**Development and usability testing of a web-based electronic patient-reported outcome measure (ePROM) system for patients with advanced chronic kidney disease**

**Abstract**

**Background:** Chronic kidney disease (CKD) may negatively impact on patients’ health-related quality of life (HRQOL). These symptoms and their effects on HRQOL may be captured using electronic patient-reported outcome measures (ePROMs). This study tests the usability of a renal ePROM system in patients with advanced CKD.

**Methods:** Quantitative and qualitative methods were used for this study. Participants were adult patients with advanced CKD (pre-dialysis stages 4 & 5) managed at University Hospitals Birmingham NHS Foundation Trust. They completed electronic versions of the Kidney Disease Quality Of Life-36 (KDQOL-36) and the Integrated Patient Outcome Scale-Renal (IPOS-Renal) questionnaires using desktop computers. The time taken by the participants and the amount of assistance they required was recorded. The sessions were followed by brief audio recorded interviews.

**Results:** Eight participants completed the questionnaires between May and July 2017. Their mean age was 64.3 years (range: 36 – 87 years). All owned electronic devices and accessed the internet: six accessed it often (4 – 7 days per week), one occasionally (1 – < 3 days per week) and one rarely (<1 day a week). The mean time required to complete all the tasks for the two questionnaires was 15.9 minutes (range = 8 – 34 minutes). There were five non-critical errors and one critical error. Participants who had difficulties with the system were those who had the least experience of using the internet and electronic devices. The overall usability and satisfaction score was 92.5%.

**Conclusions:** Our study suggests that individuals with advanced CKD may find a renal ePROM system acceptable and easy to use regardless of age. Findings from this usability testing will be used to make iterative improvements to the system.The use of a Renal ePROM may complement clinician-reported outcomes and assist with the management of patients with advanced CKD.