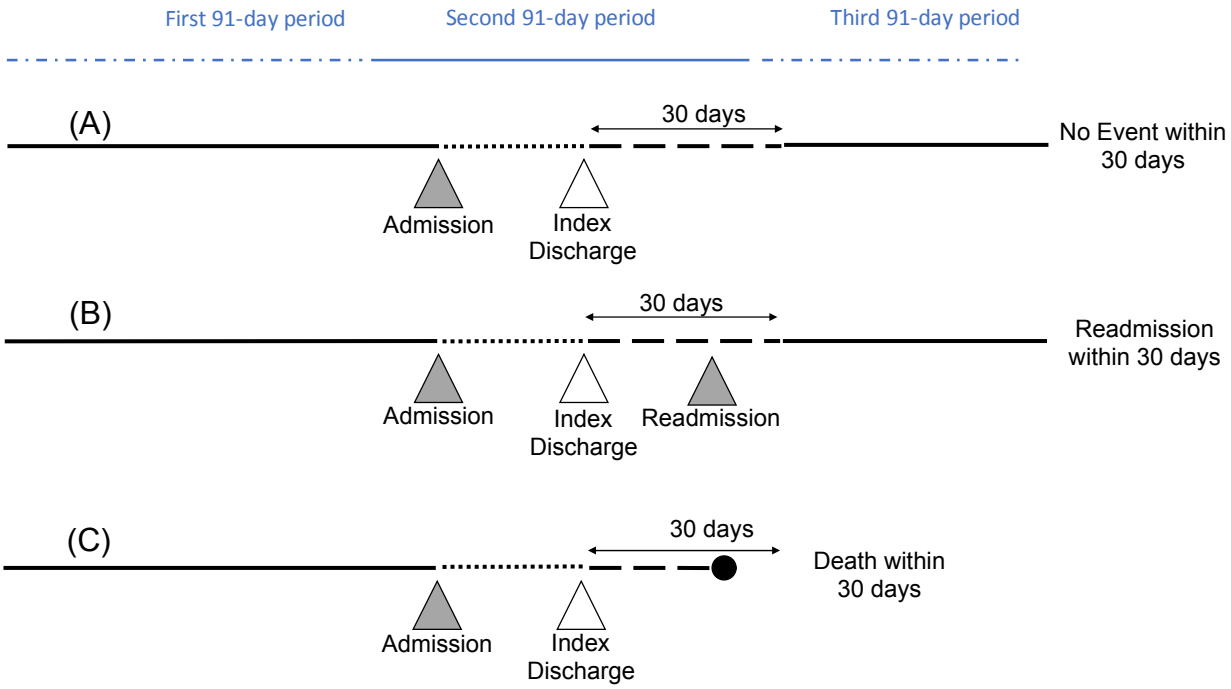
Sex Differences in Hospitalizations with Maintenance Hemodialysis

Scott V. Adams, Matthew Rivara, Elani Streja, Alfred K. Cheung, Onyebuchi A. Arah, Kamyar Kalantar-Zadeh, Rajnish Mehrotra

Supplementary Methods

Schematic Diagram of Timing of Hospitalization, Readmission, and Time-varying Laboratory/Clinical Parameters



Time from dialysis initiation was divided into 91-day periods (dialysis initiation not shown to the left of the figure; line lengths not to scale), as shown in the blue line at top. During each of these periods, laboratory values for each patient were determined as the mean (or median) of repeated measures in the period. Multiple imputation was used to assign values to any periods with no information (see below).

For analysis of hospitalization rates stratified by laboratory measurements, laboratory values from the 91-day period preceding hospitalization were used. In addition, for stratified analyses, only hospitalizations occurring in 91-day periods preceded by 91-day periods with no hospitalizations were included for a given patient.

Thus, in the scenario illustrated above, for stratified analyses of hospitalization rates, the admissions in (A), (B), and (C), and the readmission in (B), would be included with laboratory values from the first 91-day period.

Lines (A), (B), and (C) illustrate the three possible outcomes included in our analyses of readmission; 30-day windows including end of follow-up, transfer to another provider, etc, were excluded from analysis. For analyses of 30-day readmission stratified by laboratory measures, the index discharges as shown in (A), (B), and (C) would be assigned lab values from the first 91-day period. That is, the lab values for the index discharge were taken from the 91-day period preceding the admission associated with the index discharge.

Imputation of missing information

The analysis cohort comprised 111,653 patients with 180,297 patient-years of follow-up (813,385 full or partial patient-quarters (91-day periods)). At baseline, approximately 25% of patients were missing information on one or more covariates for one or more 91-day periods; thus, missing information for was imputed.

