

# How ready is general practice to improve quality in chronic kidney disease?

## A diagnostic analysis

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### ABSTRACT

#### Background

Chronic kidney disease (CKD) is associated with increased cardiovascular mortality and morbidity as well as progression to established renal failure. Interventions in primary care, particularly the lowering of blood pressure in individuals with CKD and proteinuria and diabetes, can slow disease progression. This evidence base is codified in national guidance and in a simplified form in pay-for-performance targets. Prior to conducting the QICKD study — a cluster of quality-improvement interventions with reduction of blood pressure as its primary outcome measure — a diagnostic analysis was conducted to assess the relevance of the intended interventions.

#### Aim

To understand practitioners' views of CKD and its management.

#### Method

Focus groups were held in five locations across England. Experienced facilitators developed a standardised approach and analysed data using the 'framework' approach.

#### Results

Practitioners varied in their views of CKD and their embracing of the guidance. Some sought to implement the full guidance, others only the pay-for-performance targets. Nearly all practitioners had reservations as to whether CKD was really a disease; problematised the diagnosis of CKD purely on an estimate of glomerular filtration rate; questioned whether CKD in older people was part of natural ageing; and had experienced difficulty in explaining the condition to patients without frightening them. Most reported both problems and scepticism concerning the blood pressure targets, and acknowledged educational gaps.

#### Conclusion

Practitioners have disparate views about CKD. The quality-improvement interventions in the QICKD study will need to incorporate a large element of education. CKD guidelines may have been introduced without sufficient educational support.

#### Keywords

chronic disease; medication therapy management; patient-physician relations.

### INTRODUCTION

Chronic kidney disease (CKD) is a recently defined condition and a new priority for primary care.<sup>1</sup> CKD is important because it is common, potentially affecting up to 10% of the population,<sup>2,3</sup> and cohort studies have shown the condition has an excess total and cardiovascular morbidity<sup>4</sup> similar to the increased risk associated with diabetes.<sup>5</sup> Stages 3–5 CKD, the more serious of its five stages, can be diagnosed using an estimate of kidney function called the 'estimated glomerular filtration rate' (eGFR). The simple formula to calculate eGFR requires serum creatinine, age, sex, and ethnicity. Strictly speaking, two eGFR values, based on creatinine measurements at least 3 months apart, are needed before making a formal diagnosis of CKD.

Primary care interventions to control cardiovascular risk, principally lowering blood pressure, should slow the rate of decline in CKD. Tight control of blood pressure should be focused on high-risk individuals, namely those with proteinuria and diabetes. Improved primary care management should reduce the number of cardiovascular events and reduce established renal failure in individuals

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## How this fits in

CKD is a new priority for primary care and practitioner awareness increased after its inclusion in pay-for-performance targets in April 2006 in the UK. This qualitative study was carried out as part of the diagnostic analysis prior to the commencement of the cluster randomised trial of Quality Improvement interventions in CKD. Little was previously known about practitioners' understanding of the disease. The study demonstrated the variation in clinicians' understanding of this condition. Clinicians modulated their implementation of the pay-for-performance target based on their professional knowledge of individual patients.

with CKD.<sup>6</sup> The evidence base for these interventions is summarised in recent national guidance.<sup>7,8</sup>

Awareness of CKD has increased since its inclusion in the UK's financially incentivised quality targets for primary care — the Quality and Outcomes Framework (QOF). The CKD QOF indicator was introduced in 2006; at the time there was a perceived lack of knowledge and experience in managing CKD. It was the only QOF indicator to be supported by online 'frequently asked questions'.<sup>9</sup> The initial blanket approach to controlling blood pressure in the CKD QOF target may have lacked a strong evidence base,<sup>10</sup> however, recent changes have resulted in more selective targeting of high-risk groups. Implementation of the indicator has been patchy; less than half the expected prevalence of the condition is reported on disease registers, that is, around 3.4%,<sup>11</sup> compared with around 8% in epidemiological studies.<sup>2</sup>

