

Chronic kidney disease in adults

Quality standard

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[nice.org.uk/guidance/qs5](https://www.nice.org.uk/guidance/qs5)

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This standard is based on CG182 and CG181.

This standard should be read in conjunction with QS72, QS15, QS13, QS66, QS76, QS87, QS100, QS99 and QS6.

Quality statements

Statement 1 Adults with, or at risk of, chronic kidney disease (CKD) have eGFRcreatinine and albumin:creatinine ratio (ACR) testing at the frequency agreed with their healthcare professional. [2011, updated 2017]

Statement 2 Adults with CKD have their blood pressure maintained within the recommended range. [2011, updated 2017]

Statement 3 Adults with CKD are offered atorvastatin 20 mg. [new 2017]

In 2017 this quality standard was updated and statements prioritised in 2011 were updated (2011, updated 2017) or replaced (new 2017). For more information, see [update information](#).

Statements from the 2011 quality standard for CKD that may still be useful at a local level, but are no longer considered national priorities for improvement:

- People with CKD who may benefit from specialist care are referred for specialist assessment in accordance with NICE guidance.
- People with CKD have a current agreed care plan appropriate to the stage and rate of progression of CKD.
- People with CKD are assessed for cardiovascular risk.
- People with CKD are assessed for disease progression.
- People with CKD who become acutely unwell have their medication reviewed, and receive an assessment of volume status and renal function.
- People with anaemia of CKD have access to and receive anaemia treatment in accordance with NICE guidance.

- People with progressive CKD whose eGFR is less than 20 ml/min/1.73 m², and/or who are likely to progress to established kidney failure within 12 months, receive unbiased personalised information on established kidney failure and renal replacement therapy options.
- People with established renal failure have access to psychosocial support (which may include support with personal, family, financial, employment and/or social needs) appropriate to their circumstances.

The [2011 quality standard for CKD](#) is available as a pdf.

NICE has developed guidance and a quality standard on patient experience in adult NHS services (see the NICE pathway on [patient experience in adult NHS services](#)), which should be considered alongside these quality statements.

Other quality standards that should be considered when commissioning or providing chronic kidney disease services include:

- [Acute kidney injury](#) (2014) NICE quality standard 76
- [Renal replacement therapy services for adults](#) (2014) NICE quality standard 72

A full list of NICE quality standards is available from the [quality standards topic library](#).

Quality statement 1: Identification and monitoring

Quality statement

Adults with, or at risk of, chronic kidney disease (CKD) have eGFRcreatinine and albumin:creatinine ratio (ACR) testing at the frequency agreed with their healthcare professional. [2011, updated 2017]

Rationale

Routine monitoring of key markers of kidney function for adults with, or at risk of, CKD will enable earlier diagnosis and early action to reduce the risks of CKD progression, such as cardiovascular disease, end-stage kidney disease and mortality.

Quality measures

Structure

Evidence of local systems that invite adults with, or at risk of, CKD to have eGFRcreatinine and ACR testing.

Data source: Local data collection, for example, through local protocols on appointment reminders.

Process

a) Proportion of adults with CKD who had eGFRcreatinine testing in the past year.

Numerator – the number in the denominator who had eGFRcreatinine testing in the past year.

Denominator – the number of adults with CKD.

Data source: Local data collection, for example, audit of health records. The [National CKD Audit](#) reports the percentage of people with coded CKD stages 3 to 5 with a repeat blood test of their kidney function in the past year.

b) Proportion of adults with CKD who had ACR testing at the frequency agreed with their healthcare professional.

Numerator – the number in the denominator who had ACR testing at the frequency agreed with

their healthcare professional.

Denominator – the number of adults with CKD.

Data source: Local data collection, for example, audit of health records. The [National CKD Audit](#) reports the percentage of people with coded CKD stages 3 to 5 who had an ACR urinary test result in the previous year.

c) Proportion of adults at risk of CKD who had eGFRcreatinine testing at the frequency agreed with their healthcare professional.

Numerator – the number in the denominator who had eGFRcreatinine testing at the frequency agreed with their healthcare professional.

Denominator – the number of adults at risk of CKD.

Data source: Local data collection, for example, audit of health records. The [National CKD Audit](#) reports the percentage of people with diabetes tested using serum creatinine in the past year, and people at risk of CKD without diabetes tested in the past 5 years.

d) Proportion of adults at risk of CKD who had ACR testing at the frequency agreed with their healthcare professional.

Numerator – the number in the denominator who had ACR testing at the agreed frequency.

Denominator – the number of adults at risk of CKD.

