Supplementary Material

Supplementary Table 1. The overall hazard ratios for mortality over the 58 month study period* and the 6, 12, and 24-month mortality rates in the various vascular access groups.

Access group (N)		Hazard ratio (over 58 mo. study) (95% CI)	P	6 month mortality (%)	12 month mortality (%)	24 month mortality (%)
AVF	(9,794)	0.50 (0.48-0.52)	< 0.0001	9	17	31
AVF-CVC	(8,230)	0.66 (0.64-0.68)	<0.0001	15	25	42
AVF-CVC su (AVF placer prior to init	nent time					
<4 mo	(6,668)	0.67 (0.65-0.70)	<0.001			
>2 mo	(4,561)	0.66 (0.63-0.68)	<0.001			
>4 mo	(3,126)	0.65 (0.61-0.68)	<0.001	14	24	41
> 6 mo	(2,316)	0.64 (0.60-0.68)	<0.001			
> 9 mo	(1,569)	0.65 (0.61-0.70)	<0.001			
CVC	(90,517)	1.0		32	46	62

^{*}Calculated with the CVC group as reference, the Cox proportional hazards models were adjusted for the following covariates: age at hemodialysis initiation, sex, race, comorbidity index, body mass index, cause of ESRD, and duration of pre-ESRD nephrology care.

^{**}AVF access group consists of those patients with an AVF placed first and initiating hemodialysis with the AVF; AVF-CVC access group had an AVF placed first but initiated hemodialysis with a catheter and the AVF-CVC subgroups having the AVF placed less than 4 months or greater than 2, 4, 6, or 9 months before initiating HD with a catheter; CVC access group had a catheter placed first and initiated hemodialysis with the catheter.

Supplementary Table 2. Proportional hazard analysis* of mortality for vascular access subgroups based on age, sex, race and comorbidities with the CVC group** as reference.

Age categories (7-79 0.49 (0.47-0.51) < 0.001		AVF access group**	Р	AVF-CVC access group**	Р
67-79	A	Hazard ratio (95% CI)		Hazard ratio (95% CI)	
80-89		0.40 (0.47.0.54)	0.004	0.65 (0.62.0.60)	0.004
Sex Males 0.49 (0.47-0.52) 0.50 (0.64-0.69) Race Whites 0.50 (0.48-0.54) 0.50 (0.48-0.52) 0.60 (0.63-0.69) 0.60 (0.63-0.69) 0.60 (0.63-0.70) 0.60 (0.63-0.70) 0.60 (0.63-0.70) 0.60 (0.63-0.70) 0.60 (0.63-0.70) 0.60 (0.63-0.70) 0.60 (0.63-0.70) 0.60 (0.63-0.70) 0.60 (0.63-0.68) 0.001 0.63 (0.58-0.68) 0.001 0.63 (0.58-0.68) 0.001 0.63 (0.58-0.68) 0.001 0.65 (0.62-0.68) 0.001 0.66 (0.63-0.70) 0.001 0.66 (0.63-0.70) 0.001 0.66 (0.63-0.70) 0.001 0.66 (0.63-0.70) 0.001 0.66 (0.63-0.70) 0.001 0.66 (0.63-0.70) 0.001 0.66 (0.63-0.70) 0.001 0.66 (0.63-0.69) 0.001 0.66 (0.63-0.68) 0.001					
Sex Males 0.49 (0.47-0.52) < 0.001 0.66 (0.63-0.69) < 0.001 Females 0.51 (9.48-0.54) < 0.001			ļ	, ,	
Males 0.49 (0.47-0.52) <0.001		0.57 (0.45-0.71)	<0.001	0.59 (0.47-0.75)	<0.001
Females 0.51 (9.48-0.54) < 0.001 0.66 (0.63-0.70) < 0.001 Race Whites 0.50 (0.48-0.52) < 0.001	Sex				
Race Whites 0.50 (0.48-0.52) <0.001 0.67 (0.64-0.69) <0.001 Blacks 0.49 (0.44-0.54) <0.001	Males	0.49 (0.47-0.52)	<0.001	0.66 (0.63-0.69)	<0.001
Whites 0.50 (0.48-0.52) <0.001 0.67 (0.64-0.69) <0.001 Blacks 0.49 (0.44-0.54) <0.001	Females	0.51 (9.48-0.54)	<0.001	0.66 (0.63-0.70)	<0.001
Blacks 0.49 (0.44-0.54) <0.001 0.63 (0.58-0.68) <0.001 Comorbidity index (0-15)	Race				
Comorbidity index (0-15)	Whites	0.50 (0.48-0.52)	<0.001	0.67 (0.64-0.69)	<0.001
≤ 7 0.48 (0.46-0.50) <0.001	Blacks	0.49 (0.44-0.54)	<0.001	0.63 (0.58-0.68)	<0.001
8 to 10	Comorbidity index (0-15)				
≥11 0.64 (0.53-0.76) <0.001 0.73 (0.62-0.85) <0.001 Diabetes*** 0.50 (0.48-0.53) <0.001	≤ 7	0.48 (0.46-0.50)	<0.001	0.66 (0.63-0.70)	<0.001
Diabetes*** Ves 0.50 (0.48-0.53) <0.001 0.67 (0.64-0.70) <0.001 No 0.51 (0.48-0.53) <0.001	8 to 10	0.50 (0.48-0.53)	<0.001	0.65 (0.62-0.68)	<0.001
Yes 0.50 (0.48-0.53) <0.001 0.67 (0.64-0.70) <0.001 No 0.51 (0.48-0.53) <0.001	≥ 11	0.64 (0.53-0.76)	<0.001	0.73 (0.62-0.85)	<0.001
No 0.51 (0.48-0.53) <0.001 0.65 (0.62-0.69) <0.001 Diabetic end-organ disease***	Diabetes***				
No 0.51 (0.48-0.53) <0.001 0.65 (0.62-0.69) <0.001 Diabetic end-organ disease***	Yes	0.50 (0.48-0.53)	<0.001	0.67 (0.64-0.70)	<0.001
disease*** 9es 0.51 (0.49-0.54) <0.001 0.66 (0.63-0.69) <0.001 No 0.50 (0.48-0.52) <0.001	No	0.51 (0.48-0.53)	<0.001	0.65 (0.62-0.69)	<0.001
No 0.50 (0.48-0.52) <0.001 0.67 (0.64-0.70) <0.001 Cerebrovascular disease***	_				
Cerebrovascular disease*** Ves 0.53 (0.48-0.58) <0.001 0.71 (0.65-0.77) <0.001 No 0.50 (0.48-0.520) <0.001	Yes	0.51 (0.49-0.54)	<0.001	0.66 (0.63-0.69	<0.001
disease*** Ves 0.53 (0.48-0.58) <0.001 0.71 (0.65-0.77) <0.001 No 0.50 (0.48-0.520) <0.001	No	0.50 (0.48-0.52)	<0.001	0.67 (0.64-0.70)	<0.001
No 0.50 (0.48-0.520 <0.001 0.66 (0.63-0.68) <0.001 Coronary artery disease*** 0.52 (0.49-0.55) <0.001					
Coronary artery disease*** Section 1 Control 1 Control 2 Control 2 <t< td=""><td>Yes</td><td>0.53 (0.48-0.58)</td><td><0.001</td><td>0.71 (0.65-0.77)</td><td><0.001</td></t<>	Yes	0.53 (0.48-0.58)	<0.001	0.71 (0.65-0.77)	<0.001
disease*** 90.52 (0.49-0.55) <0.001 0.67 (0.64-0.71) <0.001 No 0.49 (0.47-0.52) <0.001	No	0.50 (0.48-0.520	<0.001	0.66 (0.63-0.68)	<0.001
No 0.49 (0.47-0.52 <0.001					
Congestive heart failure*** Yes 0.53 (0.50-0.56) <0.001 0.67 (0.63-0.70) <0.001 No 0.50 (0.48-0.53) <0.001 0.67 (0.64-0.70) <0.001 Hypertension*** Yes 0.50 (0.49-0.52) <0.001 0.66 (0.64-0.69) <0.001	Yes	0.52 (0.49-0.55)	<0.001	0.67 (0.64-0.71)	<0.001
failure*** Ves 0.53 (0.50-0.56) <0.001 0.67 (0.63-0.70) <0.001 No 0.50 (0.48-0.53) <0.001	No	0.49 (0.47-0.52	<0.001	0.66 (0.63-0.68	<0.001
No 0.50 (0.48-0.53) <0.001 0.67 (0.64-0.70) <0.001 Hypertension*** Yes 0.50 (0.49-0.52) <0.001					
Hypertension*** Color (0.49-0.52) Color (0.64-0.69) Color (0.64-0.69)	Yes	0.53 (0.50-0.56)	<0.001	0.67 (0.63-0.70)	<0.001
Yes 0.50 (0.49-0.52) <0.001 0.66 (0.64-0.69) <0.001	No	0.50 (0.48-0.53)	<0.001	0.67 (0.64-0.70)	<0.001
Yes 0.50 (0.49-0.52) <0.001 0.66 (0.64-0.69) <0.001	Hypertension***				
		0.50 (0.49-0.52)	<0.001	0.66 (0.64-0.69)	<0.001
	No	0.49 (0.44-0.53)		0.66 (0.60-0.72)	<0.001

