] See the NICE guideline on chronic kidney disease for CKD classification. People on renal replacement therapy are outside the scope of this guideline.
[17] NHS Digital (2015) Quality and Outcomes Framework (QOF) - 2014-15
[18] Health Quality Improvement Partnership (2017) National Chronic Kidney Disease Audit

Figure 3: Practice performance in percentage of people meeting blood pressure targets by target and diabetes status

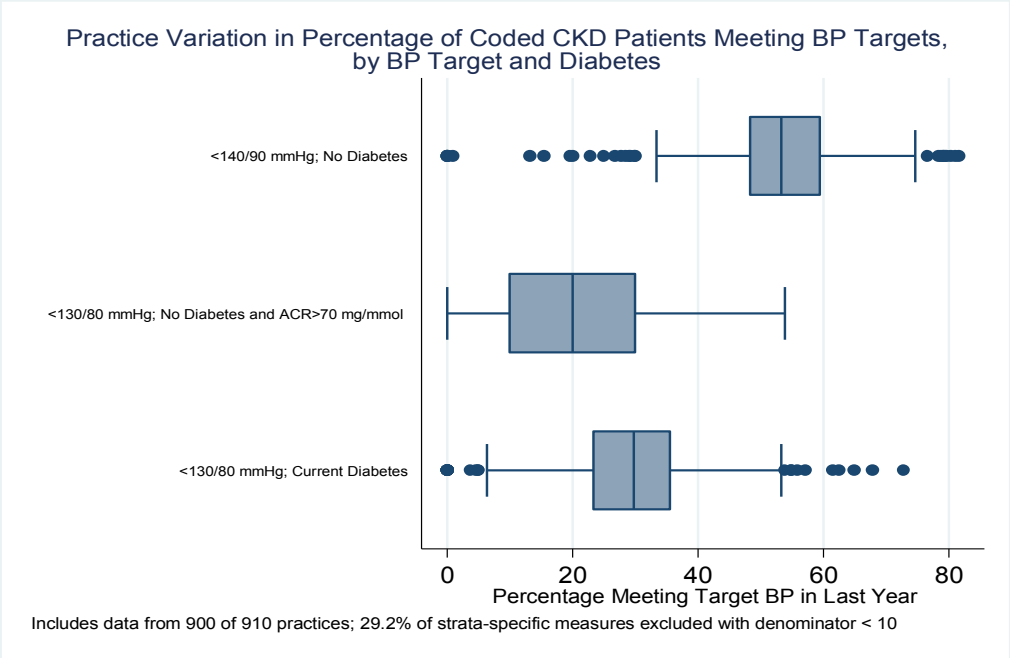
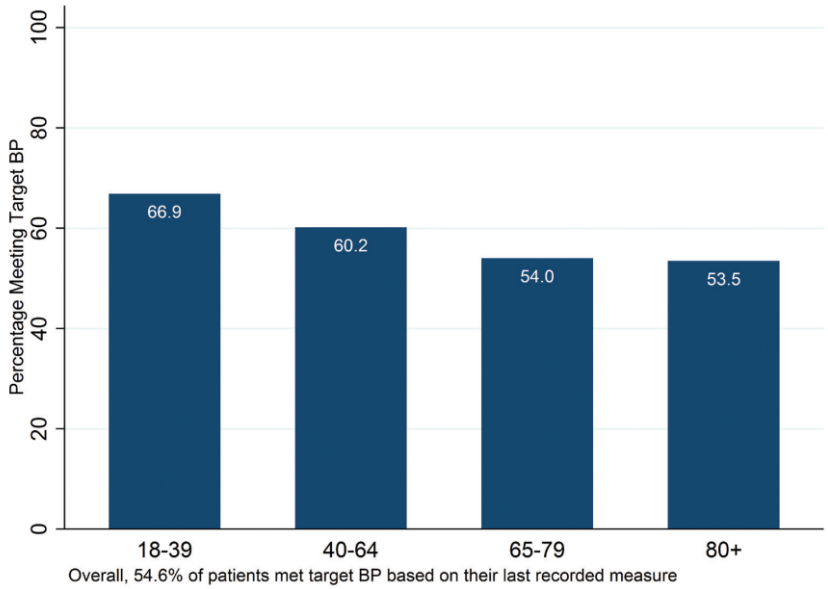


Figure 4: Percentage of people with coded CKD meeting guideline recommended target blood pressure (both <140/90 and <130/80 mmHg targets combined), by age



Choice of antihypertensive agent

The Quality and Outcomes Framework (QOF)[19] included an indicator in 2014/15, which has since been removed, that recorded the percentage of patients on the CKD register with hypertension and proteinuria who are currently treated with an ACE-I or ARB. This was achieved for 76.4% of patients (91.5% underlying achievement net of

[19] NHS Digital (2015) Quality and Outcomes Framework (QOF) - 2014-15

exception-reporting). The range for sub-regions was from 69.6% for the South Yorkshire and Bassetlaw Area Team to 81.3% for the Thames Valley Area Team.

Statins for people with CKD

The National CKD Audit[20] reports that 68.8% of people with CKD had been prescribed statin medication. The prescription rate was higher in those with previous cardiovascular disease and differed by diabetes status (Figure 5), but it did not differ by CKD stage (Figure 6). Only 41% of those aged 65 years or less without diabetes but with CKD were prescribed statin medication.

Figure 5: Percentage of people with coded CKD 3-5 on a statin, by age (below 65 years vs above) and diabetes

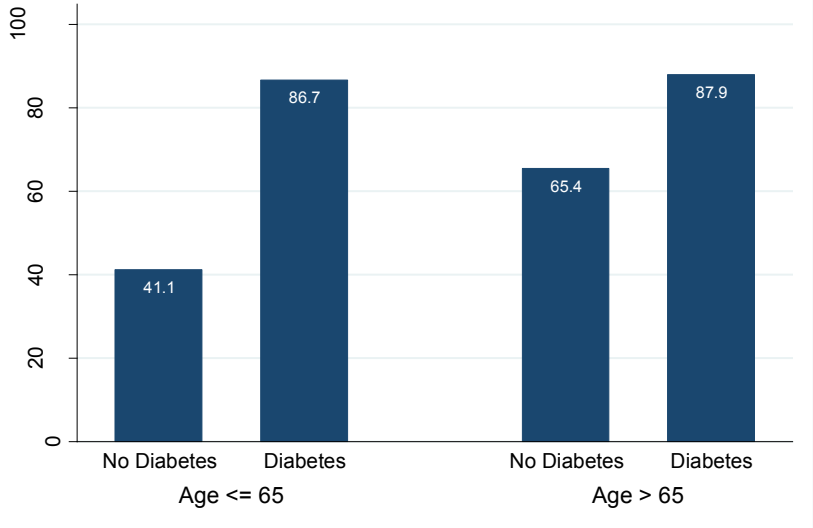
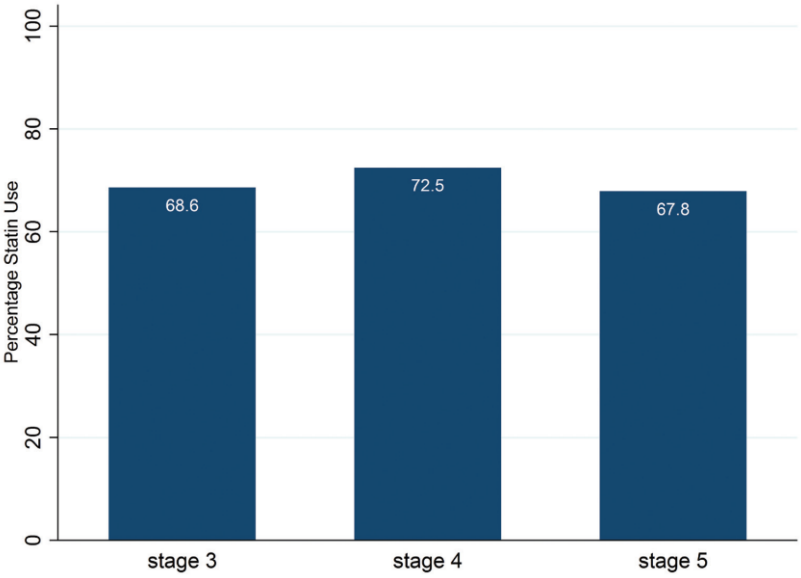