Only for vascular access, missing information (1.7% of all patient-quarters) was imputed first by carrying-forward access information (completing 72% of missing access information). Remaining missing values for access and missing values in all other variables (serum albumin, alkaline phosphatase, calcium, parathyroid hormone, phosphorous, potassium, creatinine, ferritin; iron saturation, blood urea nitrogen, hematocrit, blood hemoglobin, body mass index, treatment session length, single-pool kT/V, white blood cell count, pre-dialysis systolic blood pressure, weekday and weekend interdialytic weight gain, post-dialysis body weight, and number of days with central venous catheter in the quarter) were imputed using multiple imputation by chained equations with five repetitions.[1]

Missing values for all variables were modelled as continuous variables using linear regression. The only categorical variable, vascular access type, was parameterized as a binary variable (arteriovenous access or central venous catheters), imputed as a continuous variable, and a cut-off applied to produce categories. Imputation regressions included fixed independent variables for age, gender, race, interactions of age with gender, age with race, gender with race, and the 3-way

interaction gender with race with age; type of health insurance, reason for end-stage renal disease, year of incidence, geographic region, prevalent comorbidities (diabetes mellitus, myocardial infarction, congestive heart failure, other cardiovascular comorbidities, and Charlson comorbidity index), reason for censoring (death, transferred to another provider, end of study, etc.), and total time on the study; and complete information on time-varying variables: number of antibiotic doses prescribed, median weekly erythropoietin dose, and cumulative iron dose. Hospitalization-related variables were also included in the mutliple imputation model as independent variables: admissions to the hospital (total for person and by quarter), days at risk of hospitalization (total by person and by quarter), total days in the hospital (by person), and 30-day readmissions (total by person). Data were separately imputed for all patients in each 91-day period; to preserve the longitudinal structure of the data (i.e., repeated measures on individual patients, with one measurement per patient-quarter), imputation equations also included values (possibly missing) from up to the two prior and two subsequent quarters for each patient.

1. Cummings P. Missing data and multiple imputation. *JAMA Pediatr.* 2013; **167**: 656–661.

Supplementary Table 1: Adjusted[a] hospitalization incidence rate ratios (IRR) and difference in probability of 30-day readmission (Pr30d) comparing women to men by age group, illustrated in Figure 1.

	Hospitalization Rate Ratio[a]			30-day Readmission[a]		
	IRR (women / men)[a]	95% CI	P[b]	Pr(30d) (women – men)	95% CI	P[b]
Age (years)						
18-34	1.54	(1.42, 1.67)	2E-25	0.054	(0.022, 0.086)	0.001
35-44	1.48	(1.40, 1.58)	6E-36	0.079	(0.056, 0.103)	0.0001
45-54	1.26	(1.21, 1.31)	3E-28	0.019	(0.0038, 0.034)	0.014
55-64	1.18	(1.14, 1.22)	2E-26	0.020	(0.0093, 0.030)	0.0002
65-74	1.18	(1.14, 1.21)	2E-28	0.013	(0.0040, 0.023)	0.005
75+	1.14	(1.11, 1.18)	1E-21	0.011	(0.0024, 0.020)	0.013

[a]Adjusted for race, geographic region, calendar year of dialysis initiation, time since initiation of dialysis, insurance, Charlson index, diabetes, and cardiovascular comorbidities, and the interaction of age and race.

[b]P-value for test of IRR=1

[c]P-value for test of Pr(30d) difference =0

Supplementary Table 2: Adjusted[a] hospitalizations incidence rate ratio (IRR) comparing women to men in the first 90 days and first year following dialysis initation.

Age (years)	First year only			First 90 days only		
	IRR	95% CI	P	IRR	95% CI	P
18-34	1.52	(1.40, 1.66)	5.57E-22	1.57	(1.42, 1.73)	8.86E-19
35-44	1.46	(1.37, 1.56)	2.77E-29	1.42	(1.31, 1.54)	2.49E-17
45-54	1.26	(1.20, 1.31)	1.44E-23	1.23	(1.16, 1.30)	7.30E-13
55-64	1.18	(1.14, 1.22)	5.04E-21	1.14	(1.09, 1.19)	2.43E-08
65-74	1.17	(1.14, 1.21)	3.91E-22	1.17	(1.12, 1.22)	1.48E-12
75+	1.13	(1.10, 1.17)	3.58E-15	1.15	(1.11, 1.20)	1.25E-11

[a]Adjusted for race, geographic region, calendar year of dialysis initiation, time since initiation of dialysis, insurance, Charlson index, diabetes, and cardiovascular comorbidities, and the interaction of age and race.

Supplementary Table 3: Adjusted* probability of 30 day readmission, by age according to sex and race.

