**Appendix 2 (as supplied by the authors): Original List of Indicators for Chronic Kidney Disease Identified in the Literature Search**

| # | Indicator |
|---|---|
| **1.0 Prevalence & Incidence** | |
| 1 | The contractor can identify patients aged 18 or over with CKD [10, 11]. |
| 2 | Diagnosis of stages 1–5 CKD [2, 3, 8, 19] (e.g. age, gender). |
| 3 | Diagnosis of CKD by comorbidity [2, 8] (e.g. subgroups can be listed in the notes: diabetes, hypertension, CV disease) [8]. |
| 4 | Incidence of stages 1–5 CKD by eGFR (kidney function) and by demographics and risk factor categories (diabetes, hypertension, cardiovascular disease,obesity, age, and gender) [2, 19]. |
| 5 | Prevalence of overall CKD, and prevalence by demographics and risk factor categories (diabetes, hypertension, cardiovascular disease, obesity (BMI >=30)), and by CKD stage (eGFR<60 and ACR>=30) [8, 19]. |
| 6 | CKD patients (all CKD, CKD patients eGFR<60, and CKD patients ACR >=30) with glycohemoglobin<7% [8]. |
| 7 | Proportion of CKD patients moving stage over time [2]. |
| 8 | Proportion of CKD patients moving to ESRD over time [2]. |
| 9 | Progression of CKD by demographic characteristics [2]. |
| 10 | Progression of decreased renal function by level of proteinuria [2]. |
| **1.1 Mortality** | |
| 11 | All-cause mortality rates [2]. |
| 12 | All-cause mortality by eGFR and albuminuria [19]. |
| 13 | All cause mortality rates by eGFR category/stage [19]. |
| **2.0 Screening, Diagnosis & Risk Factors** | |
| 14 | Proportion of patients (without CKD diagnosis) with eGFR<60 where there is evidence of a repeat creatinine test and a proteinuria test within 3 months (or 6 months) [21]. |
| 15 | Proportion of initial abnormal estimated GFR results that are followed by a repeat test within 2 weeks and a further test at 90 days (where appropriate) [14]. |
| 16 | Proportion of patients screened for CKD who have had (a) an assessment of estimated GFR, (b) urinalysis, (c) both an assessment of estimated GFR and urinalysis [14]. |
| 17 | Proportion of patients with CKD stage 3 or worse in whom the diagnosis has been confirmed by two estimated GFR readings, at least 90 days apart [14]. |
| 18 | Proportion of patients with a diagnosis of microalbuminuria in whom the diagnosis has been confirmed with at least 2 abnormal results [14]. |
| 19 | Prevalence of NSAID use among persons with and without CKD in the general population [19]. |
| 20 | Proportion of CKD patients with a formal assessment of cardiovascular risk factors documented in their records during the past year [7, 14]. |
| 21 | Percentage of physicians reporting the perceived risk factors that increased CKD risk [19]. |
| **3.0 Management** | |
| 22 | Proportion of patients with a confirmed diagnosis of CKD in whom the rate of change in GFR has been evaluated with at least 3 assessments of GFR over not less than 90 days [14]. |

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| 23 | Proportion of patients with CKD with regular monitoring of the estimated GFR at the frequency recommended by NICE or local guidelines [14]. |
| 24 | Measurement of eGFR every 6 months in patients with Stage 3 CKD [20]. |
| 25 | Proportion of CKD patients with eGFR< 30ml/min with an annual Hb level [14]. |
| 26 | Complete blood count measured annually for all patients with Stage 3b-5 CKD (eGFR<45) [20]. |
| 27 | Percent of persons 65 years of age and over with CKD who receive medical evaluation with serum creatinine, lipids, and microalbuminuria [4]. |
| 28 | Proportion of CKD patients who have serum creatinine and urine protein tests at least annually [21]. |
| 29 | Proportion of CKD patients who had a serum creatinine test prior to and 7-10 days after initial ACEI/ARB prescription. [21]. |
| 30 | Proportion of CKD patients who had a serum potassium test 7-14 days after initial ACEI or ARB prescription [21]. |
| 31 | Proportion of CKD patients who were prescribed an ACEI or ARB [21]. |
| 32 | Percentage patients 18 and older with CKD who have had a urine albumin:creatinine ratio (or protein:creatinine ratio) test in the preceding 12 months [11]. |
| 33 | Percentage patients 18 and older with CKD who have a record of an albumin: creatinine ratio (or protein: creatinine ratio) value in the previous 15 months [11]. |
| 34 | Probability of urine albumin, creatinine testing or both in patients at risk for CKD, by risk factor (diabetes, and hypertension) [2, 7, 14, 18]. |
| 35 | Proportion of patients with CKD who have had a measurement of proteinuria within the previous 12 months [14, 15]. |
| 36 | Proportion of patients with proteinuria equivalent to <0.5 g/day in whom the result has been confirmed with a repeat test performed on an early morning urine specimen [14]. |
| 37 | Proportion of CKD patients and proteinuria who achieve a decrease in proteinuria to <0.5 g/day [14]. |
| 38 | Percentage of physicians reporting that clinical guidelines influence their treatment of CKD [19]. |
| 39 | Percentage of patients with assessment of cognitive function among adults with CKD by kidney function [19]. |
| 40 | Avoidance of non-steroidal anti-inflammatory drugs or COX-2 inhibitors in patients with Stage 3-5 CKD [20]. |
| 41 | Proportion of people with CKD who have a current agreed care plan appropriate to the stage and rate of progression of CKD [7 ]. |
| 42 | Evidence of local arrangements to ensure that people with CKD who become acutely unwell have their medication reviewed, and receive an assessment of volume status and renal function [7 ]. |
| **3.1 Hypertension & Chronic Kidney Disease** | |
| 43 | Blood pressure recorded in six months for patients with CKD [20]. |