Figure 6: Percentage of people with coded CKD 3-5 on a statin, by CKD stage



[20] Health Quality Improvement Partnership (2017) National Chronic Kidney Disease Audit

4.4.4 Resource impact assessment

No significant resource impact is anticipated for this area. It was not identified as an area likely to cost more than £1 million in England when CG182 was published.

4.5 Other complications

4.5.1 Summary of suggestions

Anaemia management

Stakeholders highlighted the importance of identifying and managing anaemia in people with CKD to improve quality of life and health outcomes. Stakeholders felt that this is currently not being done well in primary care.

Hyperphosphataemia

A stakeholder felt that having a statement on treatment or the roles of healthcare professionals in managing hyperphosphataemia would support local services to implement the guideline.

4.5.2 Selected recommendations from development sources

Table 8 below highlights recommendations that have been provisionally selected from the development sources that may support potential statement development. These are presented in full after table 8 to help inform the committee's discussion.

Table 8 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Anaemia management	**Anaemia** NICE CG182 Recommendation 1.7.8 **Chronic kidney disease: managing anaemia** NICE NG8
Hyperphosphataemia	**Chronic kidney disease (stage 4 or 5): management of hyperphosphataemia** NICE CG157

Anaemia management

Anaemia

NICE CG182 Recommendation 1.7.8

If not already measured, check the haemoglobin level in people with a GFR of less than 45 ml/min/1.73 m^2 (GFR category G3b, G4 or G5) to identify anaemia (haemoglobin less than 110 g/litre [11.0 g/dl], see Anaemia management in people with chronic kidney disease [NICE guideline CG114]). Determine the subsequent frequency of testing by the measured value and the clinical circumstances. [2008]

Chronic kidney disease: managing anaemia

NICE guideline NG8

1.1 Diagnostic evaluation and assessment of anaemia

1.2 Managing anaemia

1.3 Assessment and optimisation of erythropoiesis

1.4 Monitoring treatment of anaemia of CKD

Hyperphosphataemia

Chronic kidney disease (stage 4 or 5): management of hyperphosphataemia

NICE clinical guideline CG157

Dietary management: children, young people and adults

Phosphate binders: children and young people

Phosphate binders: adults

Phosphate binders: children, young people and adults

4.5.3 Current UK practice

Anaemia management

Information from the National CKD Audit[21] shows that:

- 73.9% of people with an eGFR<45ml/min (who should have a haemoglobin blood test to screen for renal anaemia) had one in the past year.
- 5.5% of people with advanced CKD stages 4 and 5 (who should have measurements of serum calcium, phosphate and parathyroid hormone levels) had these measurements recorded. However, as most people with CKD stage 4 or more will be referred for specialist review, test results are likely to have been carried out in secondary care by kidney specialists.

Hyperphosphataemia

No current practice data was found on implementation of the recommendations in the NICE guideline on management of hyperphosphataemia.

[21] Health Quality Improvement Partnership (2017) National Chronic Kidney Disease Audit

4.5.4 Resource impact assessment

No significant resource impact was anticipated for CG182.

Anaemia management

The resource impact work for NG8 reports that there may be savings in the following areas:

- decreased testing costs for providers, depending on local practice
- decreased hospital attendances payable by commissioners because of improved detection and intervention
- more appropriate use of iron therapy due to fewer incorrect diagnoses
- prevention of hospital attendances may free up capacity for providers, and prevent costs for commissioners.

However it is not known if the resource impact is likely to be significant at a national level and it will depend on current practice.

Hyperphosphataemia

The resource impact work for CG157 reports that there may be savings from a reduction in the number of people being prescribed sevelamer hydrochloride or lanthanum carbonate. However, there may be costs associated with an increase in the number of people receiving a dietary assessment with a specialist renal dietitian. It is not known if the resource impact is likely to be significant at a national level and it will depend on current practice.

4.6 Additional areas

Summary of suggestions

The improvement areas below were suggested as part of the stakeholder engagement exercise. However they were felt to be either unsuitable for development as quality statements, outside the remit of this particular quality standard referral or require further discussion by the committee to establish potential for statement development.

There will be an opportunity for the committee to discuss these areas at the end of the session on 16th December 2016.

Pneumonia vaccination

A stakeholder suggested that people with CKD should be vaccinated against pneumonia, and do not realise. There are no recommendations in the NICE or NICE accredited guidance on this area.

Coding

Stakeholders raised issues around people with CKD not having their diagnosis coded on GP systems, which results in poor follow up. There are no recommendations in the NICE or NICE accredited guidance on this area.

Staff training and guidance

A stakeholder suggested that there should be better training and education for healthcare professionals on CKD and patient care. Quality statements on staff training are not usually included in quality standards as healthcare professionals involved in assessing, caring for and treating people with CKD should have sufficient and appropriate training and competencies.

Multidisciplinary care

A stakeholder suggested specialist support as part of a multidisciplinary approach to care for CKD. There are no recommendations in the NICE or NICE accredited guidance on this area.