Data source: Local data collection, for example, audit of health records. The [National CKD Audit](#) reports the percentage of people with diabetes tested using ACR in the past year, and people at risk of CKD without diabetes tested in the past 5 years.

Outcomes

a) Prevalence of undiagnosed CKD.

Data source: NHS Digital's [Quality and Outcomes Framework 2015–16](#) reports the prevalence of patients aged 18 or over with CKD with classification of categories G3a to G5 registered at GP practices. Comparing recorded prevalence with expected prevalence estimated using a tool, such

as Public Health England's [CKD prevalence model](#), can give an indication of local prevalence of undiagnosed CKD.

b) Stage of CKD at diagnosis.

Data source: Local data collection, for example, audit of health records.

What the quality statement means for different audiences

Service providers (general practices and secondary care services, such as renal, cardiology, diabetes and rheumatology clinics) ensure that systems are in place to identify adults with, or at risk of, CKD, for example through computerised or manual searching of medical records, and offer an appointment to discuss with them how frequently they should have eGFRcreatinine and ACR testing. They also have systems in place to offer appointments for testing at the agreed frequency.

Healthcare professionals (GPs, nephrologists, cardiologists, diabetologists, rheumatologists, nurses and pharmacists) discuss and agree the frequency of eGFRcreatinine and ACR testing with adults who have, or at risk of, CKD and offer testing at the agreed frequency. They can then agree any appropriate treatment based on the results of testing.

Commissioners (clinical commissioning groups and NHS England) ensure that they commission services in which adults with, or at risk of, CKD have eGFRcreatinine and ACR testing at the frequency agreed with their healthcare professional. They might do this by checking that services have systems in place to identify adults with, or at risk of, CKD and offer appointments to discuss and agree the frequency of eGFRcreatinine and ACR testing.

Adults who have, or may be at risk of, CKD discuss and agree with their healthcare professional how often they should have tests to check how well their kidneys are working. They are offered blood and urine tests at the agreed frequency to find out if their CKD is worsening (progressing), or if they have kidney problems. The blood test is at least once a year for adults with CKD. People with CKD are offered information and education relevant to the cause of kidney disease, how advanced it is, any complications they may have and the chances of it getting worse, to help fully understand and make informed choices about treatment. They are also be able to get psychological support if needed – for example, support groups, counselling or support from a specialist nurse.

Source guidance

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

recommendations 1.1.27, 1.1.28 (key priority for implementation), 1.3.1 and 1.3.2 (key priority for implementation).

Definitions of terms used in this quality statement

Adults with CKD

CKD is defined as abnormalities of kidney function or structure present for more than 3 months, with implications for health. This includes:

- people with markers of kidney damage, including albuminuria (ACR more than 3 mg/mmol), urine sediment abnormalities, electrolyte and other abnormalities due to tubular disorders, abnormalities detected by histology, structural abnormalities detected by imaging or a history of kidney transplantation
- people 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).

[NICE's guideline on [chronic kidney disease in adults](#)]

Adults at risk of CKD

Adults with any of the following risk factors:

- diabetes
- hypertension
- acute kidney injury
- 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 – for example, autosomal dominant polycystic kidney disease

- opportunistic detection of haematuria
- prescribed drugs that have an impact on kidney function, such as calcineurin inhibitors (for example, cyclosporin or tacrolimus), lithium and non-steroidal anti-inflammatory drugs (NSAIDs).

[NICE's guideline on [chronic kidney disease in adults](#), recommendations 1.1.27 and 1.1.28 and expert opinion]

eGFRcreatinine testing

A blood test that estimates glomerular filtration rate (GFR) by measuring serum creatinine. It is used as an estimate of kidney function to identify kidney disease and monitor CKD progression. 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.

[Adapted from NICE's guideline on [chronic kidney disease in adults](#), recommendation 1.1.2]

Albumin:creatinine ratio (ACR) testing

A test used to detect and identify protein in the urine, which is a sign of kidney disease, and can be used to assess progression of CKD.

[Adapted from NICE's guideline on [chronic kidney disease in adults](#), recommendation 1.1.18 and full guideline]

At the frequency agreed with their healthcare professional

The frequency of monitoring should be discussed and agreed by the person and their healthcare professional. Table 2 in NICE's guideline on [chronic kidney disease in adults](#) should be used to guide the frequency of GFR monitoring. Adults with CKD should be seen at least annually and adults at risk of CKD can be seen annually or less often for monitoring of eGFR. ACR does not need to be measured every time eGFR is measured, except when evaluating response to a treatment targeted at reducing proteinuria. Frequency of monitoring is determined by the stability of kidney function and the ACR level, and tailored to the individual 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.

