

## EARLY REFERRAL FOR CHRONIC KIDNEY DISEASE: IS THERE EVIDENCE OF CLINICAL AND COST EFFECTIVENESS?

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**BACKGROUND:** The management of Chronic Kidney Disease (CKD) is becoming recognised as a leading public health priority. Population based screening studies from across the world have highlighted the scale of the challenge facing us. Estimates of between 4 and 11% of the population will have some evidence of renal impairment are frequently quoted. The introduction of the KDOQI staging system, laboratory reporting of eGFR, National Service Framework and Quality Outcome Framework agreements with primary care and several clinical guidelines have focused attention on CKD. The introduction of the 18 week referral pathway and moves towards vascular risk factor screening will further raise the challenge of managing CKD in the UK. At a population level, the people now being identified with stage 1-3 CKD are very different from those seen in nephrology clinics in the past and the clinical implications are unclear. A key challenge then is how best to manage people with mild to moderate CKD and should they be referred to specialists before further renal function decline? This study assesses the clinical and cost effectiveness of “early referral” for CKD

**METHODS:** A systematic literature review was undertaken of the clinical effectiveness of “early referral”. To assess the cost-effectiveness, a Markov model was constructed to represent the natural history of CKD. The cost-effectiveness of different thresholds for referral were assessed by superimposing additional costs/cost savings and anticipated effects on top of the natural history model.

**FINDINGS:** Seven studies were identified that reported the impact of early referral for CKD. None were randomised controlled trials. Two studies compared people with CKD referred to specialists versus non specialists. Five retrospective studies compared the timing of referral to a specialist on outcomes after renal replacement therapy had been initiated. We found some evidence to support the role of early referral in improving outcomes with a reduction in mortality (HR 0.8 95% CI 0.7-0.9) and stabilisation of eGFR over 12 months (vs. a decline of 12ml/min/1.73m<sup>2</sup> in the unreferred group). Studies poorly described what “early referral” meant in terms of the care given but there was evidence of better blood pressure control and higher prescribing of ACE inhibitors, angiotensin receptor blockers and statins. However, all the study designs were vulnerable to selection bias, where clinical judgement was used to select people for referral based on certain criteria. The 5 retrospective studies were subject to survival bias, where only those who survived and progressed to dialysis were included in the study. Preliminary results from economic modelling, based on the evidence from the clinical effectiveness and supplemented with reviews of natural history and models of care for CKD, suggest that early referral strategies are likely to improve outcomes and may reduce net costs to the health system. In the base case analysis, referral for everyone with an eGFR <60 ml/min/1.73m<sup>2</sup> was found to dominate all other strategies. Sensitivity analysis showed these findings to be reasonably robust.

**CONCLUSIONS:** Despite a growing focus on the early recognition and management of CKD, the evidence base for early referral for CKD was disappointingly poor. In 2002, the Cochrane Renal Group noted the paucity of RCT data for interventions in renal disease. We have found some evidence to support the potential benefit of early referral for CKD and identified critical areas of uncertainty. There is an urgent need for good quality trials of various models of care for people with mild to moderate CKD.

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