	Men							
	Asian		Black		White		Hispanic	
	Pr(readmit)	(95% CI)	Pr(readmit)	(95% CI)	Pr(readmit)	(95% CI)	Pr(readmit)	(95% CI)
Age								
18-34	0.42	(0.29, 0.56)	0.46	(0.42, 0.49)	0.45	(0.41, 0.49)	0.40	(0.34, 0.46)
35-44	0.24	(0.15, 0.33)	0.36	(0.34, 0.39)	0.41	(0.38, 0.44)	0.33	(0.29, 0.36)
45-54	0.28	(0.23, 0.33)	0.38	(0.36, 0.40)	0.38	(0.37, 0.40)	0.33	(0.31, 0.35)
55-64	0.33	(0.29, 0.38)	0.35	(0.33, 0.36)	0.35	(0.34, 0.36)	0.31	(0.30, 0.33)
65-74	0.31	(0.27, 0.34)	0.33	(0.31, 0.34)	0.33	(0.32, 0.35)	0.33	(0.32, 0.35)
75+	0.29	(0.26, 0.32)	0.33	(0.31, 0.34)	0.32	(0.31, 0.33)	0.33	(0.31, 0.35)

	Women							
	Asian		Black		White		Hispanic	
	Pr(readmit)	95% CI	Pr(readmit)	95% CI	Pr(readmit)	95% CI	Pr(readmit)	95% CI
Age								
18-34	0.35	(0.24, 0.46)	0.53	(0.50, 0.67)	0.52	(0.47, 0.56)	0.42	(0.36, 0.47)
35-44	0.39	(0.26, 0.53)	0.48	(0.46, 0.51)	0.47	(0.43, 0.51)	0.38	(0.33, 0.44)
45-54	0.29	(0.23, 0.36)	0.41	(0.39, 0.43)	0.40	(0.38, 0.42)	0.37	(0.34, 0.40)
55-64	0.36	(0.31, 0.42)	0.37	(0.36, 0.38)	0.37	(0.36, 0.39)	0.34	(0.32, 0.35)
65-74	0.31	(0.27, 0.34)	0.35	(0.34, 0.36)	0.35	(0.33, 0.36)	0.34	(0.32, 0.36)
75+	0.33	(0.30, 0.36)	0.34	(0.32, 0.35)	0.33	(0.32, 0.34)	0.35	(0.33, 0.37)

* Least-squares adjusted for age, race, interaction of age and race, geographic region, calendar year of dialysis initiation, time since initiation of dialysis, insurance, Charlson index, diabetes, and cardiovascular comorbidities.

Supplementary Table 3: Adjusted[a] hospitalization incidence rate ratios (IRR) comparing women to men by age group, stratified by lab / clinical parameters, illustrated in Figure 3.