Malignancy***				
Yes	0.49 (0.44-0.54)	<0.001	0.62 (0.56-0.68)	<0.001
No	0.51 (0.49-0.53	<0.001	0.67 (0.65-0.69)	<0.001
Peripheral vascular disease***				
Yes	0.53 (0.50-0.58)	<0.001	0.71 (0.66-0.76)	<0.001
No	0.50 (0.48-0.52)	<0.001	0.65 (0.62-0.67)	<0.001
COPD***				
Yes	0.56 (0.51-0.61)	<0.001	0.71 (0.65-0.77)	<0.001
No	0.50 (0.48-0.52)	<0.001	0.66 (0.63-0.68)	<0.001
Duration of pre-ESRD nephrology care				
No care (n=35,948)	0.48 (0.39-0.58)	<0.001	0.66 (0.60-0.73)	<0.001
0-6 months (n=11,447)	0.49 (0.45-0.53)	<0.001	0.64 (0.58-0.69)	<0.001
6-12 months (n=23,525)	0.49 (0.46-0.52)	<0.001	0.65 (0.62-0.69)	<0.001
>12 months (n=23,111)	0.51 (0.48-0.54)	<0.001	0.68 (0.65-0.72)	<0.001
Missing data (n=14,960)	0.40 (0.34-0.48)	<0.001	0.58 (0.52-0.65)	<0.001

^{*}The results shown were derived from 40 separate Cox proportion hazard models, each of them adjusted for the following covariates: age at ESRD onset, race, sex, body mass index, primary cause of ESRD, duration of pre-ESRD nephrology care, and comorbidity index.

- **AVF access group consists of those patients with an AVF placed first and initiating hemodialysis with the AVF; AVF-CVC access group had an AVF placed first but initiated hemodialysis with a catheter; CVC access group had a catheter placed first and initiated hemodialysis with the catheter.
- ***In subgroup analyses by comorbidities, the corresponding comorbidity was removed from the comorbidity index calculation to avoid potential co-linearity, e.g., in subgroup analysis of diabetes, diabetes was not included in the comorbidity index calculation.