Appendix 1: Additional information[22]

Kidney Disease Improving Global Outcomes GFR categories

GFR category	GFR (ml/min/1.73 m 2)	Terms
G1	>90	Normal or high
G2	60–89	Mildly decreased*
G3a	45–59	Mildly to moderately decreased
G3b	30–44	Moderately to severely decreased
G4	15–29	Severely decreased
G5	<15	Kidney failure

* Relative to young adult level

Abbreviations: CKD, chronic kidney disease; GFR, glomerular filtration rate

Reprinted with permission from Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group (2013) KDIGO 2012 clinical practice guideline for the evaluation and management of chronic kidney disease. Kidney International (Suppl. 3): 1–150

Kidney Disease Improving Global Outcomes ACR categories

ACR category	ACR (mg/mmol)	Terms
A1	<3	Normal to mildly increased
A2	3–30	Moderately increased*
A3	>30	Severely increased**

* Relative to young adult level

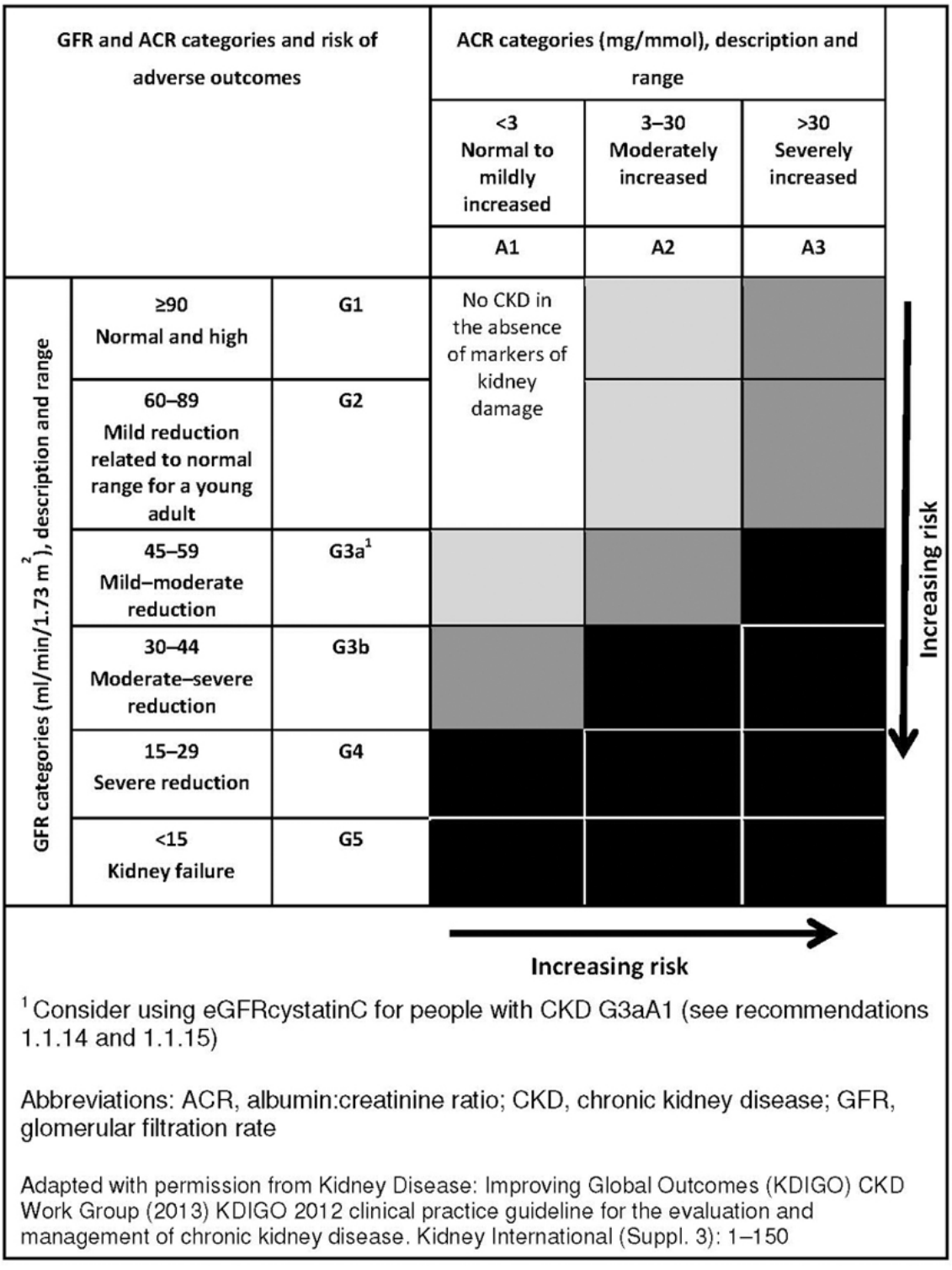
** Including nephrotic syndrome (ACR usually >220 mg/mmol)

Abbreviations: ACR, albumin:creatinine ratio; CKD, chronic kidney disease

Reprinted with permission from Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group (2013) KDIGO 2012 clinical practice guideline for the evaluation and management of chronic kidney disease. Kidney International (Suppl. 3): 1–150

[22] Chronic kidney disease in adults: assessment and management NICE guideline CG182 (2014)

Classification of chronic kidney disease using GFR and ACR categories[23]



[1] Consider using eGFRcystatinC for people with CKD G3aA1 (see recommendations 1.1.14 and 1.1.15)

Abbreviations: ACR, albumin:creatinine ratio; CKD, chronic kidney disease; GFR, glomerular filtration rate

Adapted with permission from Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group (2013) KDIGO 2012 clinical practice guideline for the evaluation and management of chronic kidney disease. Kidney International (Suppl. 3): 1–150

[23] Chronic kidney disease in adults: assessment and management NICE guideline CG182 (2014) Recommendation 1.2.1

Appendix 2: Glossary

Chronic kidney disease (CKD)

Defined as abnormalities of kidney function or structure present for more than 3 months, with implications for health. This includes all people with markers of kidney damage and those with a glomerular filtration rate (GFR) of less than 60 ml/min/1.73 m2 on at least 2 occasions separated by a period of at least 90 days (with or without markers of kidney damage).

Classification of CKD

CKD is classified according to estimated GFR (eGFR) and albumin:creatinine ratio (ACR) (see table 1), using 'G' to denote the GFR category (G1–G5, which have the same GFR thresholds as the CKD stages 1–5 recommended previously) and 'A' for the ACR category (A1–A3), for example:

- A person with an eGFR of 25 ml/min/1.73 m2 and an ACR of 15 mg/mmol has CKD G4A2.
- A person with an eGFR of 50 ml/min/1.73 m2 and an ACR of 35 mg/mmol has CKD G3aA3.
- An eGFR of less than 15 ml/min/1.73 m2 (GFR category G5) is referred to as kidney failure.

Glomerular filtration rate (GFR)

This is abbreviated in the following way in this guideline:

- GFR: either a measured or an estimated GFR
- eGFR: estimated GFR (without indicating the method of estimation)
- eGFRcreatinine: an estimation of GFR using serum creatinine
- eGFRcystatinC: an estimation of GFR using cystatin C.

