

P150

## P150 -Feasibility of evaluation of the natural history of kidney disease using primary care electronic healthcare records

Miss Faye Cleary<sup>1</sup>, Dr David Prieto-Merino<sup>1</sup>, Dr Sally Hull<sup>2</sup>, Dr Ben Caplin<sup>3</sup>, Dr Dorothea Nitsch<sup>1</sup>  
<sup>1</sup>London School Of Hygiene & Tropical Medicine, London, United Kingdom, <sup>2</sup>Queen Mary University of London, London, United Kingdom, <sup>3</sup>UCL Medical School, London, United Kingdom

### Introduction and Aims:

Chronic kidney disease (CKD) is an irreversible reduction in kidney function, which may progress over time. Complications include mortality, cardiovascular risk, acute kidney injury and in rare cases progression to end-stage renal disease requiring renal replacement therapy. Knowledge about the nature of long-term changes in kidney function in the population is sparse. Improved knowledge may lead to better individualised care and more targeted resource allocation. This research aims to identify whether it may be feasible to study the natural history of kidney disease using primary care electronic healthcare records readily available in the UK.

### Methods:

The National Chronic Kidney Disease Audit database which holds individual patient data from over 1,000 GP practices in England and Wales was used for analysis. Variation in repeat creatinine testing was evaluated according to risk factors for chronic kidney disease (CKD) and slope of change in estimated glomerular filtration rate (eGFR) was estimated in individuals using linear regression. The MDRD study equation was used to derive eGFR using creatinine test results. Issues relating to the accuracy of derivation of changes in eGFR over time were explored, including frequency of tests, duration of coverage of tests and changes over time in creatinine assays.

### Results:

Availability of repeat creatinine tests varied considerably according to patient characteristics (Table 1). 92% of patients with diabetes and 96% of patients with confirmed CKD had at least 3 creatinine tests in the patient record spanning a median of 6.2 years, with poorer testing rates in other at risk groups. Only around 25% of adults in the general population met this criterion. Distribution of slopes of change in eGFR varied according to patient risk factors, testing frequency and duration of follow up (Figure 1). Changes in creatinine assays over time may mask changes of underlying kidney function over time, and results should be interpreted with caution.

### Conclusions:

It may be feasible to evaluate long-term changes in kidney function for patients with important risk factors for CKD, with long duration of follow up and high frequency of testing in such groups. However, lack of regular repeat testing and short duration of follow up precludes evaluation in the general population. Changes in creatinine assays over time and accuracy of GFR-estimating equations may complicate evaluation.