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| 44 | Percentage of patients 18 and older with CKD who have a record of blood pressure measurement in the previous 15 months [11]. |
| 45 | Percentage of patients 18 and older with CKD in whom the last blood pressure reading, measured in the previous X months, is 140/85 or less [10, 11, 13]. |
| 46 | CKD patients (all CKD, CKD patients eGFR<60, and CKD patients ACR >=30) at target blood pressure [2, 8, 19]. |
| 47 | Proportion of patients with CKD and follow-up for at least 6 months, whose last recorded BP was within the target range specified unless specifically contraindicated. (SBP should be lowered to <140 mmHg (target range 120-139mmHg) and the DBP to <90mmHg for the majority. For those with diabetes mellitus or proteinuria of 1g/24 hours or greater, the SBP should be lowered to <130 mmHg (target range 120-129mmHg) and the DBP to <80mmHg unless the risks are considered to outweigh the potential benefits) [14]. |
| 48 | Proportion of patients with CKD and hypertension, followed up for at least 6 months, with a systolic blood pressure <120mmHg in the absence of cardiac failure [14]. |
| 49 | Proportion of people with higher levels of proteinuria with a recording of blood pressure in the previous 9 months [7]. |
| 50 | Proportion of people with higher levels of proteinuria with a recording of blood pressure in the previous 9 months, whose latest systolic blood pressure reading is in the range 120–129 mmHg and diastolic blood pressure below 80 mmHg [7]. |
| 51 | Most recent BP <140/90 mmHg for patients with CKD without proteinuria, Most recent BP <130/80 mmHg for patients with CKD with proteinuria (Proteinuria defined as albumin to creatinine ratio >300 mg/g or >300 mg of albumin in the urine per 24 hrs or protein to creatinine ratio >0.3 mg/g) [20]. |
| 52 | Proportion of proteinuric CKD patients without contraindications who have an ACEI or ARB on their last recorded list of chronic medications [14]. |
| 53 | Prescription of ACE-Inhibitor or Angiotensin Receptor Blocker recorded in past year for patients with CKD and hypertension with proteinuria [20]. |
| 54 | Percentage of patients with CKD, age 18 and older, with hypertension and proteinuria who are treated with an angiotensin converting enzyme inhibitor (ACE-I) or angiotensin receptor blocker (ARB) (unless a contraindication or side effects are recorded) [10, 11, 13, 14]. |
| 55 | Utilization of medications for hypertension [2]. |
| **3.2 Diabetes & Chronic Kidney Disease** | |
| 56 | eGFR measured in past year for patients with diabetes and/or hypertension [20]. |
| 57 | People with diabetes who have received nine care processes at their annual health check: weight and BMI measurements, blood pressure, smoking status, blood test (HbA1c or blood glucose levels), urinary albumin test (or protein test to measure kidney function), serum creatinine test (indicator for renal function), cholesterol levels , eye check (retinopathy screening) , foot check [5]. |