[Adapted from NICE's guideline on [chronic kidney disease in adults](#), recommendations 1.3.1 and 1.3.2 and full guideline]

Quality statement 2: Blood pressure control

Quality statement

Adults with chronic kidney disease (CKD) have their blood pressure maintained within the recommended range. [2011, updated 2017]

Rationale

People with CKD are at a higher risk of high blood pressure. Maintaining blood pressure within a target range reduces the risk of cardiovascular disease, CKD progression and mortality.

Quality measures

Structure

a) Evidence of local systems to identify and invite adults with CKD to have a blood pressure reading.

Data source: Local data collection, for example, through local protocols on appointment reminders.

b) Evidence of the availability of equipment to take a blood pressure reading from adults with CKD.

Data source: Local data collection, for example, service specifications.

Process

a) Proportion of adults with CKD without diabetes and with an ACR below 70 mg/mmol whose systolic blood pressure is between 120–139 mmHg and their diastolic blood pressure below 90 mmHg.

Numerator – the number in the denominator whose systolic blood pressure is between 120–139 mmHg and their diastolic blood pressure below 90 mmHg.

Denominator – the number of adults with CKD without diabetes and with an ACR below 70 mg/mmol.

Data source: Local data collection, for example, audit of health records. The [National CKD Audit](#) reports the percentage of people with coded CKD stages 3 to 5 with blood pressures below the

recommended targets.

b) Proportion of adults with CKD and diabetes whose systolic blood pressure is between 120–129 mmHg and their diastolic blood pressure below 80 mmHg.

Numerator – the number in the denominator whose systolic blood pressure is between 120–129 mmHg and their diastolic blood pressure below 80 mmHg.

Denominator – the number of adults with CKD and diabetes.

Data source: Local data collection, for example, audit of health records. The [National CKD Audit](#) reports the percentage of people with coded CKD stages 3 to 5 with blood pressures below the recommended targets.

c) Proportion of adults with CKD and an ACR of 70 mg/mmol or more whose systolic blood pressure is between 120–129 mmHg and their diastolic blood pressure below 80 mmHg.

Numerator – the number in the denominator whose systolic blood pressure is between 120–129 mmHg and their diastolic blood pressure below 80 mmHg.

Denominator – the number of adults with CKD and an ACR of 70 mg/mmol or more.

Data source: Local data collection, for example, audit of health records. The [National CKD Audit](#) reports the percentage of people with coded CKD stages 3 to 5 with blood pressures below the recommended targets.

Outcomes

a) Prevalence of cardiovascular disease among people with CKD.

Data source: Local data collection, for example, audit of health records. The [UK Renal Registry](#) collects data on comorbidities of renal patients, including angina, heart failure and atrial fibrillation.

b) Incidence of cardiovascular events for people with CKD.

Data source: Local data collection, for example, audit of health records. The [UK Renal Registry](#) collects data on comorbidities of renal patients, including dates of heart failure, transient ischaemic attack, stroke and ST segment elevation myocardial infarction (STEMI).

c) Cardiovascular mortality rates among people with CKD.

Data source: Local data collection, for example, audit of health records. The [UK Renal Registry](#) collects data on the cause of death of renal patients.

d) Incidence of end-stage kidney disease.

Data source: Local data collection, for example, audit of health records. The [UK Renal Registry](#) collects data on the first date of renal replacement therapy or start of CKD stage 5 in renal patients.

What the quality statement means for different audiences

Service providers (general practices and secondary care services) ensure that systems are in place for adults with CKD to have their blood pressure maintained within the recommended range. This might involve having the equipment to take a blood pressure reading, using clinical IT systems to compare patients to the recommended range when entering a blood pressure reading, or flagging when patients need a blood pressure reading.

Healthcare professionals (GPs, nephrologists, nurses and pharmacists) monitor the blood pressure of adults with CKD and are aware of the recommended ranges. They support people to keep their blood pressure within the recommended range, for example, by starting or adjusting treatment, or advising on lifestyle changes.

Commissioners (clinical commissioning groups and NHS England) ensure that they commission services in which adults with CKD have their blood pressure maintained within the recommended range. They work with service providers to ensure that adults with CKD are identified, and have a blood pressure reading and any necessary support to maintain it within the recommended range.

Adults with CKD are supported to keep their blood pressure at a healthy level. If it is too high, their healthcare professional might offer medicine, or change the medicine they are taking, or suggest lifestyle changes, to help to control it.

Source guidance

[Chronic kidney disease in adults: assessment and management \(2014\) NICE guideline CG182](#), recommendations 1.6.1 and 1.6.2.