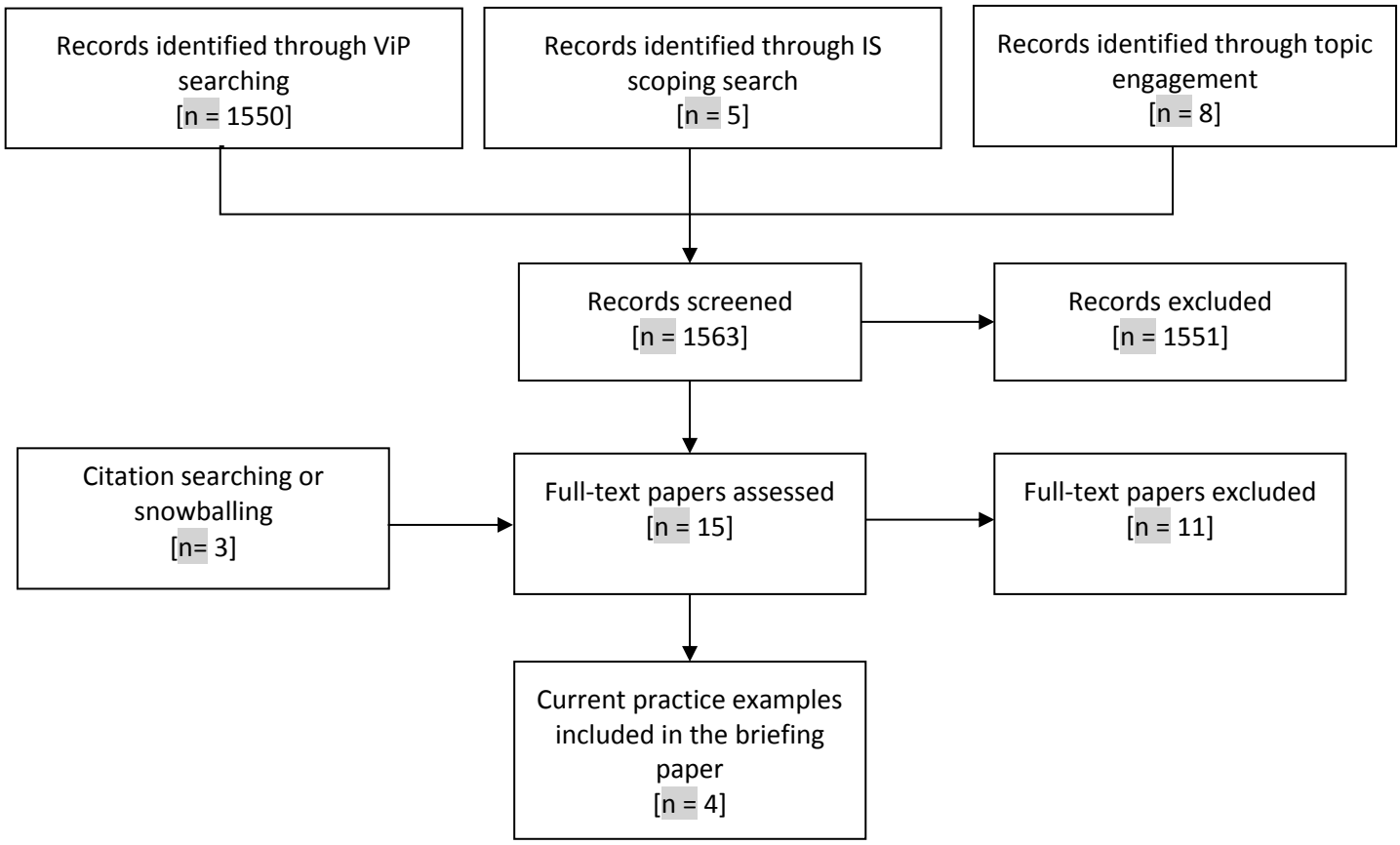
Renin–angiotensin–aldosterone system antagonist

A drug that blocks or inhibits the renin–angiotensin–aldosterone system including angiotensin-converting enzyme (ACE) inhibitors, angiotensin‑receptor blockers (ARBs), direct renin inhibitors and aldosterone antagonists.

Renin–angiotensin system antagonist

A drug that blocks or inhibits the renin–angiotensin system including ACE inhibitors, ARBs and direct renin inhibitors. This group of drugs does not include aldosterone antagonists.

Appendix 3: Review flowchart



Appendix 4: Suggestions from stakeholder engagement exercise – registered stakeholders

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
4.1 Investigations for CKD					
Who should be tested for CKD					
1	British Kidney Patient Association	People with risk factors for CKD are offered testing, and people with CKD are correctly identified.	Diabetes and kidney disease are closely linked and it is really important that signs of kidney deterioration are identified and that timely advice or treatment given to patients.	The National CKD Audit has found that testing for signs of kidney damage i.e. microalbuminuria in people with diabetes is low. The data demonstrate that on average GPs test 86% of people with diabetes for CKD (using annual blood tests), but only 54% have an annual urinary ACR value.	The National CKD audit has produced a final report, to be published in January 2017. A draft copy is attached, please note this is sent confidentially as it is subject to final approval.
2	British Kidney Patient Association	People with risk factors for CKD are offered testing, and people with CKD are correctly identified.	High blood pressure and kidney disease are closely linked and it is really important that signs of kidney deterioration are identified and that timely advice or treatment given to patients.	The National CKD audit has found that for people with high blood pressure, ACR testing rates are below 30%. This is important because people with heavy proteinuria are at greater risk of CKD progression and need tighter blood pressure control.	Please see the audit
3	Kidney Research UK	Key area for quality improvement 1	Although only a minority of patients diagnosed with CKD will progress to end stage renal failure, for those that are poorly identified or managed, the outcomes are worse. To save NHS costs and focus attention on the right patients, we need systems to allow GPs to identify those at greatest risk.	Late referral for dialysis (‘crash landing’ on dialysis – within 90 days from first referral) increases mortality, morbidity and healthcare costs	We refer NICE to the current Kidney Research UK quality improvement project known as ASSIST-CKD. This partners general practices with renal units and pathology labs. The intervention is a simple principle of eGFR graph surveillance, i.e. monitoring kidney function over time. The benefits are:

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
					Identifying a decline in kidney function promoting patient activation and empowerment in managing their disease
					Reduced morbidity and mortality and increased quality of life
					Earlier intervention to slow progression of CKD
					Possibly delay or prevention of end stage renal failure
					Reduced emergency dialysis
					Better access to pre-emptive transplantation and home therapies for dialysis
					The initiative is based on already successful work carried out at the Heart of England Foundation Trust where, since 2005, the number of patients starting dialysis per year has fallen by 16% v. an overall increase across England of 8%. Since 2010, tThe unit has also

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
					achieved a 56% reduction in late referral for dialysis and now has the lowest percentage rate (4.9%) in the UK.
					More information on the project is available from the charity and here:
					https://www.kidneyresearchuk.org/research/assist-ckd
4	Kidney Research UK	Key area for quality improvement 5	CKD stages 3 -5, is under-diagnosed in the UK. Whilst prevalence reporting is around 4%, various studies place the actual prevalence at 6 – 7%. There is also variation in identifying patients across CCGs.	Kidney Research UK estimates that the under diagnosis of moderate to severe CKD results in a 'missing million' of CKD patients. These patients therefore face greater risk of unmanaged progression and adverse cardiovascular events, leading to worse patient outcomes and increased cost to the NHS. In particular patients are referred late to secondary care.	More attention needs to be afforded the identification of patients with CKD. The Kidney Research UK ENABLE-CKD project, identified several hundred more cases of CKD as a by-product of the project, simply because of the attention afforded the condition in practice.