There have been few studies of quality-improvement strategies to control blood pressure in high-risk individuals with CKD.<sup>12</sup> The authors are therefore undertaking a 2-year, three-arm cluster randomised controlled trial involving 105 practices (powered for 105 but >130 are included), to compare the effectiveness of two different quality-improvement strategies, as against usual practice. Thirty-five practices will receive guidelines and prompts,<sup>13</sup> 35 will receive audit-based education,<sup>14</sup> with the remaining 35 practices constituting 'usual practice'. The reduction of systolic blood pressure is the primary outcome measure.<sup>15</sup> The purpose of the qualitative research described in this paper was to carry out a diagnostic analysis,<sup>16,17</sup> at an early stage of the overarching study, in order to explore contemporary issues in the management of CKD in general practice prior to finalising the content of the quality-improvement strategies due to be implemented in the trial.<sup>15</sup> The qualitative research is contributed to the development of these quality-improvement interventions that are likely to improve the control of blood pressure in high-risk individuals with CKD.

## METHOD

The subjects of the research were GPs and practice nurses. Qualitative methods were used to elicit the range of perspectives (understandings, motivations, and level of engagement) held by health professionals in primary care concerning the then recently introduced national guidelines and framework for managing CKD.<sup>7</sup> The initial research aim was to explore the management of CKD, as well as the nature of the condition itself. These findings were then drawn upon to: contextualise the impact of the national initiatives to improve primary care management of CKD; enable finalisation of the content of the quality-improvement interventions; and provide a benchmark for the later process evaluation of the main study interventions.<sup>18</sup>

A non-probability purposive sample of five practices was selected from the 70 practices that had agreed to participate in the active (interventions) arm of the main study. The purposive selection criteria were that these practices represented a range of practices that included 'locality leaders' in the primary care management of CKD, and also practices that were defined as those 'challenged to deliver high-quality care', that is, these practices were in the bottom quartile for recorded prevalence of CKD and proteinuria testing and use angiotensin-modulating drugs in high-risk patients compared with their peers; and not aligned with current National Institute for Health and Clinical Excellence (NICE) guidance.<sup>9</sup> The five practices were located within South London, Surrey, and the East Midlands. Thirty-six health professionals (26 GPs, nine practice nurses, and one practice-based pharmacist) participated in the five focus groups that were used to collect the data.

Focus group discussion has advantages in eliciting the attitudes, feelings, and beliefs of practitioners. Although these perspectives may be independent of the individual's membership of the social group that constitutes the primary care practice, they are more likely to be revealed via the social gathering and the interaction created by a focus group discussion than through observation or individual interviewing. An interview guide or set of prompts was produced through a process of brainstorming among the research team. The guide provided the discussion moderator or facilitator with topics and issues that were, to the extent possible, to be covered at some point during the group discussion. These prompts were loosely structured and did not suggest potential responses. The guide was reviewed and reassessed following completion of the first focus group discussion; this process was repeated for the second and subsequent focus groups. No attempt was made to reach the point of

saturation in the data-collection phase because the diagnostic analysis was primarily exploratory rather than definitive, and was also conducted at a time of rapid change in the management of CKD. The perspectives of GPs and practice nurses recorded in the focus groups therefore should be seen very much as a 'snapshot' of understanding in a particular clinical context at a particular time.

The focus groups were recorded and transcribed verbatim. The transcripts were then analysed utilising the 'framework' approach,<sup>19</sup> developed at the National Centre for Social Research in London. This involved an initial phase of data management in which the transcripts of the group discussions were checked for accuracy, and then read to gain familiarity with the dataset. A conceptual or thematic framework was then constructed, which involved the indexing or labelling of the transcript data leading to the identification of 'initial themes' or concepts. This process was applied to the entire dataset while undergoing a process of constant refinement, which included the identification of deviant cases.