Definitions of terms used in this quality statement

Adults with CKD

CKD is defined as abnormalities of kidney function or structure present for more than 3 months, with implications for health. This includes:

- people with markers of kidney damage, including albuminuria (ACR more than 3 mg/mmol), urine sediment abnormalities, electrolyte and other abnormalities due to tubular disorders, abnormalities detected by histology, structural abnormalities detected by imaging or a history of kidney transplantation
- people 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).

[NICE's guideline on [chronic kidney disease in adults](#)]

Recommended range

Blood pressure should be monitored and maintained within the following ranges:

- 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.
- 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.

[Adapted from NICE's guideline on [chronic kidney disease in adults](#), recommendations 1.6.1 and 1.6.2]

Quality statement 3: Statins for people with CKD

Quality statement

Adults with chronic kidney disease (CKD) are offered atorvastatin 20 mg. [new 2017]

Rationale

There is a higher risk of cardiovascular disease (CVD) in people with CKD. After discussing the risks and benefits of starting statin therapy with a healthcare professional, adults with CKD may choose statin therapy as an appropriate treatment to reduce their risk of first CVD events, or of future CVD events in adults who have already had an event, such as a heart attack or stroke. Statins are a clinically effective treatment for preventing CVD, and reducing the risks associated with CVD, for people who have CKD. Atorvastatin 20 mg is recommended as the preferred initial high-intensity statin because it is clinically and cost effective for the primary and secondary prevention of CVD.

Quality measures

Structure

a) Evidence of the availability of atorvastatin 20 mg within local service providers.

Data source: Local data collection, for example, local formularies.

b) Evidence of local systems to check whether adults with CKD are taking atorvastatin 20 mg and invite them to discuss starting treatment if not.

Data source: Local data collection, for example, service specifications.

Process

Proportion of adults with CKD who receive atorvastatin 20 mg.

Numerator – the number in the denominator who receive atorvastatin 20 mg.

Denominator – the number of adults with CKD.

Data source: Local data collection, for example, audit of health records. The [National CKD Audit](#) reports the percentage of people with coded CKD stages 3 to 5 who are on a statin.

Outcomes

a) Prevalence of cardiovascular disease among people with CKD.

Data source: Local data collection, for example, audit of health records. The [UK Renal Registry](#) collects data on comorbidities of renal patients, including angina, heart failure and atrial fibrillation.

b) Incidence of cardiovascular events for people with CKD.

Data source: Local data collection, for example, audit of health records. The [UK Renal Registry](#) collects data on comorbidities of renal patients, including dates of heart failure, transient ischaemic attack, stroke and ST segment elevation myocardial infarction (STEMI).

c) Cardiovascular mortality rates among people with CKD.

Data source: Local data collection, for example, audit of health records. The [UK Renal Registry](#) collects data on the cause of death of renal patients.

d) Proportion of people with CKD with a greater than 40% reduction in non-high-density lipoprotein cholesterol.

Data source: Local data collection, for example, audit of health records.

What the quality statement means for different audiences

Service providers (general practices and secondary care services, such as renal, cardiology, diabetes and rheumatology clinics) ensure that systems are in place for adults with CKD to be offered atorvastatin 20 mg. For example, this may be done through incorporating treatment algorithms into software applications to provide users with patient-specific recommendations on treatment.

Healthcare professionals (GPs, nephrologists, cardiologists, diabetologists, rheumatologists, nurses and pharmacists) check whether adults with CKD are taking a statin, and discuss the risks and benefits of starting statin therapy if not. They offer atorvastatin 20 mg and increase the dose if an adequate response to treatment is not achieved and eGFR is 30 ml/min/1.73 m² or more. If a person is not able to tolerate atorvastatin 20 mg or reports adverse effects, they discuss alternative options such as stopping the statin or changing the dose or type of statin.

Commissioners (clinical commissioning groups and NHS England) ensure that they commission

services in which adults with CKD are offered atorvastatin 20 mg. Commissioners may do this by seeking evidence of practice through clinical audits.

Adults with CKD are at a higher risk of heart attacks and strokes. To help reduce the risk they are offered a type of medicine called a statin, which lowers the level of cholesterol (sometimes called lipids) in the blood. If their cholesterol level does not decrease enough, they may change to a higher dose. If the statin causes any side effects, their doctor might ask them to stop taking it for a while to check that they are caused by the statin. Their doctor might discuss reducing the dose or changing to a different statin.