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
5	Royal College of Nursing	Key area for quality improvement 1 Annual eGFR testing	Annual eGFR testing for patients in primary care at risk of Chronic Kidney Disease (CKD) (those with familial kidney disease; hypertension; Acute Kidney Injury (AKI) etc.) is important as it identifies those at risk. Once coded for CKD then recall systems in primary care mean that patients are regularly checked for progressive CKD	This has now been removed from the Quality of Quality of Outcomes Indicators sets (QOF) and may be detrimental to long-term follow up of people who have CKD	NICE CG182: Chronic kidney disease in adults: assessment and management https://www.nice.org.uk/guidance/cg182
6	Royal College of Nursing	Key area for quality improvement 2 Annual ACR testing	Annual Albumin-to-creatinine ratio (ACR) testing for patients in primary care at risk of Chronic Kidney Disease (CKD) to be taken alongside eGFR to identify people at risk	This has now been removed from the QOF and may be detrimental to long-term follow up of people who have CKD	NICE CG182: Chronic kidney disease in adults: assessment and management https://www.nice.org.uk/guidance/cg182
7	SCM 2	Key area for quality improvement 1	Albuminuria is a key marker of increased risk of cardiovascular disease and progressive renal disease.	The National CKD Audit (First National Report) to be published in January 2017 (supplied with permission) found that:	The National CKD Audit First National Report will be published in January 2017
		General: Testing for CKD in people at risk	NICE CG182 states that testing for albuminuria (urine albumin:creatinine ratio) should be offered to all people with risk factors for CKD*	- In people with diabetes 53.9% had testing for urine ACR within the previous year	
		Specific: Testing for albuminuria for people at risk of chronic kidney disease	*at a frequency agreed between patient and clinician	- In people with hypertension <25% had testing for urine ACR within the previous five years	

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
8	SCM 3	Identification & provision of appropriate information in accordance with values of person-centred care	Those that are tested and identified need to be properly informed of what their diagnosis means and how as individuals they can look after themselves to reduce the rate of progression or incidence of risk	Continued identification is highly important for those individuals not yet identified and to limit late presenters in Secondary Care	

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
Measuring kidney function and proteinuria					
9	SCM 1	Key area for quality improvement 1 Improving diagnosis of CKD: Laboratories should use CKD-EPI formula for estimating GFR	A diagnosis of CKD is important to identify patients at increased CV risk. Inaccurate diagnosis misses patients affected who may benefit from intervention but may also lead to misdiagnosis and inappropriate management.	The accuracy and predictive value of the CKD-EPI formula has been established, but many areas of the UK still use the MDRD formula. A change to the new formula should not incur much expense but will rationalise diagnosis of CKD throughout the UK. Until clinicians have confidence in a diagnosis of CKD they will remain sceptical about the value of intervention and may treat their patients inadequately.	This recommendation was made in the NICE 2014 guideline CG182
4.2 Monitoring and progression of CKD					
Frequency of monitoring					
10	British Kidney Patient Association	General – removal of QoF	Identification, coding and monitoring progression are likely to drop now that QoF incentives have been removed so highlighting the issues above and recommending best practice is especially important for 2017.	The national CKD audit shows that the very areas which have now been removed from QoF are those which need most attention i.e. maintaining a register of people with CKD who are having annual ACR urine tests, and people with CKD whose blood pressure is being monitored	
11	Royal College of Nursing	Key area for quality improvement 1 Annual eGFR testing	Annual eGFR testing for patients in primary care at risk of Chronic Kidney Disease (CKD) (those with familial kidney disease; hypertension; Acute Kidney Injury (AKI) etc.) is important as it identifies those at risk. Once coded for CKD then recall systems in primary care mean that patients are regularly checked for progressive CKD	This has now been removed from the Quality of Quality of Outcomes Indicators sets (QOF) and may be detrimental to long-term follow up of people who have CKD	NICE CG182: Chronic kidney disease in adults: assessment and management https://www.nice.org.uk/guidance/cg182

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
12	Royal College of Nursing	Key area for quality improvement 2 Annual ACR testing	Annual Albumin-to-creatinine ratio (ACR) testing for patients in primary care at risk of Chronic Kidney Disease (CKD) to be taken alongside eGFR to identify people at risk	This has now been removed from the QOF and may be detrimental to long-term follow up of people who have CKD	NICE CG182: Chronic kidney disease in adults: assessment and management https://www.nice.org.uk/guidance/cg182
13	SCM 1	Key area for quality improvement 2	ACR>3mg/mmol is associated with increased cardiovascular and all-cause mortality. The ACR test is readily available and inexpensive. Identification of patients with raised ACR allows intervention known to improve outcomes.	Primary care teams are no longer incentivised to measure ACR. Awareness of the value of ACR in identifying patients at risk is patchy. If primary care teams made this measurement integral to routine assessment of patients at risk of CKD, appropriate measures to reduce CV risk could be introduced earlier with improved outcomes.	NICE guideline CG182 provides evidence of the value of ACR in risk assessment
		Improving diagnosis of CKD: universal use of albumin:creatinine ratio (ACR) to assess risk in patients with CKD	Also patients with unexplained proteinuria may benefit from specialist referral.		

CKD progression					
14	British Kidney Patient Association	People with CKD have a current agreed care plan appropriate to the stage and rate of progression of CKD and People with CKD are assessed for disease progression.	Improve rates of accurate coding for people with CKD so that they can be followed up appropriately and given advice and treatment.	The National CKD Audit has shown that 70% of people confirmed with CKD (by 2 blood and urine tests as per guidance) are given the right code. The audit also shows a great variation in GP practices of uncoded patients with identified CKD (0%-80%)	Please see the audit
15	NHS Improvement	The Patient Safety Team in NHS Improvement, previously NHS England, is a supporting partner in the AKI Think Kidneys Programme. We have produced two Patient Safety Alerts to improve the management of Acute Kidney Injury as part of the Think Kidneys Programme 'Standardising the early detection of Acute Kidney Injury' 'Resources to support the care of patients with Acute Kidney Injury'	At times of intercurrent illness (e.g. sepsis) elderly patients and those with chronic conditions (heart failure, diabetes, chronic kidney disease (CKD)) are vulnerable to AKI. AKI enhances the severity of underlying illness, increasing the risk of death; mortality rates of hospitalised patients with AKI are at least 20-33% and AKI is responsible for 40,000 excess deaths every year. Patients with AKI are also subject to longer, more complex hospital stays with increased utilisation of health care resource. A recent economic analysis put the annual cost of AKI in England at >£1billion. Personal recovery may be incomplete	As already referenced in this topic proposal Think Kidneys have produced a range of resources to support improvement in the management of AKI	

		There was also a national CQUIN on AKI for 2015/16 which was designed to improve the recovery of individuals with AKI and to ensure appropriate follow up to minimise short and long term consequences.	and AKI contributes to long term conditions, reducing quality of life metrics and driving the development and progression of CKD. The latter elevates cardiovascular disease risk and end stage renal failure requiring dialysis. Lifetime costs of post-discharge care for AKI patients from 2010-11 was estimated at £179million.		
16	SCM 1	Key area for quality improvement 4 Improving outcomes: The cause of CKD should be sought. People identified as having accelerated CKD should be referred for an early specialist opinion	Whilst most cases of CKD can be dealt with adequately in primary care, it is critical that patients who may benefit from a specialist opinion are identified effectively. Some of these may have treatable CKD.	It is important to distinguish between people with slowly progressive (or static) CKD and those with potentially reversible disease. Some diagnostic rigour is therefore essential at primary care level. A series of basic diagnostic criteria, readily applicable to primary care, needs to be devised.	NICE guideline CG182
				The number of people receiving renal replacement therapy within 3 months of first referral with CKD remains high (around 25-30% of total). These people have a worse prognosis and consume more resources than those referred in a timely manner. The key to reducing late referral rate is for primary care teams to identify people at risk of CKD and to monitor them with sufficient frequency that those who progress are identified.	Numerous peer-reviewed publications (e.g. Am J Med. 2011 Nov;124(11):1073-80.
17	SCM 3	People with Type 1 & 2 Diabetes have their kidney function tested appropriately and are informed of the risks of progression	To assist in better management of these individuals providing improved information and support	If poorly managed will lead to progression	

