Appendix 1 Unmet need for CKD and early detection of cancer

Pharmacological management to reduce CV risk in people with CKD

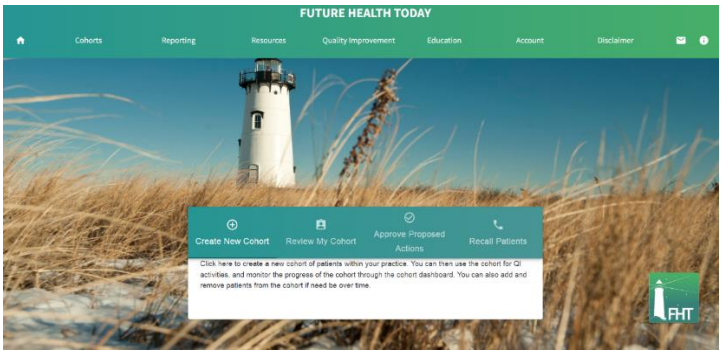
General practitioners (GPs) provide whole-person care across the life trajectory and so play an important role in identifying patients with CKD and implementing early intervention efforts to reduce disease progression and development of CVD. In Australia, CKD affects one in 10 adults, with one in three having biomedical markers of CKD. Early detection of CKD is crucial to minimising the burden of kidney failure and concomitant CV risks of CKD.[53] However, studies have shown that general practice is missing opportunities to intervene early with appropriate evidence-based management. In an Australian study,[13] guideline recommended treatment for CKD patients not prescribed blood pressure-lowering or lipid-lowering agents, was followed in only 49% and 54% of patients respectively.[13]

Abnormal test results and risk of cancer

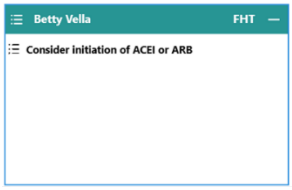
Inadequate follow-up of abnormal pathology test results is an important contributor to delays in cancer diagnosis in primary care. Especially for markers of anaemia, which are associated with several cancers of the gastro-intestinal tract, but also faecal occult blood tests and Prostate Specific Antigen (PSA) tests. Between one third and a half of patients aged over 50 with iron deficiency anaemia are not investigated [14] and up to 15% of men with raised PSA are not followed up.[15] In recent years, raised platelet count as a predictor of risk of several undiagnosed cancers, including lung and colorectal cancer has become clearer.[16] In a large general practice cohort of patients aged over 40 years with thrombocytosis, the positive predictive value for a cancer diagnosis of a single raised platelet count was 11.6% and 6.2% for males and females, respectively. This increased to 18.1% and 10.1% for a second raised platelet count within 6 months. National and international guidelines exist [17, 18] which incorporate this new information, but the clinical relevance of thrombocytosis as a risk factor for an undiagnosed cancer remains sub-optimally recognised in general practice, in turn heightening medico-legal risk for GPs.

Appendix 2

Dashboard



CDS tool



Appendix 3

Health economic modelling: approach and data sources

To estimate the long-term impact of the implementation of FHT on incidence of CVD and renal replacement events in patients with CKD, prescriptions of cardioprotective medications will be quantified using the Patron database, and equations to estimate changes in levels of risk factors for the events as functions of prescriptions of cardioprotective medications and equations to estimate risks of the events as functions of risk factor levels will be developed using the Clinical Practice Research Datalink (CPRD) GOLD.[39] The CPRD GOLD will be linked to the Hospital Episode Statistics (HES) Admitted Patient Care data to capture any additional CVD and renal replacement events not recorded in the CPRD GOLD and also to the national Death Registration to capture mortality events. Parametric proportional hazards survival models will be used to develop the risk equations and linear mixed-effects models used to develop equations for risk factor progression. The estimated equations for risk of events and risk factor progression will be integrated into a discrete-time simulation model with annual cycles using the methods described by Tran-Duy et al.[40] Model inputs will include baseline risk factors of the individual patients in the target cohort. Two synthetic cohorts with baseline risk factor levels representative of patients receiving FHT and those receiving usual care will be created as inputs for the model, and simulations run for each cohort to capture the incidence of the events over the remaining lifetime of the patients. Costs of events will be estimated based on the literature review of Australian studies reporting on costs of CVD and renal replacement events in CKD patients.