	Women/Men									
	ALBUMIN									
	<3.5		3.5 - <3.8		3.8 - <4		4+			
Age	IRR	95% CI	IRR	95% CI	IRR	95% CI	IRR	95% CI		
18-34	1.11	(0.99 ,1.25)	1.10	(0.98 ,1.24)	1.11	(0.98 ,1.25)	1.21	(1.07 ,1.35)		
35-44	1.08	(0.99 ,1.18)	1.07	(0.98 ,1.17)	1.08	(0.98 ,1.19)	1.17	(1.07 ,1.28)		
45-54	1.06	(0.99 ,1.12)	1.04	(0.98 ,1.11)	1.05	(0.98 ,1.13)	1.14	(1.07 ,1.22)		
55-64	1.08	(1.02 ,1.14)	1.07	(1.01 ,1.12)	1.08	(1.01 ,1.14)	1.17	(1.10 ,1.24)		
65-74	1.05	(1.00 ,1.11)	1.04	(0.99 ,1.09)	1.05	(0.99 ,1.11)	1.14	(1.08 ,1.21)		
75+	1.08	(1.02 ,1.13)	1.06	(1.01 ,1.12)	1.07	(1.01 ,1.14)	1.17	(1.10 ,1.24)		
	ALK PHOS									
	1st Quartile		2nd Quartile		3rd Quartile		4th Quartile			
Age	IRR	95% CI	IRR	95% CI	IRR	95% CI	IRR	95% CI		
18-34	1.49	(1.33 ,1.67)	1.45	(1.29 ,1.63)	1.38	(1.23 ,1.55)	1.32	(1.17 ,1.48)		
35-44	1.34	(1.22 ,1.46)	1.30	(1.19 ,1.42)	1.24	(1.13 ,1.36)	1.18	(1.08 ,1.30)		
45-54	1.20	(1.12 ,1.28)	1.17	(1.10 ,1.25)	1.12	(1.05 ,1.19)	1.07	(1.00 ,1.14)		
55-64	1.18	(1.11 ,1.25)	1.15	(1.09 ,1.21)	1.10	(1.04 ,1.16)	1.04	(0.99 ,1.10)		
65-74	1.14	(1.08 ,1.21)	1.11	(1.06 ,1.18)	1.06	(1.01 ,1.12)	1.01	(0.96 ,1.07)		
75+	1.16	(1.10 ,1.22)	1.13	(1.07 ,1.19)	1.08	(1.02 ,1.13)	1.03	(0.97 ,1.09)		
	BODY MASS INDEX									
	<18		18-24.9		25-29.9		30-39.9		≥40	
Age	IRR	95% CI	IRR	95% CI	IRR	95% CI	IRR	95% CI	IRR	95% CI
18-34	1.38	(1.18 ,1.62)	1.36	(1.22 ,1.53)	1.43	(1.28 ,1.61)	1.49	(1.33 ,1.68)	1.50	(1.30 ,1.71)
35-44	1.23	(1.07 ,1.42)	1.21	(1.11 ,1.33)	1.28	(1.17 ,1.40)	1.33	(1.22 ,1.45)	1.33	(1.19 ,1.49)
45-54	1.14	(1.00 ,1.29)	1.12	(1.05 ,1.20)	1.18	(1.11 ,1.26)	1.23	(1.15 ,1.31)	1.23	(1.12 ,1.35)
55-64	1.14	(1.01 ,1.29)	1.13	(1.07 ,1.19)	1.18	(1.12 ,1.25)	1.23	(1.17 ,1.30)	1.23	(1.13 ,1.35)
65-74	1.08	(0.96 ,1.22)	1.07	(1.01 ,1.12)	1.12	(1.07 ,1.18)	1.17	(1.11 ,1.23)	1.17	(1.07 ,1.28)
75+	1.09	(0.97 ,1.23)	1.08	(1.03 ,1.13)	1.13	(1.08 ,1.19)	1.18	(1.12 ,1.25)	1.18	(1.08 ,1.30)
	CALCIUM CORRECTED									
	<8.5		8.5-8.9		9.0-9.4		9.5-10.1		≥10.2	
Age	IRR	95% CI	IRR	95% CI	IRR	95% CI	IRR	95% CI	IRR	95% CI
18-34	1.49	(1.31 ,1.69)	1.43	(1.28 ,1.61)	1.42	(1.27 ,1.59)	1.33	(1.18 ,1.49)	1.38	(1.15 ,1.66)
35-44	1.37	(1.24 ,1.52)	1.32	(1.21 ,1.45)	1.31	(1.20 ,1.43)	1.22	(1.11 ,1.34)	1.27	(1.07 ,1.51)

45-54	1.25	(1.15 | ,1.35)	1.20	(1.13 | ,1.28)	1.19	(1.12 | ,1.26)	1.11	(1.04 | ,1.19)	1.16	(0.99 | ,1.36)
55-64	1.23	(1.14 | ,1.32)	1.18	(1.12 | ,1.25)	1.17	(1.11 | ,1.23)	1.09	(1.03 | ,1.16)	1.14	(0.97 | ,1.33)
65-74	1.16	(1.08 | ,1.26)	1.12	(1.07 | ,1.18)	1.11	(1.06 | ,1.17)	1.04	(0.98 | ,1.10)	1.08	(0.93 | ,1.26)
75+	1.17	(1.09 | ,1.27)	1.13	(1.07 | ,1.19)	1.12	(1.07 | ,1.17)	1.05	(0.99 | ,1.11)	1.09	(0.93 | ,1.27)

FERRITIN

	1st Quartile			2nd Quartile			3rd Quartile			4th Quartile		
Age	IRR	95% CI		IRR	95% CI		IRR	95% CI		IRR	95% CI	
18-34	1.38	(1.23	,1.54)	1.43	(1.27	,1.61)	1.42	(1.26	,1.60)	1.46	(1.30	,1.65)
35-44	1.26	(1.16	,1.37)	1.31	(1.20	,1.44)	1.30	(1.19	,1.43)	1.34	(1.21	,1.48)
45-54	1.15	(1.08	,1.22)	1.19	(1.12	,1.27)	1.18	(1.11	,1.27)	1.22	(1.13	,1.31)
55-64	1.13	(1.07	,1.18)	1.17	(1.11	,1.24)	1.16	(1.10	,1.23)	1.20	(1.12	,1.28)
65-74	1.08	(1.02	,1.13)	1.12	(1.06	,1.18)	1.11	(1.05	,1.18)	1.14	(1.07	,1.22)
75+	1.08	(1.03	,1.14)	1.12	(1.07	,1.19)	1.12	(1.05	,1.18)	1.15	(1.08	,1.22)

