NICE National Institute for Health and Care Excellence

Putting NICE guidance into practice

Costing statement: Chronic kidney disease

Implementing the NICE guideline on chronic kidney disease (CG182)

Published: July 2014

1 Introduction

1.1 This costing statement considers the cost implications of the recommendations made in Chronic kidney disease: early identification and management of chronic kidney disease in adults in primary and secondary care (NICE clinical guidance 182).

1.2 A costing statement has been produced for this guideline rather than a costing template and costing report as variation in clinical practice across the country means users should assess the impact locally. Some of the resource effects to be considered are discussed in this statement.

1.3 Clinical Commissioning Groups (CCGs) are the commissioners for this service. Providers will be in both in primary and secondary care.

2 Background

2.1 Chronic kidney disease (CKD) is largely asymptomatic and has a range of complex comorbidities. It is often undiagnosed, and so there is a considerable gap between the recorded and underlying prevalence of CKD. Diagnostic criteria are available in the full guidance.

2.2 The recorded prevalence among adults aged 18 years and over is collated nationally as a Quality Outcomes Framework register, which in 2011/12 was 4.3% for England – around 1.9 million people. However the underlying prevalence of category G3–G5 CKD in England has been estimated at 6.8%, which equates to 3 million adults (Dmitrieva et al, 2013).

2.3 Kidney function declines over time and therefore older people are more likely to have CKD, and category G3–G5 CKD is considerably more common among women than men.

2.4 People with CKD often have comorbidities, including diabetes, hypertension and cardiovascular diseases (in particular heart failure), which need to be managed by a multidisciplinary team.

3 Recommendations with potential resource impact at a local level

3.1 Recommendations

3.1.1 Cystatin C diagnostic testing

- Consider using eGFRcystatinC at initial diagnosis to confirm or rule out CKD in people with:
  - an eGFRcreatinine of 45–59 ml/min/1.73 m^2, sustained for at least 90 days **and**
  - no proteinuria (albumin:creatinine ratio [ACR] less than 3 mg/mmol) or other marker of kidney disease.
- Do not diagnose CKD in people with:
  - an eGFRcreatinine of 45–59 ml/min/1.73 m^2 **and**
  - an eGFRcystatinC of more than 60 ml/min/1.73 m^2 **and**
  - no other marker of kidney disease.

3.1.2 Changes in the classification of CKD

- Classify CKD using a combination of GFR and ACR categories (as described in table 1). Be aware that:
  - increased ACR is associated with increased risk of adverse outcomes
  - decreased GFR is associated with increased risk of adverse outcomes
  - increased ACR and decreased GFR in combination multiply the risk of adverse outcomes.

3.2 Background

3.2.1 The updated NICE guidance recommends the use of albumin:creatinine ratio (ACR) alongside eGFR when classifying CKD. Both measures are indicative of the likelihood of adverse events, but using them together improves accuracy when identifying those people at higher risk of progression and complications (see appendix A).

3.2.2 Cystatin C is a protein biomarker that can be used to give an additional estimated glomerular filtration rate (eGFR) that helps to more accurately classify CKD in people who have a creatinine-based eGFR of 45–59 ml/min/1.73 m^2 and no signs of proteinuria. The category of CKD may determine treatment and the frequency with which a person needs to be monitored (see appendix B).

3.3 Potential costs and savings

3.3.1 The high specificity of an eGFR based on a cystatin C blood test is expected to improve the diagnosis of CKD and ensure more people are categorised correctly. This is anticipated to lead to a decrease in the number of people receiving pharmacological treatment, and a decrease in the frequency with which people need to be monitored.

3.3.2 In the economic analysis produced as part of the full guideline the reagent costs for serum cystatin C testing and serum creatinine testing were estimated to be £2.50 and £0.25 respectively. As eGFR from creatinine and cystatin C testing fluctuate together in each individual, only 1 cystatin C test is needed per person.

3.3.3 In summary the cost of diagnosis is likely to increase but the accuracy is expected to improve and fewer people are expected to require treatment and monitoring. There is no degree of certainty as to the number of people currently receiving pharmacological treatment (stages G3a–G5) who would not fall into this category under the diagnostic methodology being recommended. However

expert opinion has suggested that it may be up to 20% of the CKD population.

3.4 Other considerations

3.4.1 CCGs should review the availability of cystatin C testing for their population.

4 Conclusion

4.1 The use of ACR and cystatin C testing is anticipated to improve the diagnosis of people with CKD by more accurate classification. Increased costs are expected at a local level as result of this change.