A set of thematic charts were then constructed in order to sort the transcript data with similar subject matter into a hierarchy of main themes and subthemes, so that the data could be more easily synthesised prior to interpretative analysis. Although the discussion following will be structured on the basis of the emergent theme hierarchy, it should be borne in mind that the subthemes are not necessarily exclusive to one main theme alone.

## RESULTS

Eight main themes emerged from the analysis of the focus group discussions. The general response of practices to the guidance was variable and varied both within and between practices. There were difficulties associated with: assigning a diagnosis simply on the basis of a blood test; whether CKD was really a disease at all; the stigmatising effect of a diagnosis of CKD; and the difficulty of explaining the concept to patients. There were concerns that the blood pressure targets were difficult to achieve in practice, and that it resulted in over-complicated medication regimes for people with CKD, who were often older and had other comorbidities. There were also concerns about when to refer to secondary care, as well as the need for more professional education (Table 1).

There were both positive and negative comments about the usefulness of eGFR. There were concerns about the emphasis placed by national guidelines on the use of eGFR in making a diagnosis, and also cautions about its volatility as a measurement over time (Table 1, section B). Concern was expressed

about the implications of a CKD diagnosis for patients and that CKD can serve to label patients, with potentially stigmatising consequences (Table 1, section D). Some practitioners went on to question the validity of introducing a new disease label which reclassified existing disease categories. Questions were raised in the focus group discussions about the CKD label being a test of renal function rather than of a discrete pathology. There was scepticism that a discrete diagnosis was possible, given that the signs of CKD were frequently bound up with other comorbidities, as expressed in the following:

*'These [patients diagnosed with CKD] are people who are at increased risk of cardiovascular disease so again from a management point of view, controlling their blood pressure, controlling the cardiovascular risk is still central to the management of these people. So the tools that you are using are still the same tools that you would be using in other conditions. I think the point is actually being aware of the other factors and not just focusing on the eGFR on its own but looking at what else is happening, that's the most important thing.'* (FG2, GP8)

A key concern was the best approach to informing patients that they had been given a diagnosis of CKD (Table 1, section D). There was some general reluctance by practitioners, expressed in all the focus groups, to embrace the CKD label (particularly stage 3) when relying solely on the eGFR result to make the diagnosis. This was especially the case if the individual was older and generally feeling well in themselves. This view is expressed in the following quote from a GP:

*'People usually came for something else — for investigation of anaemia, for tiredness, all sorts of other things. And, as a by-product, you measure their eGFR which is say 59 [mL/min/1.73 m<sup>2</sup>]. Then there is lots of confusion, people think they will need to have dialysis in a couple of years' time when you mention chronic kidney disease. So there was lots of anxiety from patients and you need to explain quite a lot "What does CKD actually mean?".'* (FG2, GP6)

The management of high blood pressure in patients diagnosed with CKD (Table 1, section E) was generally reported as problematic. Few practitioners chose to focus on the potential benefits for patients of closer monitoring and active