HEMOGLOBLIN

	<9			9-9.9			10-10.9			≥6.4		
Age	IRR	95% CI		IRR	95% CI		IRR	95% CI		IRR	95% CI	
18-34	1.15	(0.96	,1.37)	1.28	(1.13	,1.46)	1.24	(1.11	,1.39)	1.32	(1.18	,1.47)
35-44	1.10	(0.93	,1.29)	1.22	(1.09	,1.37)	1.19	(1.08	,1.30)	1.26	(1.16	,1.37)
45-54	1.02	(0.87	,1.19)	1.14	(1.04	,1.25)	1.11	(1.03	,1.18)	1.17	(1.11	,1.24)
55-64	1.01	(0.87	,1.18)	1.13	(1.04	,1.24)	1.10	(1.03	,1.16)	1.16	(1.11	,1.21)
65-74	0.97	(0.84	,1.13)	1.09	(1.00	,1.19)	1.05	(0.99	,1.12)	1.12	(1.07	,1.17)
75+	0.99	(0.85	,1.15)	1.10	(1.01	,1.20)	1.07	(1.01	,1.13)	1.13	(1.09	,1.18)

IRON SATURATION

	1st Quartile			2nd Quartile			3rd Quartile			4th Quartile		
Age	IRR	95% CI		IRR	95% CI		IRR	95% CI		IRR	95% CI	
18-34	1.30	(1.16	,1.45)	1.43	(1.28	,1.61)	1.45	(1.29	,1.63)	1.43	(1.27	,1.60)
35-44	1.19	(1.09	,1.30)	1.32	(1.21	,1.44)	1.34	(1.22	,1.47)	1.31	(1.19	,1.44)
45-54	1.09	(1.03	,1.16)	1.21	(1.13	,1.29)	1.23	(1.15	,1.31)	1.20	(1.12	,1.29)
55-64	1.06	(1.01	,1.12)	1.18	(1.12	,1.24)	1.19	(1.13	,1.26)	1.17	(1.10	,1.24)
65-74	1.02	(0.97	,1.07)	1.13	(1.07	,1.19)	1.14	(1.08	,1.21)	1.12	(1.05	,1.19)
75+	1.02	(0.97	,1.07)	1.13	(1.07	,1.19)	1.15	(1.09	,1.21)	1.12	(1.06	,1.19)

PHOSPHOROUS

	<4.5			4.6-5.3			5.4-6.3			>6.3		
Age	IRR	95% CI		IRR	95% CI		IRR	95% CI		IRR	95% CI	
18-34	1.45	(1.29	,1.64)	1.46	(1.30	,1.64)	1.43	(1.27	,1.60)	1.42	(1.27	,1.60)
35-44	1.33	(1.21	,1.46)	1.33	(1.22	,1.46)	1.30	(1.19	,1.43)	1.30	(1.18	,1.43)
45-54	1.20	(1.12	,1.28)	1.20	(1.13	,1.28)	1.18	(1.10	,1.25)	1.18	(1.09	,1.27)

55-64	1.17	(1.11 ,1.24)	1.17	(1.12 ,1.24)	1.15	(1.09 ,1.21)	1.15	(1.07 ,1.23)
65-74	1.12	(1.06 ,1.18)	1.12	(1.07 ,1.18)	1.10	(1.04 ,1.16)	1.10	(1.02 ,1.17)
75+	1.12	(1.07 ,1.17)	1.12	(1.07 ,1.18)	1.10	(1.04 ,1.16)	1.10	(1.02 ,1.18)

POTASSIUM

	1st Quartile		2nd Quartile		3rd Quartile		4th Quartile	
Age	IRR	95% CI	IRR	95% CI	IRR	95% CI	IRR	95% CI
18-34	1.44	(1.28 ,1.61)	1.43	(1.27 ,1.60)	1.43	(1.27 ,1.61)	1.37	(1.22 ,1.54)
35-44	1.32	(1.21 ,1.44)	1.31	(1.19 ,1.43)	1.31	(1.20 ,1.44)	1.26	(1.15 ,1.38)
45-54	1.20	(1.12 ,1.27)	1.18	(1.11 ,1.26)	1.19	(1.11 ,1.27)	1.14	(1.07 ,1.22)
55-64	1.17	(1.11 ,1.24)	1.16	(1.10 ,1.23)	1.17	(1.10 ,1.23)	1.12	(1.06 ,1.19)
65-74	1.12	(1.07 ,1.18)	1.11	(1.05 ,1.17)	1.12	(1.05 ,1.18)	1.07	(1.01 ,1.14)
75+	1.13	(1.07 ,1.19)	1.12	(1.06 ,1.18)	1.12	(1.06 ,1.19)	1.08	(1.02 ,1.14)

