Figure S1. Flow Chart of Cohort Construction
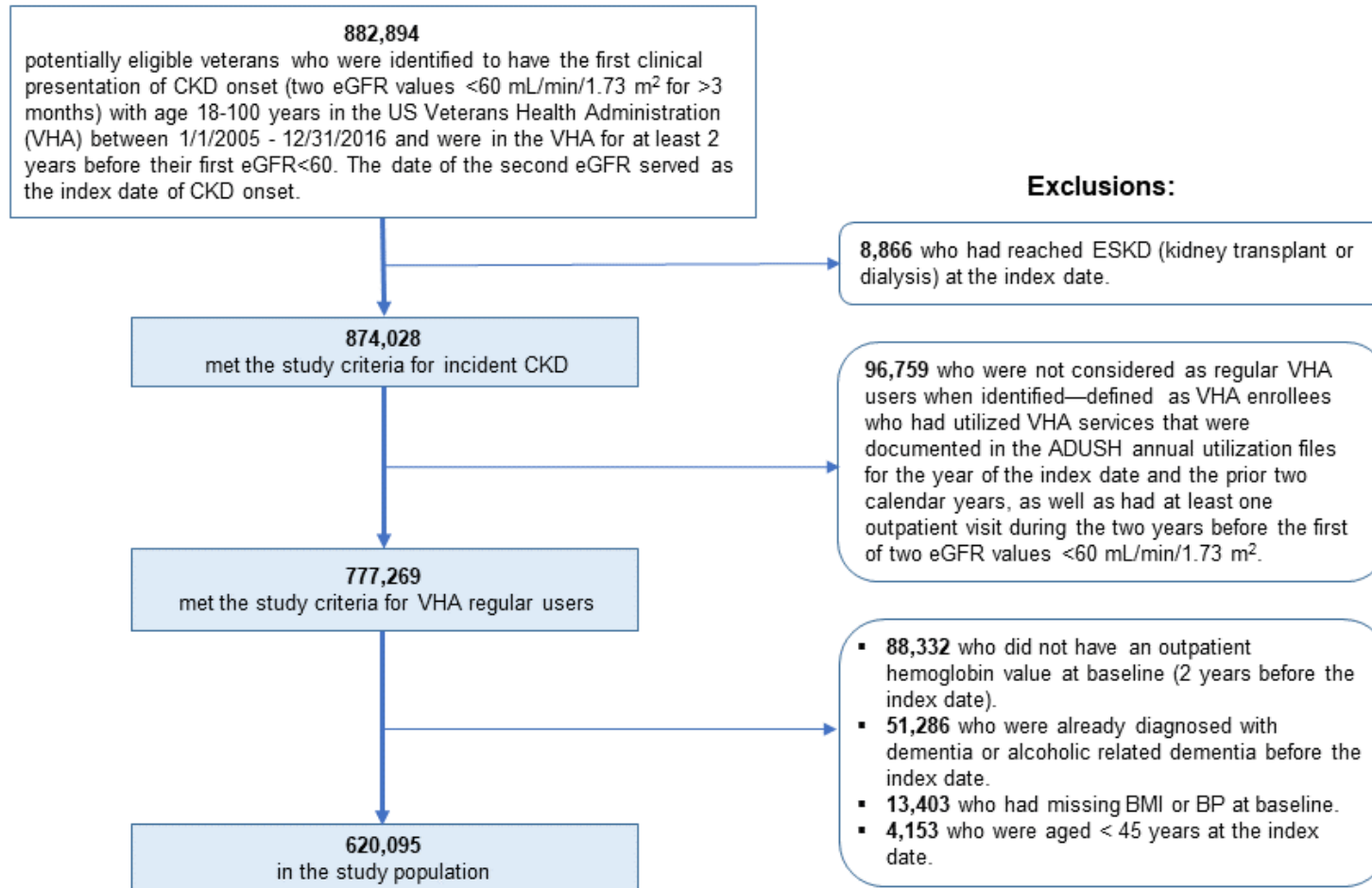

882,894
potentially eligible veterans who were identified to have the first clinical presentation of CKD onset (two eGFR values <60 mL/min/1.73 m^2 for >3 months) with age 18-100 years in the US Veterans Health Administration (VHA) between 1/1/2005 - 12/31/2016 and were in the VHA for at least 2 years before their first eGFR<60. The date of the second eGFR served as the index date of CKD onset.

Exclusions:

8,866 who had reached ESKD (kidney transplant or dialysis) at the index date.

874,028
met the study criteria for incident CKD

96,759 who were not considered as regular VHA users when identified—defined as VHA enrollees who had utilized VHA services that were documented in the ADUSH annual utilization files for the year of the index date and the prior two calendar years, as well as had at least one outpatient visit during the two years before the first of two eGFR values <60 mL/min/1.73 m^2.

777,269
met the study criteria for VHA regular users

- **88,332** who did not have an outpatient hemoglobin value at baseline (2 years before the index date).
- **51,286** who were already diagnosed with dementia or alcoholic related dementia before the index date.
- **13,403** who had missing BMI or BP at baseline.
- **4,153** who were aged < 45 years at the index date.

620,095
in the study population

Table S1. International Classification of Diseases, Ninth (ICD-9) and Tenth Revision (ICD-10) codes used to identify dementia

ICD-9	ICD-10
290.0	F01.50
290.1	F01.51
290.10	F02.80
290.11	F02.81
290.12	F03.90
290.13	G30.0
290.20	G30.1
290.21	G30.8
290.3	G30.9
290.40	G31.01
290.41	G31.09
290.42	G31.1
290.43	G91.4
294.10	R41.81
294.11	G31.83
331.0	
331.11	
331.19	
331.2	
331.7	
331.82	
797	

Table S2. Multivariable-adjusted association between anemia and study outcomes, with and without adjustment for transferrin saturation (n=112,334)

Baseline Anemia status	Hazard Ratio (95% CI)		Time-varying anemia status	Hazard Ratio (95% CI)	
	Without TSAT adjustment	With TSAT adjustment		Without TSAT adjustment	With TSAT adjustment
Outcome: Dementia					
Mild vs. normal	1.08 (1.05-1.12)	1.08 (1.04-1.12)	Mild vs. normal	1.18 (1.14-1.22)	1.18 (1.13-1.22)
Moderate/severe vs. normal	1.19 (1.13-1.26)	1.19 (1.13-1.25)	Moderate/severe vs. normal	1.50 (1.44-1.57)	1.50 (1.43-1.57)
Outcome: Kidney failure or death					
Mild vs. normal	1.32 (1.29-1.34)	1.30 (1.27-1.33)	Mild vs. normal	1.84 (1.79-1.89)	1.83 (1.79-1.88)
Moderate/severe vs. normal	1.98 (1.93-2.04)	1.95 (1.89-2.00)	Moderate/severe vs. normal	4.40 (4.28-4.52)	4.37 (4.25-4.49)

Adjusted for baseline covariates, including age, sex, race and ethnicity, BMI, smoking, eGFR, ESA use, receiving blood transfusion, ACEi use, ARB use, Charlson score, hypertension, depression, alcohol abuse, drug abuse, and year of incident CKD.