STROBE Statement—Checklist of items that should be included in reports of ***cross-sectional studies***

	Item No	
Title and abstract	1	Chronic kidney disease: a large scale population-based study of the effects of introducing the CKP-EPI formula for eGFR reporting.
		Objective. To evaluate the effects of introducing the CKD-EPI formula for eGFR reporting in the adult population in routine clinical practice with clinician-directed testing. **Design**. Retrospective study of all creatinine measurements and calculation of eGFRs using MDRD and CKD-EPI formulae. **Setting.** Oxfordshire, UK **Population.** An unselected population of around 660,000. **Main outcome measures.** Estimation of eGFR using the MDRD and CKD-EPI formulae and of the prevalence of different stages of CKD (chronic kidney disease) based on these estimations. **Results.** Use of the CKD-EPI formula reduced the number of patients with CKD (stages 2-5) by 16.4%. At the important cut-off between CKD stages 2 and 3 there was a relative reduction of 7.5% in the number with CKD stages 3-5 from 15.7% to 14.5% of those tested. At all ages below 70 the CKD-EPI formula reduced the numbers with CKD stages 3-5. However, in over 70s the CKD-EPI formula increased the numbers with CKD stages 3-5. At ages above 70, the number with stages 3-5 was similar with both equations for women (around 41.2%), but rose in men from 33.3% to 35.5%. The CKD classification of 18.3% of all individuals who had a creatinine measurement was altered by a change from the MDRD to the CKD-EPI formula. In the UK population, the classification of up to 3 million patients could be altered, the number with chronic kidney disease could be reduced by up to 1.9 million and the number with CKD stages 3-5 could fall by around 200,000. **Conclusions.** Introduction of the CKD-EPI formula for eGFR reporting will reduce the overall prevalence of CKD in a primary care setting with current testing practice, but will raise the prevalence in the over 70s age group . This has implications for clinical practice, healthcare policy and current prevalence-based funding arrangements.
Introduction		
Background/rationale	2	Chronic kidney disease (CKD) is common and important. Estimated glomerular filtration rates (eGFRs) form the principal basis for individual patient management and for decisions around health policy and funding in CKD. The new CKD-EPI formula for eGFRs provides much better estimates of renal function than the formula in current use.

Objectives	3	We sought to evaluate the effects of using the CKD-EPI formula in a UK population of over half a million.
Methods		
Study design	4	Retrospective survey of all creatinine estimations and calculation of eGFR using MDRD and CKD-EPI formulae
Setting	5	Oxfordshire, UK
Participants	6	An unselected population of around 660,000 in Oxfordshire, UK.
Variables	7	eGFR calculations and population distribution of chronic kidney disease
Data sources/ measurement	8*	Patient variables from routine clinical creatinine requests
Bias	9	Bootstrapping analysis to examine influence of ethnic distribution in population
Study size	10	The population is that is served by the Oxford Radcliffe Hospitals Trust Clinical Biochemistry laboratories.
Quantitative variables	11	See item 12
Statistical methods	12	For patients with more than one specimen collected within 3 months of each other, we calculated the mean value and the standard deviation. From this, we calculated the median standard deviation against creatinine concentration in 10 micromol/L bins from 10 to 200 micromol/L and pooled measurements of greater than 200 micromol/L. We performed Monte Carlo simulations by randomly selecting samples of 100,000 patients with replacement from the pool of first or only specimens of 175,671 individual patients. For each patient's creatinine value, we added a random normal deviate using the relevant median standard deviation. We randomly allocated black African ethnicity to 2.8% of the patients in each sample and used these data to generate MDRD and CKD-EPI eGFR values. We performed 10,000 simulations to derive approximate 95% confidence limits for the proportion of patients who would be allocated to each CKD group. We used this method to generate pairs of data for each patient to define the mean proportion of patients who would be allocated to different CKD classes by successive measurements using each method
Results		
Participants	13*	We analysed all creatinine results arising from requests in our Oxfordshire catchment area during the time period from 1st October 2009 to 4th February 2011. This area covers a population of around 660,000 and 738,348 requests were received during this time period. Of these requests, 321,964 requests on 175,671 patients aged at least 18 years were from primary care
Descriptive data	14*	This data was not collected

Outcome data	15*	Not applicable
Main results	16	There was a relative reduction of 16.4% in the number of patients who were classified as having CKD (stage 2-5) on the basis of eGFR reporting with the CKD-EPI formula. At the important CKD cut-off point between CKD stages 2 and 3 there was a relative reduction of 7.5% in the number of people who had CKD stage 3-5. In contrast, in the over 70s age group, there were increases in the number of patients with each stage of CKD with the CKD-EPI formula. 18.3% of all individuals who had a creatinine measurement had their CKD classification altered by a change from the MDRD to the CKD-EPI formula. In the UK population, the classification of up to 3 million patients could be altered and the number with chronic kidney disease could be reduced by up to 1.9 million
Other analyses	17	Not applicable
Discussion		
Key results	18	Introduction of the CKD-EPI formula for eGFR reporting will reduce the overall prevalence of CKD in a primary care setting, but will raise the prevalence in the over 70s age group tested by clinicians. This has implications for clinical practice, healthcare policy and current prevalence-based funding arrangements.
Limitations	19	The diagnosis of CKD stages 1 and 2 also requires proteinuria or a structural abnormality. Our study was not able to assess these features, although a change in eGFR will still alter the classification status of people with stage 1 or 2 CKD. For CKD stages 3 and worse this is not an issue and the eGFR is sufficient for the diagnosis.
Interpretation	20	Introduction of the more accurate CKD-EPI formula would reduce inappropriate disease labelling and patient monitoring, allowing a more focused deployment of healthcare resources in CKD to those who require them.
Generalisability	21	The population ethnic structure in Oxfordshire is relatively similar to that in the UK overall.
Other information		
Funding	22	The study did not have any specific funding.