**Table 1. Issues for primary care in the management of people with chronic kidney disease (CKD).**

Index of main themes	Index of subthemes derived from the focus group discussions
(A) General responses to the response to renal disease	<ul style="list-style-type: none"> <li>National CKD guidelines have led to a more active and systematic introduction of national guidelines.</li> <li>Classifying patients by CKD stages takes away from whole patient assessment.</li> <li>Guidelines have not changed the management of stable (CKD stage 3) older patients.</li> <li>The use of the protocol 'suddenly flooded' the practice with 'new' CKD patients, and led to an increase in the number of patient consultations and thus increased staff workload.</li> <li>CKD QOF acts as the prompt within the practice to identify potential CKD patients.</li> </ul>
(B) Issues surrounding use of the eGFR measure	<ul style="list-style-type: none"> <li>Helpful in making CKD diagnosis as it is easier to monitor and assess the rate of renal decline.</li> <li>The sensitivity of the eGFR has raised awareness about when to refer; before the test it was only patients with deteriorating creatinine levels who were referred on.</li> <li>National guidelines did not warn that non-fasting tests can produce false-positive measurements of eGFR.</li> <li>eGFR readings in the same patient can be volatile over time and are also not a valid measure in the over 75s.</li> </ul>
(C) Labelling issues: kidney disease part of the normal ageing process	<ul style="list-style-type: none"> <li>The label 'chronic kidney disease' can induce fear and is stigmatising for patients.</li> <li>CKD is a new label/reclassification of a pre-existing disease condition — not the identification of a new disease.</li> <li>A low eGFR level/declining renal function is normal for older people.</li> <li>CKD is a diagnostic label based on a test of renal function rather than of a discrete pathology.</li> <li>It is necessary to refine the CKD label as patients typically do not have 'isolated CKD' but have other comorbidities.</li> </ul>
(D) Issues surrounding the giving of a CKD diagnosis	<ul style="list-style-type: none"> <li>Informing patients they have been classified CKD stage 3 unduly raises patient anxiety — some think they require kidney transplant.</li> <li>The term kidney 'impairment' is used at eGFR &lt;60 (mL/min/1.73 m<sup>2</sup>) mark rather than CKD — to downplay the impact of a CKD diagnosis.</li> <li>GPs should not put a CKD 3 diagnosis on a patient's record without informing them — medical-legal requirement.</li> <li>The practice does not automatically tell patients that they have been put on the CKD register.</li> <li>There is not adequate time in a 10-minute consultation to explain to patients the significance of the eGFR score.</li> </ul>
(E) Issues surrounding the management of blood pressure in CKD	<ul style="list-style-type: none"> <li>There are no obvious benefits of more closely managing blood pressure in CKD as patients in this group typically have many other chronic problems.</li> <li>Benefits of controlling blood pressure in patients with deteriorating renal function will be a reduction in coronary heart disease risk.</li> <li>There are difficulties associated with meeting the QOF blood pressure guidance for many older patients because of their tolerance of antihypertensive medication.</li> <li>Achieving patient compliance with a blood pressure management protocol requires time-consuming explanations and additional support.</li> <li>Patients are increasingly aware of side-effects of antihypertensives so less compliant, thus there are difficulties in meeting target reductions.</li> <li>The decision to prescribe antihypertensives to older patients cannot be made on the basis of any single measure of renal function.</li> <li>There are questions surrounding the reliability of home monitoring of blood pressure, and therefore the efficacy of using these data in patient management.</li> </ul>
(F) Patient self-management and compliance issues in relation to meeting blood pressure targets	<ul style="list-style-type: none"> <li>Home monitoring of blood pressure is encouraged by the practice as it avoids the anxiety of having it taken by professionals.</li> <li>Meeting blood pressure targets for CKD patients is dependent upon their compliance with the additional medication required.</li> <li>Medication alone is not enough to meet blood pressure targets; patients themselves have to be willing to change lifestyles.</li> <li>Some patients prefer to live with high blood pressure than to take medication because once on it, they are on it forever.</li> </ul>
(G) Referral issues	<ul style="list-style-type: none"> <li>Referral to secondary care should only be for CKD 5; no automatic referral is necessary for CKD 3 and 4 if blood pressure is controlled.</li> <li>All patients with CKD stages 4 and 5 are referred for secondary care.</li> <li>For CKD, like all chronic conditions, it is important to know when it is appropriate to refer to secondary care — here national guidelines have been very useful.</li> <li>The practice has received generally good CKD patient support from the local hospital nephrology clinic.</li> </ul>
(H) Educational requirements of practice regarding CKD	<ul style="list-style-type: none"> <li>There is a need to develop internal expertise among one or more GPs in the practice — no necessity for referral for most with CKD.</li> <li>Never learnt about CKD in medical school — didn't know how to manage it when starting in general practice.</li> <li>Practice produces its own one-page protocol based on national and local guidance.</li> <li>Practice is not familiar with national guidance — QOF is taken as basic guidance for managing CKD.</li> </ul>

treatment of hypertension recommended by the national guidelines and the protocol of this study.<sup>15</sup> All of the practices participating in the focus group

discussions identified problems with meeting the pay-for-performance targets for blood pressure control. In particular, GPs anticipated problems

associated with older patient's tolerance of antihypertensive medication. As one GP noted:

