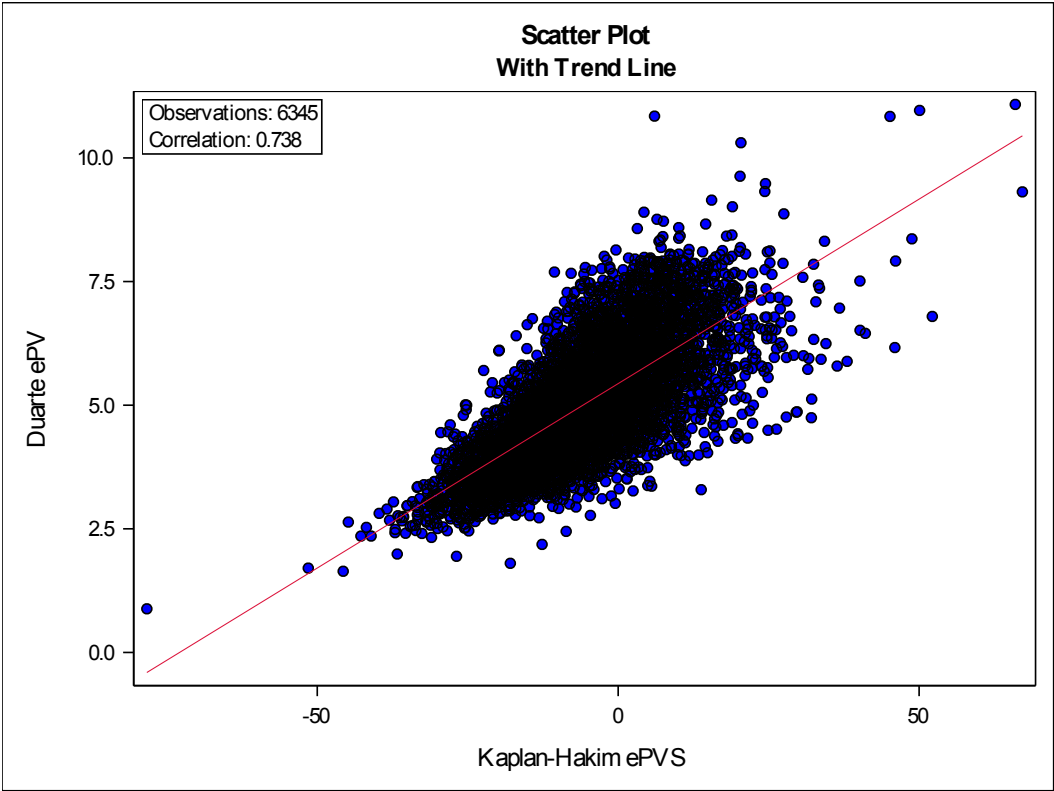
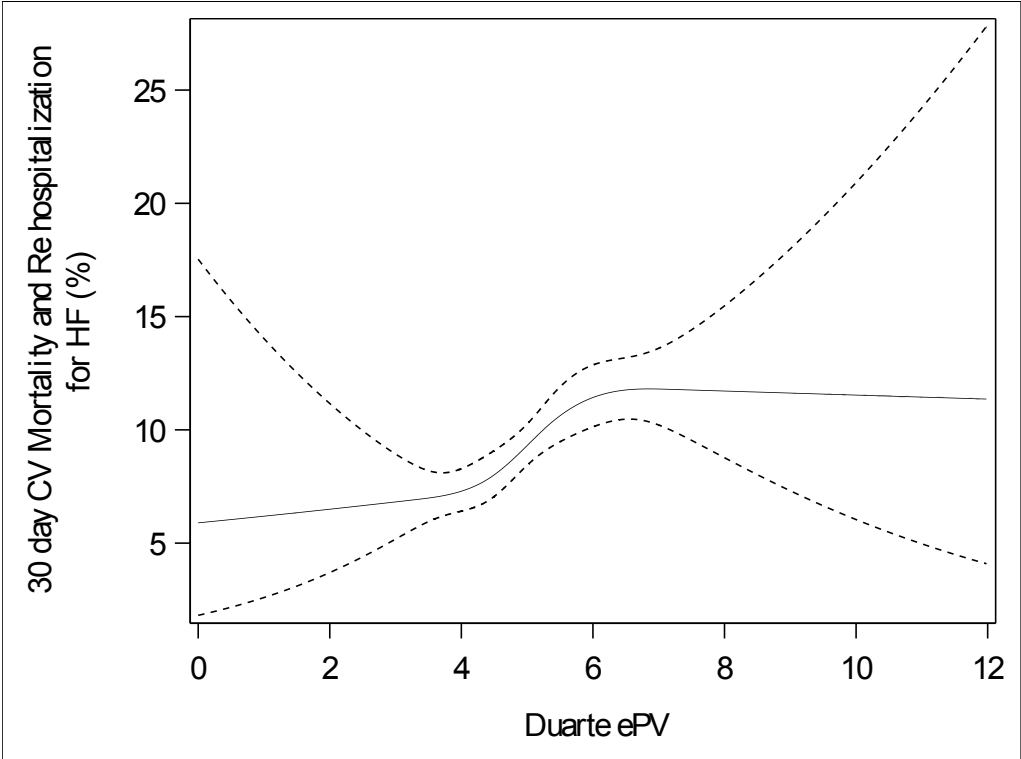