PRE-DIALYSIS SYSTOLIC BLOOD PRESSURE

	1st Quartile		2nd Quartile		3rd Quartile		4th Quartile	
Age	IRR	95% CI	IRR	95% CI	IRR	95% CI	IRR	95% CI
18-34	1.38	(1.23 ,1.56)	1.49	(1.32 ,1.67)	1.47	(1.31 ,1.65)	1.47	(1.31 ,1.65)
35-44	1.25	(1.14 ,1.37)	1.35	(1.23 ,1.47)	1.33	(1.22 ,1.45)	1.33	(1.22 ,1.45)
45-54	1.11	(1.04 ,1.19)	1.19	(1.12 ,1.27)	1.18	(1.10 ,1.26)	1.18	(1.11 ,1.25)
55-64	1.09	(1.03 ,1.16)	1.17	(1.11 ,1.24)	1.16	(1.10 ,1.23)	1.16	(1.10 ,1.22)
65-74	1.06	(1.00 ,1.12)	1.14	(1.08 ,1.21)	1.13	(1.07 ,1.19)	1.13	(1.07 ,1.19)
75+	1.09	(1.04 ,1.15)	1.17	(1.11 ,1.24)	1.16	(1.10 ,1.23)	1.16	(1.09 ,1.23)

PARATHYROID HORMONE

	1st Quartile		2nd Quartile		3rd Quartile		4th Quartile	
Age	IRR	95% CI	IRR	95% CI	IRR	95% CI	IRR	95% CI
18-34	1.41	(1.26 ,1.59)	1.45	(1.29 ,1.63)	1.37	(1.22 ,1.54)	1.43	(1.28 ,1.60)
35-44	1.29	(1.18 ,1.41)	1.32	(1.21 ,1.45)	1.25	(1.14 ,1.37)	1.30	(1.19 ,1.43)
45-54	1.18	(1.10 ,1.26)	1.21	(1.13 ,1.29)	1.14	(1.07 ,1.22)	1.19	(1.12 ,1.27)
55-64	1.15	(1.09 ,1.22)	1.18	(1.12 ,1.25)	1.12	(1.06 ,1.19)	1.17	(1.11 ,1.23)
65-74	1.11	(1.05 ,1.17)	1.13	(1.07 ,1.19)	1.07	(1.02 ,1.13)	1.12	(1.06 ,1.18)
75+	1.11	(1.06 ,1.17)	1.14	(1.08 ,1.20)	1.08	(1.02 ,1.14)	1.13	(1.06 ,1.19)