18	United Kingdom Renal Association	Key area for quality improvement 1 Acute kidney injury (AKI) and chronic kidney disease.	AKI is a major cause of CKD. Ensuring a quality framework to link AKI with CKD will help maximise the accuracy of care for patients with this combination of problems	The introduction of eAlerts for CKD reflecting the high incidence (15% of hospital acute admissions), high mortality, and high subsequent risk of CKD and end-stage renal failure could facilitate linkage between AKI and CKD. The specific actions that could be carried out include: (i) Utilising AKI eAlerts to identify all patients with AKI to the CKD service; (ii) patients with AKI 3 or AKI that does not recover to an eGFR >30 ml/min by discharge to be offered an appointment for a CKD clinic in secondary care. Some of this may be covered by quality standards for AKI, but more explicit inclusion in the CKD quality improvement standards will reinforce the importance of this area.	There have been a number of publications documenting the relationship between CKD and AKI and subsequent progression to end-stage renal failure. AKI is such a high risk for CKD and subsequent CKD progression that a major focus on this area in quality statement for CKD is required.
19	United Kingdom Renal Association	Key area for quality improvement 2 Quality Statement 3 or Quality Statement 7 should be considered for inclusion of a statement around risk stratification of CKD	Statements around preparation for renal replacement therapy in the current version are eGFR and/or progression based. However there is no definition of risk.	The recent validation of a risk equation for progression to end-stage renal failure is a major development. This is in the public domain and available for services to integrate into their pathways. For example; a 70 year old lady with an eGFR of 20 ml/min and normal ACR will have a 2 year risk of end-stage renal failure of <2%; a 40 year old man with the same eGFR and very heavy albuminuria will have a 2-year risk of 37% So the quality statement could be amended to include a recommendation for risk stratification using a validated risk stratification equation.	http://kidneyfailurerisk.com/ and supporting references

Conservative care					
20	SCM 3	Conservative Care -End of Life Care	Conservative care is an appropriate option for many individuals where transplantation or dialysis is not viable	Practice can be variable and it is important that individuals and their carers get access to the right care at the right time supported in the home environment as much as possible.	
4.3 Information, education and self-management					
21	Kidney Research UK	Key area for quality improvement 3	Patients with more advanced CKD may wish to be actively involved in their management, supported by healthcare professionals.	Anecdotal evidence suggests that some HCPs are not aware or confident in encouraging patients in this regard. Often, patients coded as having CKD are not told this, so can take no self-management action.	The ENABLE-CKD project referenced above included this area, and the patient empowerment element was co-designed and delivered by patients.
22	Kidney Research UK	Key area for quality improvement 4	Materials to help inform those with early stage CKD are limited	Faced with a diagnosis of CKD, patients receive little information and thus are not empowered to take action on their own condition which can have a major benefit in slowing or even preventing their progression to even more serious kidney disease.	An outcome of 3.above was a comprehensive booklet/resource for patients Looking after your kidneys. This can be downloaded or ordered from Kidney Research UK here: https://www.kidneyresearchuk.org/health-information/resources/looking-after-your-kidneys Kidney Research UK is currently reviewing this resource and we would urge NICE to consider recommending its use for patient and healthcare professional benefit alike.

23	Renal Psychologists	Area 1	We feel a key area for quality improvement is psychosocial care for renal patients. Within the current quality standard support for commissioning documents is the view that renal units can provide support from the renal staff without employing specialist renal psychosocial support staff. “Expert opinion suggests that sufficient psychosocial support could be provided by suitably trained renal unit staff”. We would like the current review to look at this area as it is unclear where this expert view came from (the view is not supported by the renal psychosocial experts and we note that the expert group did not include a renal psychologist, counsellor or social worker). The current staffing evidence shows that renal units are employing specialist staff (renal psychologists, renal counsellors and renal social workers) to meet the demand for specialist renal psychosocial support. We remain very concerned that current provision is such that patients at one unit are receiving specialist comprehensive support while at another unit the patients have limited or no access to		

			psychosocial support leading to inequalities in provision.		
24	Renal Psychologists	Area 3	The quality standards in other long-term conditions e.g. diabetes have been used as drivers for change to improve psychosocial support and we would very much like the review to consider this area as a way of improving quality of care.		
25	Royal College of Nursing	Key area for quality improvement 3 Inform and educate patients with stage 3 CKD about their condition	NICE recommends that patients with stage 3 CKD should be informed about their condition following diagnosis.	Patients are often frightened about their diagnosis of CKD so careful explanation is essential.	NICE CG182: Chronic kidney disease in adults: assessment and management https://www.nice.org.uk/guidance/cg182
26	Royal College of Nursing	Key area for quality improvement 4 Offer patients education to support self-management of their condition	NICE also recommends that patients with stage 3 CKD should be offered 1-1 education or group education to support self-management of their condition.	This type of education provision is variable in England despite evidence that self-management programmes for long-term conditions can lead to improved health outcomes (although further evidence is needed for CKD). NICE 2014 stated that "Despite the limited RCT evidence, the GDG agreed that self-management systems should be recommended and unanimously agreed that the concept of self-care should be actively encouraged."	NICE CG182: Chronic kidney disease in adults: assessment and management https://www.nice.org.uk/guidance/cg182

27	SCM 2	Key area for quality improvement 3	NICE CG182 states that people with CKD should be offered education and information tailored to the severity and cause of CKD, the associated complications and the risk of progression.	A significant minority of people with CKD G3-5 are not coded on GP systems. If the diagnosis is not recorded it is likely that opportunities to provide education around issues such as medicines management and acute kidney injury will be missed.	The National CKD Audit First National Report will be published in January 2017
		General: Provision of education and information to people with CKD Specific: Recording the diagnosis of chronic kidney disease	The QOF incentivises GPs in England to have a register of people with moderate to severe CKD.	From the National CKD Audit (First National Report) to be published in January 2017 (supplied with permission) around 1.2% of the adult population have clear evidence of CKD G3-5 on blood tests but don't have a code. A further 2.6% had non-CKD stage 3-5 renal codes, which in some cases will represent people with CKD GFR categories 1&2. There was considerable variation (from 0-80% uncoded) between practices	
28	SCM 3	Identification & provision of appropriate information in accordance with values of person-centred care	Those that are tested and identified need to be properly informed of what their diagnosis means and how as individuals they can look after themselves to reduce the rate of progression or incidence of risk	Continued identification is highly important for those individuals not yet identified and to limit late presenters in Secondary Care	
29	SCM 3	Psychosocial Support	There is still widespread variation in access to type and frequency of psychosocial support	As an organisation we frequently (approximately 25 percent) assist people through our advocacy service on benefits issues while our telephone counselling service is also well subscribed.	The BKPA undertook a base-line survey of available support across the UK in 2016. There are further surveys being undertaken by professional membership bodies.