4.2 The improved classification of people with CKD is expected to reduce the number people requiring treatment and monitoring. Savings are expected at a local level as result of this change.

4.3 Overall this guidance is expected to present cost saving opportunities but this cannot be estimated with any degree of certainty.

4.4 CCGs need to ensure that cystatin C testing is available to their local population.

5 References

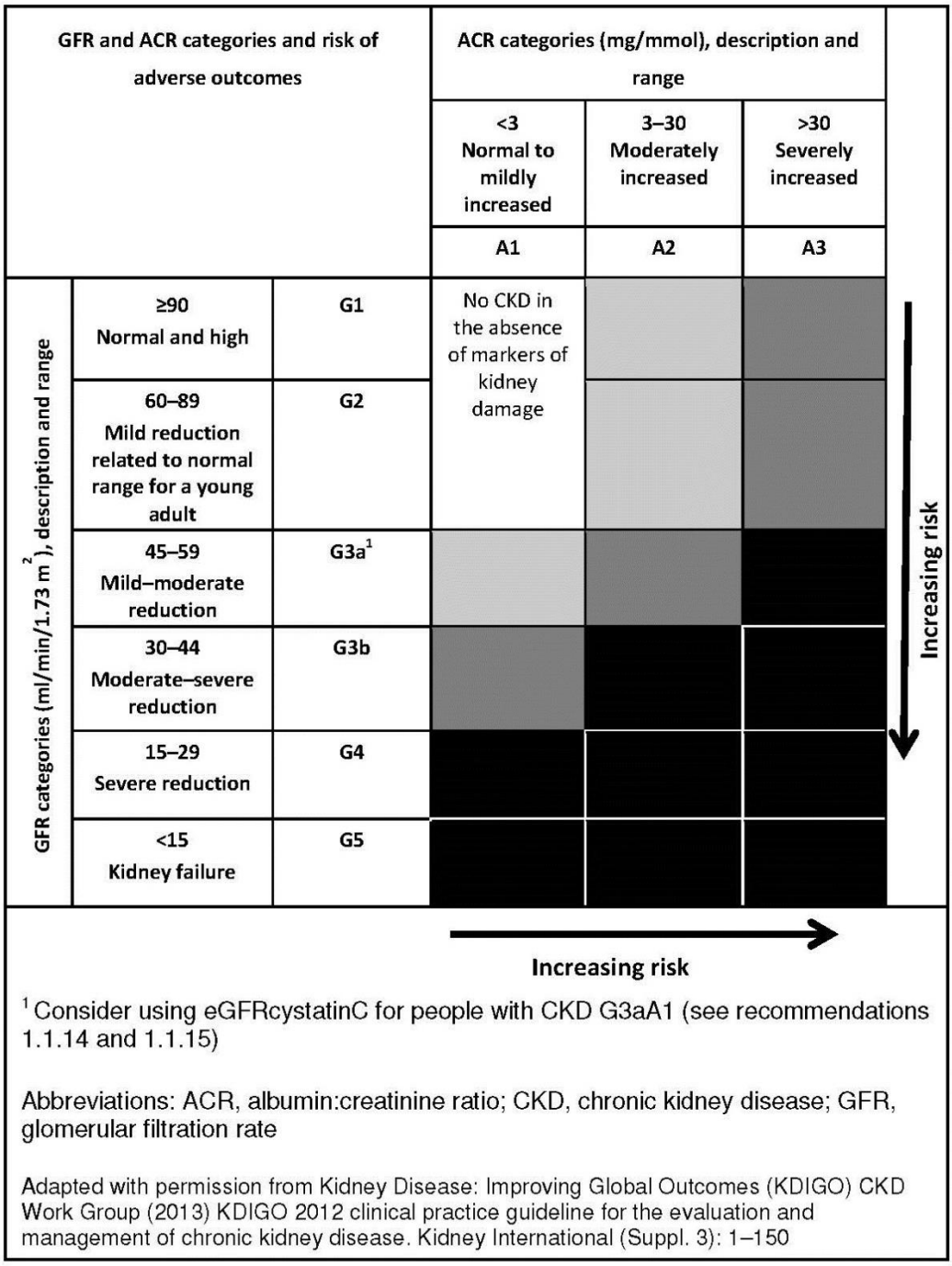
Dmitrieva O, Macdougall IC, Gallagher H et al. (2013) Association of anaemia in primary care patients with chronic kidney disease: cross sectional study of quality improvement in chronic kidney disease (QICKD) trial data. BMC Nephrology 14: 24.