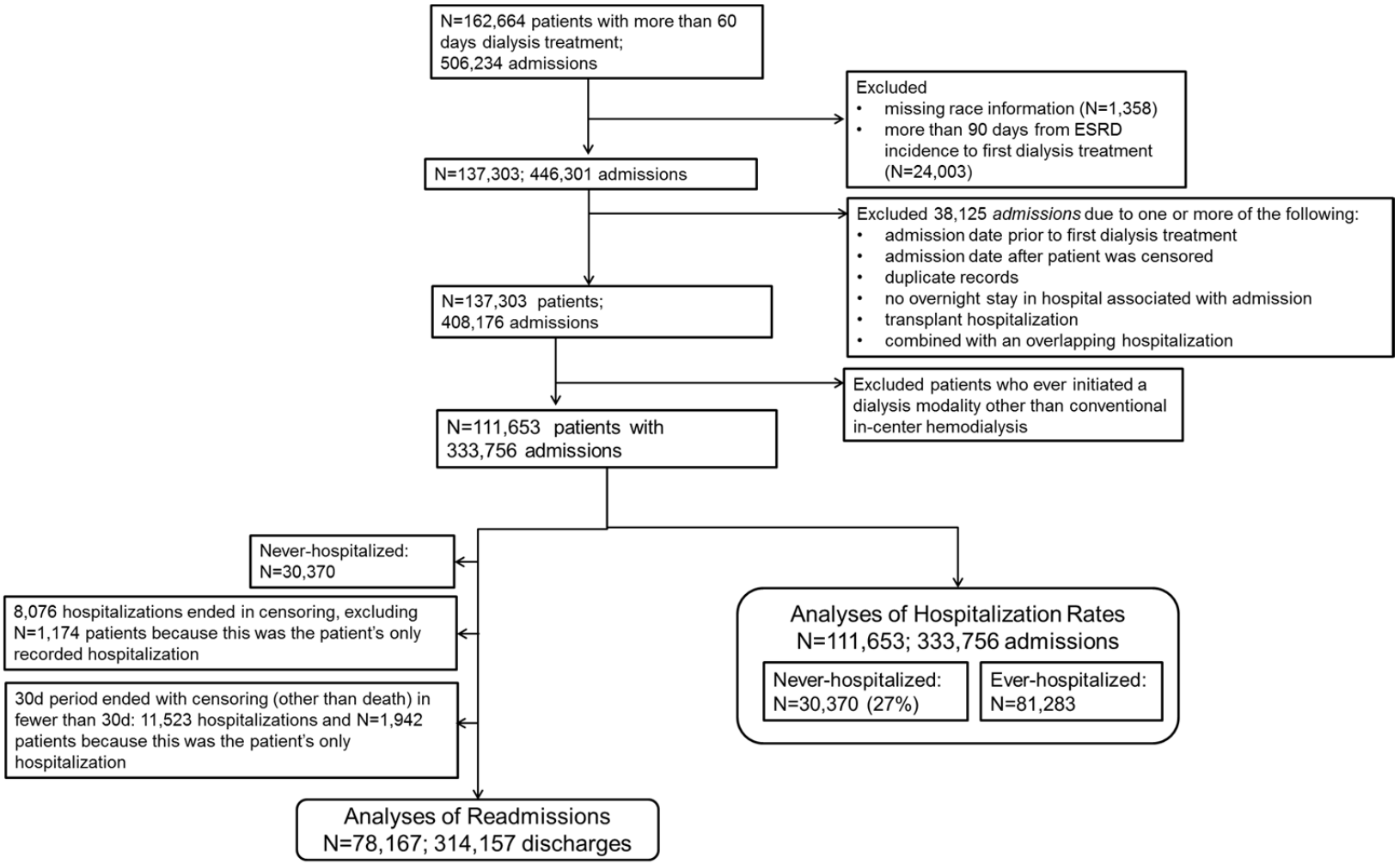
TOTAL WHITE BLOOD CELL COUNT

	1st Quartile		2nd Quartile		3rd Quartile		4th Quartile	
Age	IRR	95% CI	IRR	95% CI	IRR	95% CI	IRR	95% CI
18-34	1.37	(1.21 ,1.54)	1.45	(1.29 ,1.62)	1.37	(1.22 ,1.54)	1.37	(1.22 ,1.54)
35-44	1.27	(1.16 ,1.39)	1.34	(1.22 ,1.47)	1.27	(1.16 ,1.39)	1.27	(1.16 ,1.39)
45-54	1.15	(1.08 ,1.23)	1.22	(1.14 ,1.30)	1.16	(1.08 ,1.23)	1.16	(1.09 ,1.23)
55-64	1.13	(1.07 ,1.20)	1.20	(1.13 ,1.27)	1.14	(1.08 ,1.20)	1.14	(1.08 ,1.20)