Supplementary Figures and Tables
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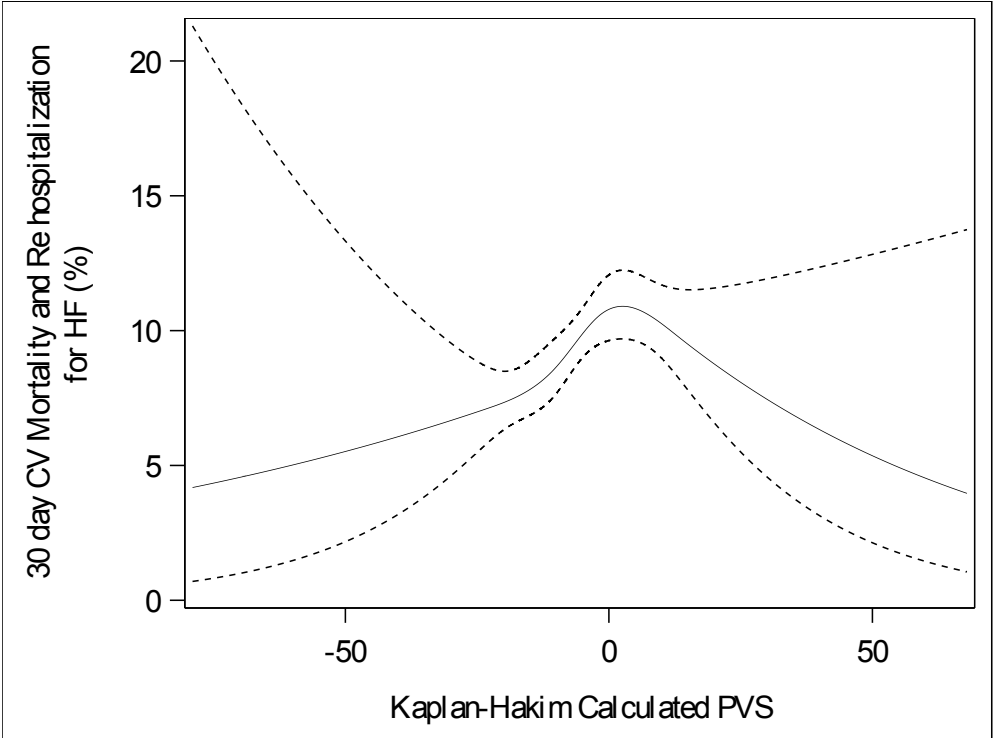
Supplementary Figure 1: Scatter plot demonstrating the strong correlation between KH ePVS and Duarte ePV ($r=0.738$, $p<0.001$).



Supplementary Figure 2: Relationship between and composite of 30-day CV mortality or HF hospitalization modeled using a piecewise linear spline with a single knot at 0.



Supplementary Figure 3: Relationship between KH ePVS and composite of 30-day CV mortality or HF hospitalization modeled using a piecewise linear spline with a single knot at 0.



Supplementary Table 1: Correlation between estimated plasma volume and in hospital weight loss, urine output at 24 hours, and baseline NT-proBNP

Variable 1	Variable 2	N	r[†]	P-value
Kaplan-Hakim ePVS	Duarte ePV	6345	0.738	<.001
Duarte ePV	In-hospital change in Body Weight (kg)	3878	0.008	0.611
Duarte ePV	Urine Output	5467	-0.005	0.691
Duarte ePV	Baseline NT-proBNP	3301	0.160	<.001
Kaplan-Hakim ePVS	In-hospital change in Body Weight (kg)	3891	0.147	<.001
Kaplan-Hakim ePVS	Urine Output	5495	-0.129	<.001
Kaplan-Hakim ePVS	Baseline NT-proBNP	3321	0.275	<.001

[†] Spearman's rank correlation coefficient.