30	SCM 4	1 Clearer information for patients who are often alarmed that they have been coded as CKD. Although GP's try to discuss CKD capacity means CKD 3 patients are not always invited to discuss	Good information communication will lead to informed patients making better decisions for themselves.	If patients can be informed earlier in their CKD progression regarding topic areas such as BP control, control of proteinuria, then outcomes might be improved thus improving health and with potential financial benefits.	
4.4 Pharmacotherapy					
Blood pressure control					
31	Kidney Research UK	Key area for quality improvement 2	There is widespread variation in the treatment of CKD in primary care, particularly in the control of blood pressure and proteinuria. There is a need for better systems to enable consistent implementation of best practice.	Poor blood pressure control and underutilisation of angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs) contribute to the progression of CKD patients, leading to worse outcomes.	We refer NICE to the Kidney Research UK quality improvement project, entitled Enhancing Care and Saving Lives of People with CKD (ENABLE-CKD). This was an innovative care bundle approach for primary care. The bundle involved: □ Asking patients if they wished to participate in a self-management programme □ Measuring and documenting proteinuria and prescribing ACE inhibitor or ACEi/ARB □ Documenting BP and treating if above NICE target □ Documenting cardiovascular risk

					The outcomes of this QI initiative are reported in the BMJ Quality Improvement Reports:
					A quality improvement project to improve the effectiveness and patient centredness of management of people with mild-to-moderate kidney disease in primary care
					Nicola Thomas, Hugh Gallagher, Neerja Jain
					London South Bank University, Epsom and St Helier NHS Trust and Kidney Research UK
					BMJ Quality Improvement Reports 2014; u201337.w825 doi: 10.1136/bmjquality.u201337.w825
					The care bundle toolkit is here:
					https://www.kidneyresearchuk.org/health-information/resources/package-of-innovation

32	SCM 1	Key area for quality improvement 3 Improving prognosis: Patients with diabetes or heavy proteinuria should aim for a BP target of 130/80 using the most appropriate agents.	It is well-established that BP control is the most effective way of improving prognosis in CKD (both progression of CKD and CV death). Diabetes is becoming more common and it is likely that the incidence of diabetic nephropathy will increase.	BP control is the one intervention which has proven benefit in CKD (notably when due to diabetes). It is essential that primary care clinicians understand that BP targets are lower in this category than elsewhere. Also that certain classes of antihypertensive agents (antagonising the renin-angiotensin system) are specifically protective to the kidneys.	NICE guideline CG182 provides a rationale for recommended BP targets and use of ARB/ACEi.
33	SCM 2	Key area for quality improvement 5	NICE CG182 recommends a systolic blood pressure below 140 mmHg (target range 120–139 mmHg) and diastolic blood pressure below 90 mmHg in people with CKD.	The National CKD Audit (First National Report) to be published in January 2017 (supplied with permission) found that:	The National CKD Audit First National Report will be published in January 2017
		Blood pressure control in people with chronic kidney disease	In the presence of diabetes or ACR>70mg/mmol a stricter target is recommended (systolic blood pressure below 130 mmHg (target range 120–129 mmHg) and diastolic blood pressure below 80 mmHg).	- 53% of people with CKD G3-5 met their BP target <140/90 - 29% of people with CKD G3-5 met their BP target of <130/80 - For people aged 18-39 and 40-64 respectively 67% and 60% met their BP targets - There was wide variation between practices in the achievement of BP targets	
34	SCM 3	Blood pressure control	As per previous quality statement 5 (2011)	If poorly managed will lead to progression	
Choice of antihypertensive agent					
35	AstraZeneca	RAASi therapy should be optimised in most patients with CKD, where safe to do so	The use of renin-angiotensin-aldosterone system inhibitors (RAASi) has been shown to reduce morbidity and mortality in patients with CKD (5), is therefore commonly used in UK clinical practice for these patients.	There is variability between hospitals and in primary care around the use of RAASi therapy in CKD patients.	1. Chaudhry et al, JACC, 2016;14:1575-89 2. Epstein M, et al. Am J Manag Care 2015;21:S212–S220 3. Alfonzo A, et al. UK Renal Association Clinical Practice

		- Side effects of RAASi therapy treatment, such as hyperkalaemia, should be appropriately monitored and managed	Potential side effects of RAASi treatment, such as hyperkalaemia, decreased GFR and hypotension are dose related and should be monitored1. However, with careful monitoring, most patients can be treated with theses agents.	There also remains variability around identification and management of hyperkalaemia. From discussions with clinicians, there are particularly differences around the threshold of when chronic treatment is initiated, e.g. for dietary advice and reduction or discontinuation of RAASi	Guidelines 2014; 4. Epstein M, et al. Am J Manag Care 2015;21:S212–S220 5. Am J Nephrol 2012;36:430-437 Please see the Renal Association guideline for the treatment of Acute

			Evidence suggests that hykerkalaemia leads to increased hospitalisation, arrhythmia and, in severe cases, death. 2, 3, 4, 5 In the case of a hyperkalaemic event, RAASi medication is stopped or dose reduced.		Hyperkalaemia in Adults: http://www.renal.org/guidelines/joint-guidelines/treatment-of-acute-hyperkalaemia-in-adults NICE CKD guidelines CG182: https://www.nice.org.uk/guidance/cg182 National Kidney Foundation KDOQI Guidelines http://www2.kidney.org/professionals/kdoqi/guidelines_bp/guide_11.htm 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure http://www.escardio.org/Guidelines/Clinical-Practice-Guidelines/Acute-and-Chronic-Heart-Failure http://eurheartj.oxfordjournals.org/content/37/27/2129

36	Kidney Research UK	Key area for quality improvement 2	There is widespread variation in the treatment of CKD in primary care, particularly in the control of blood pressure and proteinuria. There is a need for better systems to enable consistent implementation of best practice.	Poor blood pressure control and underutilisation of angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs) contribute to the progression of CKD patients, leading to worse outcomes.	We refer NICE to the Kidney Research UK quality improvement project, entitled Enhancing Care and Saving Lives of People with CKD (ENABLE-CKD). This was an innovative care bundle approach for primary care. The bundle involved: Asking patients if they wished to participate in a self-management programme Measuring and documenting proteinuria and prescribing ACE inhibitor or ACEi/ARB Documenting BP and treating if above NICE target Documenting cardiovascular risk The outcomes of this QI initiative are reported in the BMJ Quality Improvement Reports:

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					The care bundle toolkit is here:
					https://www.kidneyresearchuk.org/health-information/resources/package-of-innovation