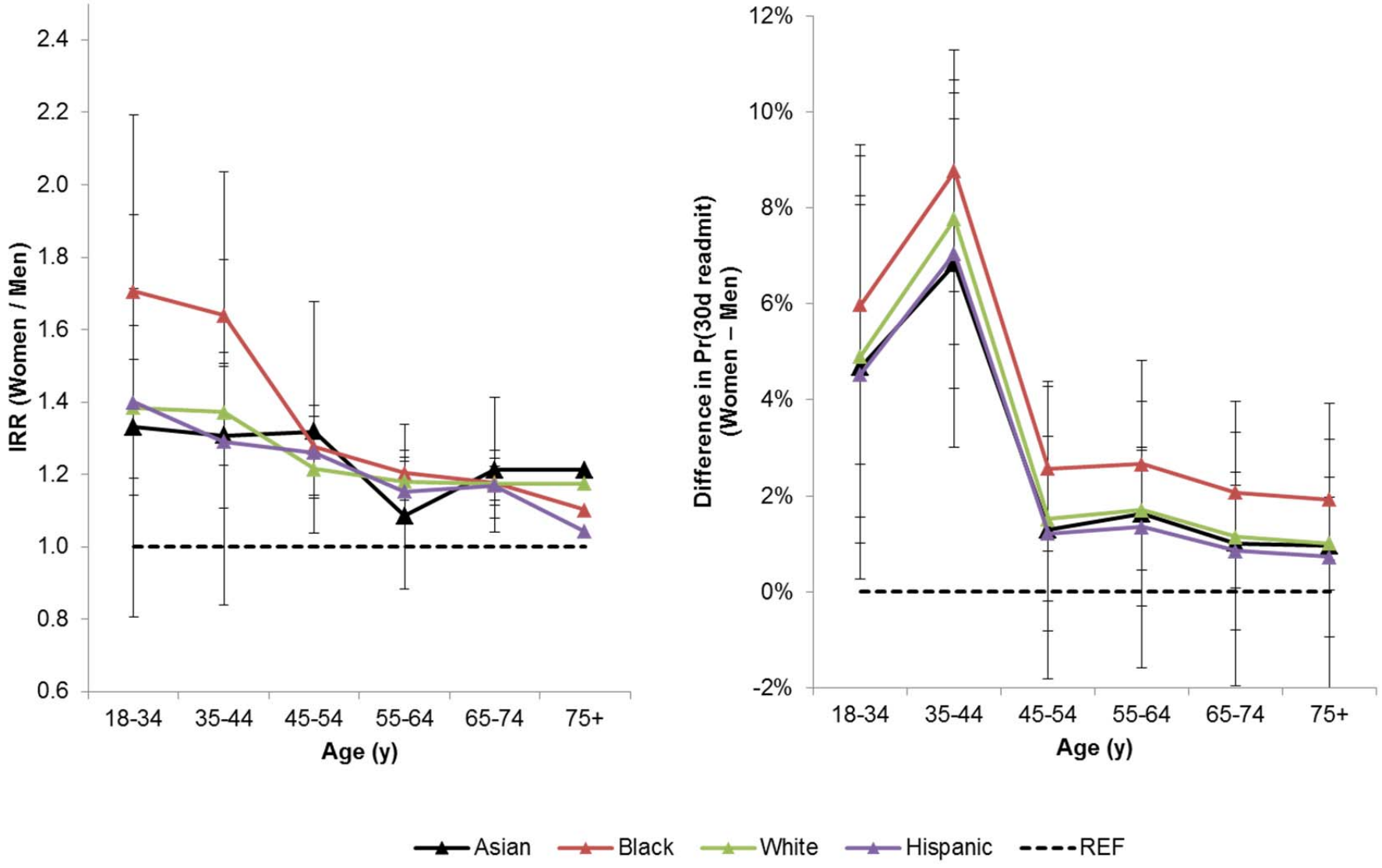
65-74	1.08	(1.02 ,1.15)	1.15	(1.09 ,1.21)	1.09	(1.03 ,1.15)	1.09	(1.03 ,1.15)
75+	1.09	(1.03 ,1.15)	1.16	(1.10 ,1.22)	1.10	(1.04 ,1.16)	1.10	(1.04 ,1.16)
	SINGLE POOL KT/V							
	1st Quartile		2nd Quartile		3rd Quartile		4th Quartile	
Age	IRR	95% CI	IRR	95% CI	IRR	95% CI	IRR	95% CI
18-34	1.53	(1.36 ,1.71)	1.54	(1.36 ,1.73)	1.52	(1.34 ,1.71)	1.52	(1.35 ,1.72)
35-44	1.43	(1.31 ,1.57)	1.44	(1.32 ,1.58)	1.42	(1.30 ,1.56)	1.43	(1.30 ,1.57)
45-54	1.26	(1.19 ,1.34)	1.27	(1.19 ,1.36)	1.25	(1.17 ,1.34)	1.26	(1.18 ,1.35)
55-64	1.23	(1.17 ,1.30)	1.24	(1.17 ,1.31)	1.22	(1.15 ,1.30)	1.23	(1.16 ,1.30)
65-74	1.17	(1.10 ,1.23)	1.17	(1.11 ,1.24)	1.16	(1.09 ,1.22)	1.16	(1.10 ,1.23)
75+	1.17	(1.11 ,1.23)	1.18	(1.11 ,1.24)	1.16	(1.10 ,1.23)	1.17	(1.10 ,1.23)
	VASCULAR ACCESS							
	Arteriovenous		Central Venous Cath					
Age	IRR	95% CI	IRR	95% CI	IRR	95% CI	IRR	95% CI
18-34	1.36	(1.25 ,1.49)	1.35	(1.24 ,1.47)				
35-44	1.28	(1.20 ,1.36)	1.26	(1.18 ,1.35)				
45-54	1.17	(1.12 ,1.22)	1.16	(1.11 ,1.21)				
55-64	1.16	(1.12 ,1.20)	1.15	(1.10 ,1.19)				
65-74	1.14	(1.10 ,1.17)	1.12	(1.08 ,1.16)				
75+	1.11	(1.07 ,1.14)	1.09	(1.05 ,1.13)				

[a]Adjusted for race, geographic region, calendar year of dialysis initiation, time since initiation of dialysis, insurance, Charlson index, diabetes, and cardiovascular comorbidities, and the interaction of age and race.

Supplementary Figure 1: CONSORT diagram displaying patients and hospitalization records excluded from the study cohort.



Supplementary Figure 2: Adjusted incidence rate ratio (IRR) and difference in probability of 30d readmission (Pr(30d readmit)) comparing women to men, by age and race.



..

Supplementary Figure 3: Mean serum albumin (top panel) and prevalence of serum albumin less than 3.8 g/dL (bottom panel) among patients according to sex, during either the first 182 days of follow-up or the entire follow-up period. Error bars represent 95% confidence intervals.