

P088

## P088- Development & Validation of a Multi-state Clinical Prediction Model in Chronic Kidney Disease and Renal Replacement Therapy

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**Objective:** To develop multi-state clinical prediction models (MSCPMs) for death and/or renal replacement therapy (RRT) stratified by modality in patients with Stage 3+ chronic kidney disease (CKD) (CKD).

**Design:** A Two-State, a Three-State and a Five-State model in a cohort of CKD patients.

**Participants:** 2,971 Patients, aged 18+ with stage 3+ CKD. **Outcomes:** Two-State Model:

Progression from Alive to Death. Three-State Model: Progression from non-RRT onto RRT

and/or Death. Five-State Model: Progression from non-RRT onto Haemodialysis (HD), Peritoneal Dialysis (PD), Kidney Transplant (Tx) and/or Death.

**Results**

1,413 patients died, 672 began RRT (HD: 339, PD: 228 and Tx: 105). Across all models, History of Congestive Heart Failure, Smoking had a high correlation with death, whereas having a primary renal diagnosis of either Lupus or Cystic had a low correlation with death from any other state. Higher Phosphate and urine protein creatinine ratio and a lower estimate glomerular function rate were consistently correlated with transitioning into RRT.

**Discussion**

The three models can provide a prediction for patient outcomes at any time point in the future reliably up to 12 years. MSCPMs can provide more nuanced predictions for patients over traditional survival analysis models, which only distinguish between two outcome states.