Supplementary Table 2.1: Association between components of PVS and 30 day all-cause mortality

	Unadjusted		Adjusted [†]		
	OR (95% CI)	P-value	OR (95% CI)	P-value	C-index
KH components					
Hematocrit (per 0.1 unit increase)	0.04 (0.01, 0.18)	<.001	0.26 (0.05, 1.28)	0.098	0.707
Weight (per 10 kg increase)	1.03 (1.00, 1.06)	0.097	1.08 (1.04, 1.11)	<.001	
Female	0.924 (0.78, 1.10)	0.364	1.05 (0.87, 1.27)	0.598	
Duarte components					
Hematocrit (per 0.1 unit increase)	0.04 (0.01, 0.18)	<.001	0.31 (0.02, 3.42)	0.340	0.701
Hemoglobin (truncated) (per 5 g/dL increase)	0.71 (0.58, 0.88)	0.002	0.98 (0.68, 1.40)	0.837	
† Adjustment variables include: Age (low/high), baseline BUN (log), dyspnea, hospitalization in prior year, baseline sodium (high), JVP, baseline systolic blood pressure (high), NT-proBNP.					

Supplementary Table 2.2: Association between components of PVS and 180 day all-cause mortality

Table 6.1: Association between components of PVS and 180 day all-cause mortality					
	Unadjusted		Adjusted [†]		
	HR (95% CI)	P-value	HR (95% CI)	P-value	C-index
KH components					
Hematocrit (per 0.1 unit increase)	0.72 (0.64, 0.81)	<.001	0.59 (0.16, 2.13)	0.417	0.709
Weight (per 10 kg increase)	0.91 (0.89, 0.94)	<.001	0.98 (0.95, 1.01)	0.197	
Female	1.02 (0.89, 1.17)	0.801	0.97 (0.84, 1.13)	0.726	
Duarte components					
Hematocrit (per 0.1 unit increase)	0.72 (0.64, 0.81)	<.001	1.04 (0.14, 7.74)	0.968	0.709
Hemoglobin (truncated) (per 5 g/dL increase)	0.69 (0.59, 0.80)	<.001	0.91 (0.71, 1.18)	0.476	
† Adjustment variables include: Age (low/high), baseline BUN (log), dyspnea, hospitalization in prior year, baseline sodium (high), JVP, baseline systolic blood pressure (high), NT-proBNP.					

Supplementary Table 3: Association between ePVS and Outcomes Modified by Heart Failure Type

Outcome	HFrEF (LVEF ≤ 40%)	HFpEF (LVEF > 40%)	Interaction
	HR/OR (95% CI)	HR/OR (95% CI)	P-Value
30 day CV Mortality and Re hospitalization for HF (adjusted)			
Continuous Duarte ePV			
1 unit increase Duarte ePV	1.1 (1.01-1.2)	1.1 (0.9-1.35)	0.978
Quartile-based Duarte ePV			
Q1	Reference	Reference	0.227
Q2	1.19 (0.86-1.64)	3.62 (1.02-12.86)	
Q3	1.52 (1.12-2.07)	2.51 (0.69-9.09)	
Q4	1.41 (1.02-1.93)	3.69 (1.1-12.34)	
Continuous KH			
KH ePVS ≤0 (per 10 unit increase) ⁺	1.2 (1.02-1.4)	1.12 (0.75-1.68)	0.774
KH ePVS >0 (per 10 percent increase) ⁺	0.68 (0.53-0.86)	1.07 (0.6-1.88)	0.148
Quartile-based KH			
Q1	Reference	Reference	0.476
Q2	1.2 (0.87-1.65)	0.74 (0.3-1.82)	
Q3	1.3 (0.95-1.78)	1.31 (0.61-2.8)	
Q4	0.93 (0.67-1.29)	1.12 (0.52-2.42)	
180 Day Mortality (adjusted)			
Continuous Duarte ePV			
1 unit increase Duarte ePV	1.04 (0.97-1.12)	1.02 (0.88-1.19)	0.822
Quartile-based Duarte ePV			
Q1	Reference	Reference	0.079
Q2	1.08 (0.83-1.42)	0.74 (0.38-1.48)	
Q3	1.36 (1.05-1.75)	0.55 (0.27-1.11)	
Q4	1.19 (0.92-1.55)	0.94 (0.52-1.7)	
Continuous KH			
10 percent increase PVS	1.07 (1-1.15)	1.16 (0.96-1.4)	0.444
Quartile-based KH			
Q1	Reference	Reference	0.277
Q2	1.46 (1.09-1.97)	1.03 (0.53-2)	
Q3	1.54 (1.15-2.05)	0.85 (0.45-1.6)	
Q4	1.48 (1.11-1.98)	1.27 (0.7-2.31)	

Outcome	HFrEF (LVEF ≤ 40%)	HFpEF (LVEF > 40%)	Interaction
	HR/OR (95% CI)	HR/OR (95% CI)	P-Value
<p>+ KH ePVS modeled using a piecewise linear spline with a single knot at 0. Hazard ratios are reported for the 180 outcome. Odds ratios are reported for the 30 day outcome. Adjustment variables include: Age, baseline BUN (log), dyspnea, hospitalization in prior year, baseline sodium, JVP, baseline systolic blood pressure, NT-proBNP.</p>			