*'A lot of patients are already on maximum medication. And you cannot keep on putting them on two, three, four medications and, still, their readings remain very high.'* (FG5, GP22)

Practitioners appeared to take quite an instrumental approach to the national blood pressure guidance. A good example of this form of pragmatism is as follows:

*'Again I think the [blood pressure] protocol has to be realistic ... which is more important, an actual endpoint or actual percentage change? The argument is that really it is the percentage change if somebody is at increased risk. I think you also have to take into context whether they have proteinuria or not. If they don't have proteinuria then I am going to be a bit more laid back about their blood pressure than somebody who has got proteinuria and a significant manifestation of vascular disease.'* (FG1, GP2)

In relation to meeting the QOF blood pressure targets, there was universal agreement that compliance hinged on the willingness of patients to take on a self-management role (Table 1, section E). Encouraging home monitoring of blood pressure to give patients some sense of control over their CKD management may become a crucial element in their clinical management, albeit with some caution about the accuracy of these readings. Additionally, the view was expressed that the willingness of patients to embrace some changes in their lifestyle was an important adjunct to medication, illustrated in this quote from one of the practice nurses participating in the focus group discussions:

*'It's a willingness to change, it's often diet and smoking related, so you've got the numbers and you try and work against the numbers, but you know in your heart that unless you put every single medication in the book into that person, and you're not going to, you're not going to hit the targets.'* (FG3, PN4)

Related to the issue of self-management was the question of how far patients understood their own relative risk in relation to CKD, particularly if they generally felt well, as illustrated in the following example:

*'If they don't notice any symptoms themselves, then why is it something that should be treated*

*... take a tablet for life. If they haven't noticed any difference so they're less likely to engage. It's really hard to try and persuade them that this is what might happen to them.'* (FG4, GP15)

The theme of when and who to refer to secondary care renal units (Table 1, section G) drew attention to the existence of different referral patterns, reflecting the way in which the CKD stage classification for individual patients was interpreted differently by different practices. However, all the practices participating in the focus group discussions agreed that their local renal unit was a good source of support in referral decisions, as well as providing information and advice.

Lastly, the issue of the educational requirements of practices was raised (Table 1, section H). Three of the five practices participating in the focus group discussions demonstrated a thorough knowledge of CKD, and were well-informed about the national guidelines and confident about patient-management issues. These more engaged practices were more likely to have produced their own local protocol synthesising national guidance, which could be passed on to patients in a one-page format. Practitioners from the remaining two practices admitted that they were overly reliant on the pay-for-performance business rules to drive their clinical management, and acknowledged that they tended to look outwards (towards the local health service management) for support and the production of a patient information leaflet.

## DISCUSSION

### *Summary of main findings*

A range of levels of understanding of CKD and how to best manage the condition were found to exist among practitioners. There was also a general scepticism expressed concerning both the advisedness and practicalities of target-driven lowering of blood pressure in people with CKD, who were often older. However, despite sharing these reservations, those practices that could be termed as more 'proactive' were generally getting on with implementing the guidance, whereas those practices that could be described as more 'reactive' tended to rely on the pay-for-performance business rules to define their clinical management.

Practitioners also demonstrated a determination to interpret the relative importance of the CKD classification based on their professional knowledge of individual patients rather than engage in 'box-ticking.' When it came to the management of their patients, who may or may not gain from changes in their medication or referral to a specialist renal unit, many of the GPs were also

concerned that overtreatment might do more harm than good.

While there was a general acknowledgement that the identification of people with CKD was ultimately a good thing for patients' long-term management, there was also an expressed concern that such a label was potentially stigmatising. Their perceptions were that the public knew little about the disease, and a diagnosis of CKD was seen to be potentially frightening because of its association with renal failure and needing dialysis.

