

Chronic Kidney Disease

Algorithm for All of Us derived from eMERGE V4.2 code (12/6/2017)

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1. CKD Case

- I. Definition 1: ESRD with transplant
 - i. One or more diagnosis or procedure of kidney transplant
- II. Definition 2: ESRD on dialysis
 - i. One or more diagnosis or procedure of dialysis
 - ii. The diagnosis or procedure of dialysis does not co-occur with the diagnosis of AKI. The co-occurrence is defined as AKI diagnosis happens before or after 1-month (31 days) of the diagnosis or procedure of dialysis.
- III. Definition 3: NKF CKD Stage 2 to 5
 - i. No diagnosis or procedure of kidney transplant or dialysis.
 - ii. The most recent eGFR does not co-occur with the diagnosis of acute conditions (AKI (SNOMED=14669001), prerenal kidney injury (SNOMED=129561000119108), sepsis (SNOMED= 91302008), volume depletion (SNOMED=816081007), shock(SNOMED= 27942005)). The co-occurrence is defined as that the acute condition happens before or after 1 month (31 days) of the eGFR.
 - iii. The most recent eGFR < 60 *changed from 90 to reflect updated definition of kidney disease and have more stringent cases
 - iv. One of the following two criteria
 - a. One or more existing diagnosis of chronic kidney disease or other kidney disease.
 - b. One or more eGFR < 60 more than 3 months prior to the most recent eGFR

2. CKD Control

- I. Definition 1: CKD
 - i. No diagnosis and procedure of kidney transplant or dialysis.
 - ii. Most recent eGFR does not co-occur with the diagnosis of acute conditions (AKI, prerenal kidney injury, sepsis, volume depletion, shock). eGFR co-occur with the diagnosis of acute conditions is defined as that the acute condition happens before or after 1 month (31 days) of the eGFR.
 - iii. Most recent eGFR >= 90.
 - iv. No diagnosis of CKD or other kidney disease

Diagnosis or procedure of kidney transplant

Description	SNOMED Code
Transplant of kidney	70536003
Transplanted kidney present	737295003
Disorder of transplanted kidney	58797008

Diagnosis, procedure, or observation of dialysis

Description	SNOMED Code
Dialysis procedure	108241001
Dependence on renal dialysis	105502003
H/O: renal dialysis	161693006
Non-compliance with renal dialysis	125141000119102
Dialysis finding	251859005
Dialysis care	385971003
Complication associated with dialysis catheter	473034005
Complication of dialysis	19765000

EGFR equation: updated to use 2021 equation.

https://www.kidney.org/professionals/kdoqi/gfr_calculator/formula where an average of the male and female individuals was used for SGM participants since we do not know their hormone status. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9629364/>

Existing diagnosis for kidney disease

Description	SNOMED Code
Kidney disease	90708001
Chronic kidney disease	709044004