Source guidance

- [Chronic kidney disease in adults: assessment and management \(2014\) NICE guideline CG182](#), recommendation 1.6.15
- [Cardiovascular disease: risk assessment and reduction, including lipid modification \(2014\) NICE guideline CG181](#), recommendation 1.3.27

Definitions of terms used in this quality statement

Adults with CKD

CKD is defined as abnormalities of kidney function or structure present for more than 3 months, with implications for health. This includes:

- people with markers of kidney damage, including albuminuria (ACR more than 3 mg/mmol), urine sediment abnormalities, electrolyte and other abnormalities due to tubular disorders, abnormalities detected by histology, structural abnormalities detected by imaging or a history of kidney transplantation
- people 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).

[NICE's guideline on [chronic kidney disease in adults](#)]

Update information

July 2017: This quality standard was updated and statements prioritised in 2011 were replaced.

Statements are marked as:

- **[new 2017]** if the statement covers a new area for quality improvement
- **[2011, updated 2017]** if the statement covers an area for quality improvement included in the 2011 quality standard and has been updated.

Statements numbered 1 and 5 in the 2011 version have been updated and are included in the updated quality standard, marked as **[2011, updated 2017]**.

Statements from the 2011 version (numbered 2, 3, 4, 6, 7, 8, 9 and 10) that are no longer considered national priorities for improvement, but may still be useful at a local level, are listed in the [quality statements](#) section.

The [2011 quality standard for CKD](#) is available as a pdf.

About this quality standard

NICE quality standards describe high-priority areas for quality improvement in a defined care or service area. Each standard consists of a prioritised set of specific, concise and measurable statements. NICE quality standards draw on existing NICE or NICE-accredited guidance that provides an underpinning, comprehensive set of recommendations, and are designed to support the measurement of improvement.

Expected levels of achievement for quality measures are not specified. Quality standards are intended to drive up the quality of care, and so achievement levels of 100% should be aspired to (or 0% if the quality statement states that something should not be done). However, this may not always be appropriate in practice. Taking account of safety, shared decision making, choice, and professional judgement, desired levels of achievement should be defined locally.

Information about [how NICE quality standards are developed](#) is available from the NICE website.

See [quality standard advisory committees](#) on the website for details of standing committee 4 members who advised on this quality standard. Information about the topic experts invited to join the standing members is available on the [quality standard's webpage](#).

This quality standard has been incorporated into the NICE pathway on [chronic kidney disease and cardiovascular disease prevention](#).

NICE has produced a [quality standard service improvement template](#) to help providers make an initial assessment of their service compared with a selection of quality statements. This tool is updated monthly to include new quality standards.

NICE produces guidance, standards and information on commissioning and providing high-quality healthcare, social care, and public health services. We have agreements to provide certain NICE services to Wales, Scotland and Northern Ireland. Decisions on how NICE guidance and other products apply in those countries are made by ministers in the Welsh government, Scottish government, and Northern Ireland Executive. NICE guidance or other products may include references to organisations or people responsible for commissioning or providing care that may be relevant only to England.

Improving outcomes

This quality standard is expected to contribute to improvements in the following outcomes:

- people with CKD feeling supported to manage their condition
- health-related quality of life for people with CKD
- progression to end-stage kidney disease
- cardiovascular mortality for people with CKD
- all-cause mortality for people with CKD.

It is also expected to support delivery of the Department of Health's outcome frameworks:

- [NHS outcomes framework 2016–17](#)
- [Public health outcomes framework for England, 2016–19.](#)

Resource impact

NICE quality standards should be achievable by local services. The potential resource impact is considered by the quality standards advisory committee, drawing on resource impact work for the source guidance. Organisations are encouraged to use the [costing statement](#) for the NICE guideline on chronic kidney disease to help estimate local costs.

Diversity, equality and language

During the development of this quality standard, equality issues were considered and [equality assessments](#) are available. Any specific issues identified during development of the quality statements are highlighted in each statement.

Commissioners and providers should aim to achieve the quality standard in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity and foster good relations. Nothing in this quality standard should be interpreted in a way that would be inconsistent with compliance with those duties.

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Endorsing organisation

This quality standard has been endorsed by NHS England, as required by the Health and Social Care Act (2012)

Supporting organisations

Many organisations share NICE's commitment to quality improvement using evidence-based guidance. The following supporting organisations have recognised the benefit of the quality standard in improving care for patients, carers, service users and members of the public. They have agreed to work with NICE to ensure that those commissioning or providing services are made aware of and encouraged to use the quality standard.

- [British Renal Society](#)
- [Diabetes UK](#)
- [Kidney Care UK](#)
- [Royal College of Nursing](#)
- [Royal College of General Practitioners](#)
- [Renal Association](#)