

Supplementary Web Appendix

Mortality in Chronic Kidney Disease & Renal Replacement Therapy: A Population-Based Cohort Study

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eTable 1 International Classification of Diseases (ICD) codes for comorbidities and causes of death

eTable 2 Characteristics of matched general population controls (matched by age, sex, and index year)

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eFigure Distribution of estimated glomerular filtration rate in chronic kidney disease stage 4 and 5

eTable 1 International Classification of Diseases (ICD) codes for comorbidities^a and causes of death^b

	ICD 10	ICD 9
Diabetes	E10-E11	250
Malignancies	C00-C99	140-208
Circulatory	I00-I99	390-459
Hypertension	I10-I15	401-405
Cardiovascular Disease	I20-I51	410-429
Myocardial Infarction	I21	410
Stroke	I60-I64	430-438
Lower-Extremity Deep Vein Thrombosis	I26, I80-I82	451-453, 415B
Chronic Obstructive Pulmonary Disease	J41-J44	490-492, 496
Uremia	N00-N19	580-599

^a Comorbidities assessed from 10 years prior to the index year until the index year (1989 to 2010), i.e. both ICD 9 and ICD 10 codes used

^b Deaths occurring from inclusion to end of follow-up (1999-2010), i.e. only ICD 10 codes used

eTable 2 Characteristics of matched general population controls (matched by age, sex, and index year)

General Population Controls	Chronic Kidney Disease 4 & 5	Peritoneal Dialysis	Hemo-Dialysis	Transplanted
N	15,145	3616	8799	3029
Education^a				
≤9y	2534 (25%)	673 (23%)	1640 (25%)	587 (19%)
10-12y	4171 (41%)	1263 (43%)	2713 (41%)	1266 (42%)
>12y	3173 (31%)	951 (32%)	2077 (31%)	1110 (37%)
Missing	225 (2%)	66 (2%)	195 (3%)	66 (2%)
Comorbidity				
Diabetes	1037 (7%)	165 (5%)	495 (6%)	78 (3%)
Malignancies	1648 (11%)	270 (7%)	695 (8%)	84 (3%)
Circulatory	4813 (32%)	828 (23%)	2217 (25%)	309 (10%)
Hypertension	2279 (15%)	371 (10%)	973 (11%)	129 (4%)
Cardiovascular Disease	2907 (19%)	459 (13%)	1336 (15%)	126 (4%)
Myocardial Infarction ^b	634 (4%)	109 (3%)	266 (3%)	22 (1%)
Stroke	810 (5%)	131 (4%)	375 (4%)	30 (1%)
COPD ^c	508 (3%)	65 (2%)	221 (3%)	17 (1%)