Peralta CA, Shlipak MG, Judd S et al. (2011) Detection of chronic kidney disease with creatinine, cystatin-c, and urine albumin-to-creatinine ratio and association with progression to end-stage renal disease and mortality. JAMA 305(15): 1545–52.

Stevens PE, O'Donoghue DJ, de Lusignan S (2007) Chronic kidney disease management in the United Kingdom: NEOERICA project results. Kidney International 72: 92–9.

Appendix A

Classification of chronic kidney disease using GFR and ACR categories



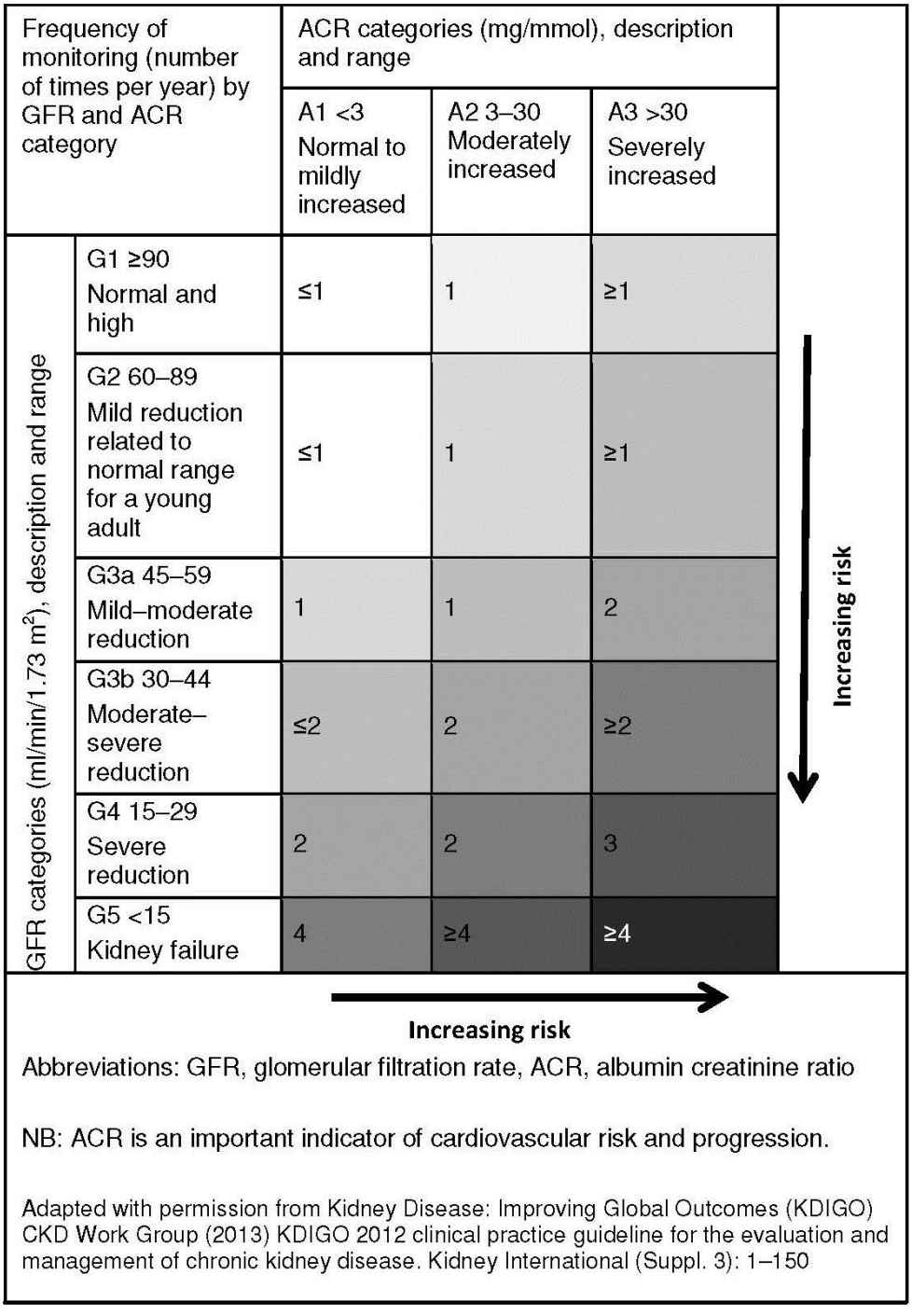
[1] Consider using eGFRcystatinC for people with CKD G3aA1 (see recommendations 1.1.14 and 1.1.15)

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

Appendix B

Frequency of monitoring GFR for people with or at risk of CKD



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

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

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