#### **Limitations of the study**

This study only looked at five practices, although the purposive sampling aimed to achieve a national spread. Also, although facilitated by a moderator with a guide of prompts, focus group discussions do enable participants to steer the discussion towards those topics that directly concern themselves; this occurred to some extent within this study.

#### **Comparison with existing literature**

The doubts concerning an over-reliance on the eGFR measure expressed within the focus groups have also been aired within the renal specialist community and elsewhere. Reduced and stable eGFR in older people may be much less important than changes in eGFR in the young.<sup>10,20</sup> However, while concerns have also been raised about the validity of eGFR,<sup>21</sup> it is nonetheless currently a better measure than creatinine levels. The latter is an insensitive marker of renal function: up to 50% can be lost before the serum creatinine concentration rises above the normal range, while use of eGFR allows early identification of renal damage, thus affording opportunities for aggressive cardiovascular risk-factor management.<sup>1</sup> The recorded prevalence of CKD found in epidemiological studies,<sup>2,3</sup> is far higher than the prevalence reported in the CKD QOF disease registers.<sup>11</sup>

The idea that the patient should be made to 'comply' with treatment was first challenged by cardiologists over 30 years ago.<sup>22</sup> Concordance, which implies sharing decision making between professional and patient, has been unchallenged as the correct approach to patient management in primary care for at least a decade.<sup>23</sup> The authors were struck that despite all their discomfiture with aspects of CKD diagnosis and management, all the focus groups identified patient 'compliance' as an issue, especially with additional blood pressure-lowering drugs. Although participants were concerned about the difficulty and potential risk of falls in older people when using multiple agents to lower blood pressure, systematic reviews suggest that this is safe.<sup>24,25</sup>

#### **Implications for clinical practice and future research**

This is an area of quality improvement where the participating practices do not always accept national guidelines as *de facto* correct. In previous quality-improvement studies, guidelines about cholesterol management in heart disease were generally accepted by practices.<sup>26</sup> In this study, participants had doubts about the diagnosis and the advisability of the key evidence-based intervention. The quality-improvement interventions may have to be reshaped to address this recognised educational need.

National policy in future should take into account existing levels of understanding when launching national guidelines or quality-improvement targets. The uptake and understanding with regard to CKD is patchy, with differences in level of understanding found between, as well as within, practices. Some practitioners lack knowledge of how to manage this condition appropriately, and instead simply rely on the pay-for-performance business rules, which are a relatively crude instrument.

These educational requirements need to be more actively addressed by health service managers and organisers of postgraduate education, with the support of local renal units. Educational interventions should also address the relative scepticism found among some GPs about strict blood pressure management in older people. The findings also suggest it would be helpful to change the label for reduced renal function to one that does not include the term 'disease', in order to address the understandable scepticism of practitioners concerning the 'emergence' of a new condition.

Further investigation is needed to explore whether the varied understanding of CKD reflects the response to change as explained by the theory of diffusion of innovation, most recently applied in health care to the context of IT implementation.<sup>27</sup> It is necessary to explain the reasons for the gap between the QOF and epidemiological prevalence of CKD, and to test whether smarter incentives or some other intervention would close this gap. Literature reviews and primary research, probably trials, are also needed to ascertain whether multiple blood pressure agents and strict blood pressure control truly offer health benefits in older people with a low, but relatively stable, renal function.

In summary, a top-down approach has led some GPs and practice nurses to gain a sound working knowledge of how to manage CKD. However, it would appear that other practitioners remain uncertain about how to best manage this condition beyond brief pay-for-performance directions. This qualitative diagnostic analysis has assisted in

designing better quality-improvement interventions. However, much more educational support needs to be given to practitioners if they are to provide a comprehensive service to their patients and overcome their own doubts about the appropriateness of their management of CKD in primary care.

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### Ethics committee

Ethics approval was received from Oxfordshire REC C 07/H0606/141.

### Competing interests

The authors have stated that there are none.

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### Discuss this article

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