NATIONAL KIDNEY FOUNDATION®

CKD DATA ANALYSIS STRATEGY

Background

CKD is one of the most under-diagnosed and under-managed chronic diseases. **Two laboratory tests, estimated glomerular filtration rate (eGFR)** and **urine albumin-creatinine ratio (uACR)**, provide the earliest detection and assessment of kidney damage associated with CKD. National data suggest that:

- **Less than 50% of people with diabetes** are routinely tested for albuminuria each year.
- **Only 10% of people with hypertension** are tested annually for albuminuria.

Many at-risk patients already have evidence of CKD in their medical record, but no CKD diagnosis.

The goal of NKF's data assessment process is to shed light on opportunities for improved CKD testing, diagnosis, and management within institutions. There are several metrics that can be used to assess institutional quality of CKD care including:

1. **Prevalence of undiagnosed CKD**
2. **Guideline concordant annual screening for CKD**
3. **Guideline concordant management of patients with CKD**

Recommended Data Analysis Process

To assess exposure rising from undiagnosed CKD:

1. Identify the density of *diagnosed CKD* among your population. (Group 1)

Determine the percentage of adults (age 18–85) whose records reflect an ICD10 code for chronic kidney disease

CKD Stage	ICD-10 Code
Stage 1	N18.1
Stage 2	N18.2
Stage 3	N18.30, 18.31, or 18.32
Stage 4	N18.4
Stage 5	N18.5
End Stage Renal Disease	N18.6
CKD unspecified	N18.9

Benchmark against national data. Surveillance data estimates suggest 15% of the adult population has CKD. **Prevalence less than 10% suggests significant underdiagnosis of CKD.**

Metric Title	Percentage of adult patients aged 18-85 with a documented CKD diagnosis
Numerator	Number of adult patients aged 18-85 who have a documented diagnosis of CKD (stages 1-5, including end-stage renal disease) within the reporting period.
Denominator	Number of adult patients aged 18-85 who have had at least one medical visit with a healthcare provider within the reporting period

2. Identify the burden of CKD risk within your population. (Group 2)

Determine the percentage of adults (18-85) that have diabetes or hypertension:

Diabetes codes: ICD-10-CM: E10.10, E10.11, E10.21, E10.22, E10.29, E10.311, E10.319, E10.321, E10.329, E10.331, E10.339, E10.341, E10.349, E10.351, E10.359, E10.36, E10.39, E10.40, E10.41, E10.42, E10.43, E10.44, E10.49, E10.51, E10.52, E10.59, E10.610, E10.618, E10.620, E10.621, E10.622, E10.628, E10.630, E10.638, E10.641, E10.649, E10.65, E10.69, E10.8, E10.9, E11.00, E11.01, E11.21, E11.22, E11.29, E11.311, E11.319, E11.321, E11.329, E11.331, E11.339, E11.341, E11.349, E11.351, E11.359, E11.36, E11.39, E11.40, E11.41, E11.42, E11.43, E11.44, E11.49, E11.51, E11.52, E11.59, E11.610, E11.618, E11.620, E11.621, E11.622, E11.628, E11.630, E11.638, E11.641, E11.649, E11.65, E11.69, E11.8, E11.9, O24.011, O24.012, O24.013, O24.019, O24.02, O24.03, O24.111, O24.112, O24.113, O24.119, O24.12, O24.13

(Exclude codes representing gestational related impaired glucose tolerance: ICD-9 648.00-648.04 or ICD-10 O24.319, O24.32, O24.911, O24.912, O24.913, O24.92, and O24.93)

Hypertension codes: I10, I129, I110, I119, I130, I1310

Metric Title	Percentage of adult patients aged 18-85 who are at-risk (high risk) for CKD
Numerator	Number of adult patients who have a diagnosis of diabetes, hypertension, or both and at least one medical visit within the reporting period
Denominator	Number of adult patients aged 18-85, who have had at least one medical visit with a healthcare provider within the reporting period

3. Identify rate of appropriate testing for CKD among high-risk populations. (Group 3)

Guidelines recommend assessing patients with diabetes or hypertension with both eGFR and uACR annually.

- Determine eGFR and uACR testing among Diabetes and Hypertension patients.
  - Creatinine with eGFR:
    - CPT 82565, 80048, 80053, 80047, 80050, and 80069
    - LOINC: 48642-3, 48643-1, 50044-7,50210-4, 70969-1, 77147-7, 69405-9, 62238-1, 88293-6, 88294-4, 94677-2, 98979-8, 98980-6
  - Urine Albumin to Creatinine Ratio (uACR):
    - CPT 82043 AND 82570
    - LOINC: 89998-9, 13705-9, 14585-4, 14958-3, 14959-1, 30000-4, 32294-1, 44292-1, 59159-4, 76401-9, 77253-3, 77254-1, 9318-7

Metric Title	Percentage of at-risk patients who received CKD guideline-concordant testing
Numerator	Number of adult patients EHR diagnosis of diabetes, hypertension, or both, who have received both an eGFR test and a uACR test within the past 12 months
Denominator	Number of adult patients who have an EHR diagnosis of diabetes, hypertension, or both, and who have had at least one medical visit with a healthcare provider within the past 12 months.

Consider separate analysis of rates among patients with diabetes to estimate performance around the KED HEDIS/MIPS Measure — kidney.org/kidney-topics/chronic-kidney-disease-quality-care-begins-measurement

If EHR data is available, further assess population with evidence of CKD, but undiagnosed. Query those records with laboratory data to identify the percentage of this population with abnormal serum creatinine values (> 1.5) that were not reassessed within 120 days, or, with estimated glomerular filtration rates (eGFR) of less than 60 mL/min/1.73 m2

1. Identify the number of patients with eGFR results indicative of CKD. (Group 4)

The patient's (unique enterprise master patient index or EMPI) most recent eGFR AND the immediate prior eGFR are both < 60 ml/min/1.73m2 and the two values are >= 90 days apart. If the prior value is < 90 days, continue to look back. [Note: the laboratory diagnostic criteria is two or more consecutive eGFR values that are < 60 ml/mi/1.73m2 and not associated with an acute kidney injury.]

2. Identify the number of these patients that do not have an ICD 10 code or CKD listed in the problem list.

Percentage of adult patients with eGFR evidence suggestive of CKD, no CKD diagnosis	
Numerator	Number patients with eGFR lab values consistent with a CKD diagnosis MINUS number with CKD diagnosis
Denominator	Number of active adult patients

3. Identify the total # of likely CKD patients.

Total # of unique patients from Group 1 (ICD code for CKD) and Group 4 (lab evidence of CKD)

4. # of CKD patients without uACR in the past 12 months.

Check if there is a uACR result within 365 days of date of reporting (e.g., if the report is run on 6/13/2018, include patients who do not have an uACR result on the patient after 6/13/2017) or review claims data as noted above.

Percentage of diagnosed and probable CKD patients without a uACR	
Numerator	Number of patients (diagnosed and probable) without an annual uACR
Denominator	Number of diagnosed CKD patients and probable CKD patients

Further guidance on analysis to assess utilization of GDMT among CKD patients is available from NKF upon request.