37	SCM 4	4 Specific information regarding use of ACEi in patients with microalbuminuria. Is it simply maintaining healthy BP? If not, is there benefit in continuing to monitor urine ACR?	Improve prescribing practice.		
Statins for people with CKD					
38	SCM 2	Key area for quality improvement 2	The risks of cardiovascular disease are substantially increased in CKD.	The National CKD Audit (First National Report) to be published in January 2017 (supplied with permission) found that:	The National CKD Audit First National Report will be published in January 2017
		General: CV risk reduction in people with CKD	Lipid lowering therapy significantly reduces the risk of major atherosclerotic events in CKD.	- In people with CKD G3-5 but without diabetes 41% and 65% of people aged <=65 and >65 respectively were prescribed a statin	
		Specific: Lipid lowering therapy in people with chronic kidney disease	NICE CG181 states that atorvastatin 20 mg should be offered (for the primary or secondary prevention of CVD) to people with CKD	- In people with CKD G3-5 and diabetes the equivalent figures were 86.7% and 87.9%	
4.5 Other complications					
Anaemia management					
39	SCM 2	Key area for quality improvement 4	Anaemia is common in people with CKD, and is associated with poor health outcomes and quality of life.	Awareness of renal anaemia management in primary care is relatively low. A series of focus groups conducted within the National Institute of Health Research-	Testing a new stepwise strategy for the management of renal anaemia in primary care:

		Managing anaemia in chronic kidney disease	NICE NG8 states that one should consider investigating and managing anaemia in people with CKD if their haemoglobin level falls to 110 g/litre or they develop symptoms attributable to anaemia	funded “Testing a new stepwise strategy for the management of renal anaemia in primary care” trial found that the management of anaemia tended to be conservative or delayed. Some general practitioners in the sample used a lower threshold of haemoglobin level (90 g/litre or below) before considering treatment.	An exploratory cluster randomised trial. End of Phase 1 Report (Final version: V1.4; date: 31/08/2016)
40	SCM 3	Anaemia Management	It is important to be able to manage the symptom burden for CKD patients as their eGFR declines. Early testing and monitoring can contribute to better management.	Quality of life issue for people with anaemia in CKD	
Hyperphosphataemia					
41	United Kingdom Renal Association	Key area for quality improvement 3 New quality statement around hyperphosphatemia.	A guideline has been produced that includes guidance on management of hyperphosphatemia in patients who are pre-dialysis. However there is no quality statement to support this	There are significant implications for the configuration of care to support the hyperphosphatemia guideline. A quality statement would support local services in configuring their care to adequately support the guideline. The statement could include: Evidence of local arrangements to ensure that patients with CKD and hyperphosphatemia have access to and receive treatment for hyperphosphatemia in accordance with the NICE guideline. Evidence of local agreed protocols defining roles and responsibilities of healthcare professionals in primary and secondary care for managing the hyperphosphatemia of CKD. The threshold is for high phosphate is based on the Renal Association guideline (see below for continuation)	See hyperphosphatemia guideline

				Process could include: a. Proportion of people with a phosphate of >1.5 mmol/l who have been offered dietary assessment	
				b. Proportion of people with a phosphate of >1.5 mmol/l who have had a dietary counselling and have been offered a phosphate binder	
				availability at a routine secondary care CKD clinic review a dietetic assessment if phosphate is >1.5 mmol/l	
				Numerator could include: The number of people with CKD 4-5 with hyperphosphatemia receiving treatment receiving treatment for hyperphosphatemia (dietetic input and phosphate binder) or with a valid reason for not being offered this or not taking this up	
				Denominator – the number of people with a phosphate .1.5 mmol/l	
				Outcome – the number of people with previous hyperphosphatemia who have received treatment and have a phosphate level in the normal range.	
				An audit standard of <100% is required to allow for patient preferences and underlying causes for poor response.	

4.6 Additional areas					
Pneumonia vaccination					
42	British Kidney Patient Association	Pneumonia vaccination for people with CKD	People with CKD are vulnerable to infection, and are unlikely to know that they should receive this vaccination every 5 years, especially if they have not been coded or informed appropriately.	The National CKD Audit shows that just 23.5% people with CKD receive the pneumonia vaccination.	Please see the audit
Coding					
43	British Kidney Patient Association	General – removal of QoF	Identification, coding and monitoring progression are likely to drop now that QoF incentives have been removed so highlighting the issues above and recommending best practice is especially important for 2017.	The national CKD audit shows that the very areas which have now been removed from QoF are those which need most attention i.e. maintaining a register of people with CKD who are having annual ACR urine tests, and people with CKD whose blood pressure is being monitored	
44	SCM 2	Key area for quality improvement 3	NICE CG182 states that people with CKD should be offered education and information tailored to the severity and cause of CKD, the associated complications and the risk of progression.	A significant minority of people with CKD G3-5 are not coded on GP systems. If the diagnosis is not recorded it is likely that opportunities to provide education around issues such as medicines management and acute kidney injury will be missed.	The National CKD Audit First National Report will be published in January 2017
		General: Provision of education and information to people with CKD Specific: Recording the diagnosis of chronic kidney disease	The QOF incentivises GPs in England to have a register of people with moderate to severe CKD.	From the National CKD Audit (First National Report) to be published in January 2017 (supplied with permission) around 1.2% of the adult population have clear evidence of CKD G3-5 on blood tests but don't have a code. A further 2.6% had non-CKD stage 3-5 renal codes, which in some cases will represent people with CKD GFR categories 1&2. There was considerable variation (from 0-80% uncoded) between practices	

Staff training and guidance					
45	SCM 4	2 Better training for GP's (? And other HCP's) regarding patient care for those with GFR 60-90			
46	SCM 4	5 Strategy for improving NHS staff knowledge of CKD (rather than leaving to individual Trusts). Highlight key areas of required CKD knowledge.	Allows healthcare institutions target areas for education.	GP's, Practice Nurses will see many more people with CKD than specialist renal services. However, knowledge could be improved. This will improve patient outcome.	
47	SCM 4	3 There is a large number of older people whose GFR has dropped <30 but who are otherwise stable. They are offered referral to renal team but clearer guidance to primary care would be useful		This might improve referral pathway?	

Multidisciplinary care					
48	Renal Psychologists	Area 2	Other areas have been much clearer in recognising the need for specialist allied professional support embedded within a multidisciplinary approach to care e.g. cystic fibrosis who state the service will provide a core MDT team rather than using 'access to' which can lead to referrals to non-specialist practitioners and inequalities in care e.g. this includes psychosocial care but is wider than this and also includes dietetics, and physiotherapy.		
General comments					
49	NHS England	We can confirm that there are no comments to be made on behalf of NHS England.			
50	NICE medicines and prescribing centre	In relation to the QS topic engagement for chronic kidney disease I just wanted to highlight the NICE key therapeutic topic on acute kidney injury (page 18) onwards. This may be useful when developing the QS.			

51	Renal Psychologists	Area 4	Finally we would hope that the committee would access the expertise of a renal psychosocial clinician (psychologist/counsellor/social worker) to support the development of these important quality standards.		
52	SCM 2	Additional evidence sources for consideration	Cardiovascular disease: risk assessment and reduction, including lipid modification Clinical guideline [NICE CG181]		
53	SCM 3	Additional evidence sources for consideration	Exercise: The BASES Expert Statement on Exercise Therapy for People with Chronic Kidney Disease Produced on behalf of the British Association of Sport and Exercise Sciences by Dr Pelagia Koufaki, Sharlene Greenwood, Dr Patricia Painter and Prof Tom Mercer FBASES.		