^a Education only available in patients <75y

^b Subgroup of cardiovascular disease

^c Chronic obstructive pulmonary disease

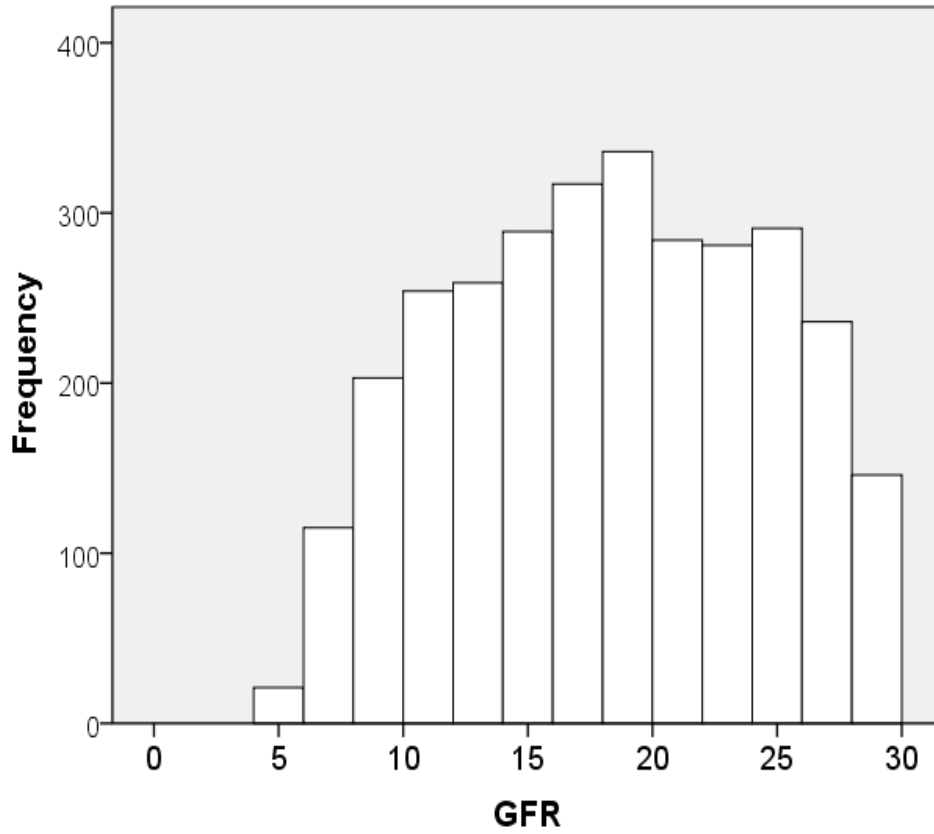
eTable 3 Underlying data for Figure 2

By Age	Chronic Kidney Disease⁴ & 5	Peritoneal Dialysis	Hemo-Dialysis	Transplanted
N	3040	725	1791	606
Person-Years	6553	1113	3680	2935
18-49y	1002	227	725	1539
50-59y	1097	265	717	976
60-69y	1444	287	996	409
≥70y	3009	333	1240	9
Deaths (All Causes)	766	186	924	53
18-49y	9	7	64	10
50-59y	41	32	127	22
60-69y	137	51	242	21
≥70y	579	96	491	-
Deaths/100 Person-Years (95%CI)	11.7 (10.9-12.5)	16.7 (14.5-19.3)	25.1 (23.5-26.8)	1.8 (1.4-2.4)
18-49y	0.9 (0.5-1.7)	3.1 (1.5-6.5)	8.8 (6.9-11.3)	0.6 (0.3-1.2)
50-59y	3.7 (2.8-5.1)	12.1 (8.5-17.1)	17.7 (14.9-21.1)	2.3 (1.5-3.4)
60-69y	9.5 (8.0-11.2)	17.7 (13.5-23.3)	24.3 (21.4-27.6)	5.1 (3.3-7.9)
≥70y	19.2 (17.7-20.9)	28.8 (23.6-35.2)	39.6 (36.2-43.2)	-

eTable 4 Underlying data for Figure 3: Conditional^a mortality hazard ratios for chronic kidney disease 4 and 5, peritoneal dialysis, hemodialysis and transplanted patients compared to matched general population controls

Patients vs Matched General Population Controls	Mortality Hazard Ratio (95%CI)			
	Chronic Kidney Disease 4 & 5	Peritoneal Dialysis	Hemo-Dialysis	Transplantation
All Cause	3.6 (3.2-4.0) P<.001	9.2 (6.6-12.7) P<.001	12.6 (10.8-14.6) P<.001	5.6 (3.5-8.9) P<.001
Cardiovascular Disease	4.1 (3.4-4.9) P<.001	12.0 (7.5-19.3) P<.001	12.8 (10.3-15.9) P<.001	4.6 (1.8-11.3) P=.001
Non-Cardiovascular Disease	3.2 (2.8-3.8) P<.001	5.8 (3.5-9.6) P<.001	11.8 (9.6-14.5) P<.001	5.4 (3.1-9.6) P<.001
N				
Patients	3032	724	1761	606
Controls	15,145	3616	8799	3029
Deaths (All Cause)				
Patients	766	186	919	53
Controls	774	87	285	53
Person-Years				
Patients	6542	1109	3607	2936
Controls	25,652	4115	14,318	12,828
Data for patients and controls 1999-2008 (i.e. individuals with information on cause-specific mortality)				
N				
Patients	2482	627	1531	522
Controls	11,063	2909	7151	2319
Deaths (All Cause)				
Patients	707	170	871	50
Controls	670	75	266	51
Person-Years				
Patients	6164	1056	3441	2868
Controls	22,765	3693	13,160	12,137

^aModels stratified by age, sex, education, diabetes, and index year (general population controls matched 5:1 by age, sex, and index year)



eFigure Distribution of estimated glomerular filtration rate (GFR; ml/min/1.73m²) in patients with chronic kidney disease stage 4 and 5^a

^a Estimated using the MDRD formula