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| 58 | In patients with type 2 diabetes: laboratory values at the most recent clinic visit (serum creatinine, hemoglobin, hemoglobin A1c, ferritin, albumin, phosphate, calcium, alkaline phosphates, low-density lipoprotein) [12]. |
| 59 | Percent of persons 65 years of age and over with type 1 or type 2 diabetes and chronic kidney disease who receive medical evaluation with serum creatinine, microalbuminuria, HbA1c, lipids, and eye examinations [4]. |
| 60 | In patients with type 2 diabetes: blood pressure at the most recent clinic visit [12]. |
| 61 | Proportion of people with diabetes and microalbuminuria with a recording of blood pressure in the previous 9 months. [7]. |
| 62 | Proportion of people with diabetes and microalbuminuria with a recording of blood pressure in the previous 9 months, whose latest systolic blood pressure reading is in the range 120–129 mmHg and diastolic blood pressure below 80 mmHg [7]. |
| 63 | Proportion of patients with diabetes mellitus and microalbuminuria (without specific contraindications) who had an ACEI or ARB on their last recorded list of chronic medications [4, 13, 14]. |
| 64 | Proportion of patients receiving an ACEI or ARB for diabetes and microalbuminuria who received the maximum licensed antihypertensive dose (or maximum dose tolerated without hypotension) on their most recent prescription. [14]. |
| 65 | Percentage of patient population, age 18 and older, with diabetes mellitus who received testing for nephropathy screening (for example, albumin/creatinine ratio, microalbuminuria) within the past 12 months [1]. |
| 66 | Proportion of patients with diabetic nephropathy and follow-up for at least 6 months, whose last recorded HBA1C was below their agreed target [14]. |
| 67 | Average HBA1C of all patients with diabetes mellitus and CKD [14]. |
| 68 | Record of glycated haemoglobin concentrations in IFCC (mmol/mol) and HBA1C% [14]. |
| **3.3 Lipids** | |
| 69 | Percentage of patients aged 18 years and older with a diagnosis of CKD (stage 3, 4 or 5, not receiving renal replacement therapy) who had a fasting lipid profile performed at least once within a 12-month period [9, 17, 20]. |
| 70 | Cholesterol concentrations in patients prescribed HMG CoA reductase inhibitors [14]. |
| 71 | Record of prescribed statins allied to indications and comorbidities of patients [14]. |
| **3.4 Cardiovascular Disease & Chronic Kidney Disease** | |
| 72 | Cardiovascular disease & pharmacological interventions , by CKD status (all CKD, stage 1-2, stage 3, stage 4-5): ACEI/ARB, Beta blocker [8]. |
| 73 | Percentage of patients with a diagnosis of stable coronary artery disease and chronic kidney disease who are prescribed an ACE inhibitor or ARB [6]. |
| 74 | Cardiovascular disease (CHF, AMI, Stroke, CHF and AMI, CHF and Stroke, AMI and Stroke, CHF and AMI and Stroke) in patients with CKD [8]. |
| 75 | Heart failure in patients with or without CKD (systolic, diastolic, systolic and diastolic, unspecified) [8]. |

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| **3.5 Lifestyle** | |
| 76 | The percentage of patients with CKD whose notes record smoking status in the preceding 12 months [10, 14]. |
| 77 | The percentage of patients with CKD who are recorded as current smokers who have a record of an offer of support and treatment within the preceding 12 months [10, 14]. |
| 78 | Proportion of smoking CKD patients who ceased smoking during the past year [14]. |
| 79 | Proportion of patients with CKD and obesity who have received dietary advice to assist weight loss [14]. |
| 80 | Proportion of patients with CKD who have received dietary advice to assist dietary sodium restriction [14]. |
| 81 | Proportion of patients with CKD stages 1–3 and hyperkalaemia or hyperphosphataemia who have received dietary advice to assist dietary restriction of potassium and phosphate [14]. |
| 82 | Proportion of patients with CKD who have received advice to undertake regular exercise [14]. |
| 83 | Proportion of patients with CKD who report performing regular moderate exercise [14]. |
| **4.0 Referral to a Specialist** | |
| 84 | Referral to a nephrologist by primary care physicians prior to ESRD [2]. |
| 85 | Referral to a nephrologist for eGFR<30 [20]. |
| 86 | Proportion of CKD patients who were not referred to a nephrologist when they should have been (based on the three criteria: Nephrologists should participate in the care of CKD patients when a) eGFR<30 mL/min/1.73 m2; b) there is a significant change in eGFR or; c) there is evidence of high proteinuria (PCR >100 mg/mmol, ACR >60 mg/mmol or protein present in 2/3 of samples)) [21]. |
| 87 | Proportion of patients with CKD with an indication for referral who have been referred to a Nephrology Department [14, 19]. |
| 88 | Cumulative probability of a physician visit by month 12 after CKD diagnosis, and after stage 3 CKD diagnosis by physician specialty (primary care, cardiology, nephrology) and demographics [8]. |
| 89 | Proportion of patients with persistent nonvisible/microscopic haematuria in the absence of significant proteinuria or a reduced GFR that were referred to a Urology Department [14]. |

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