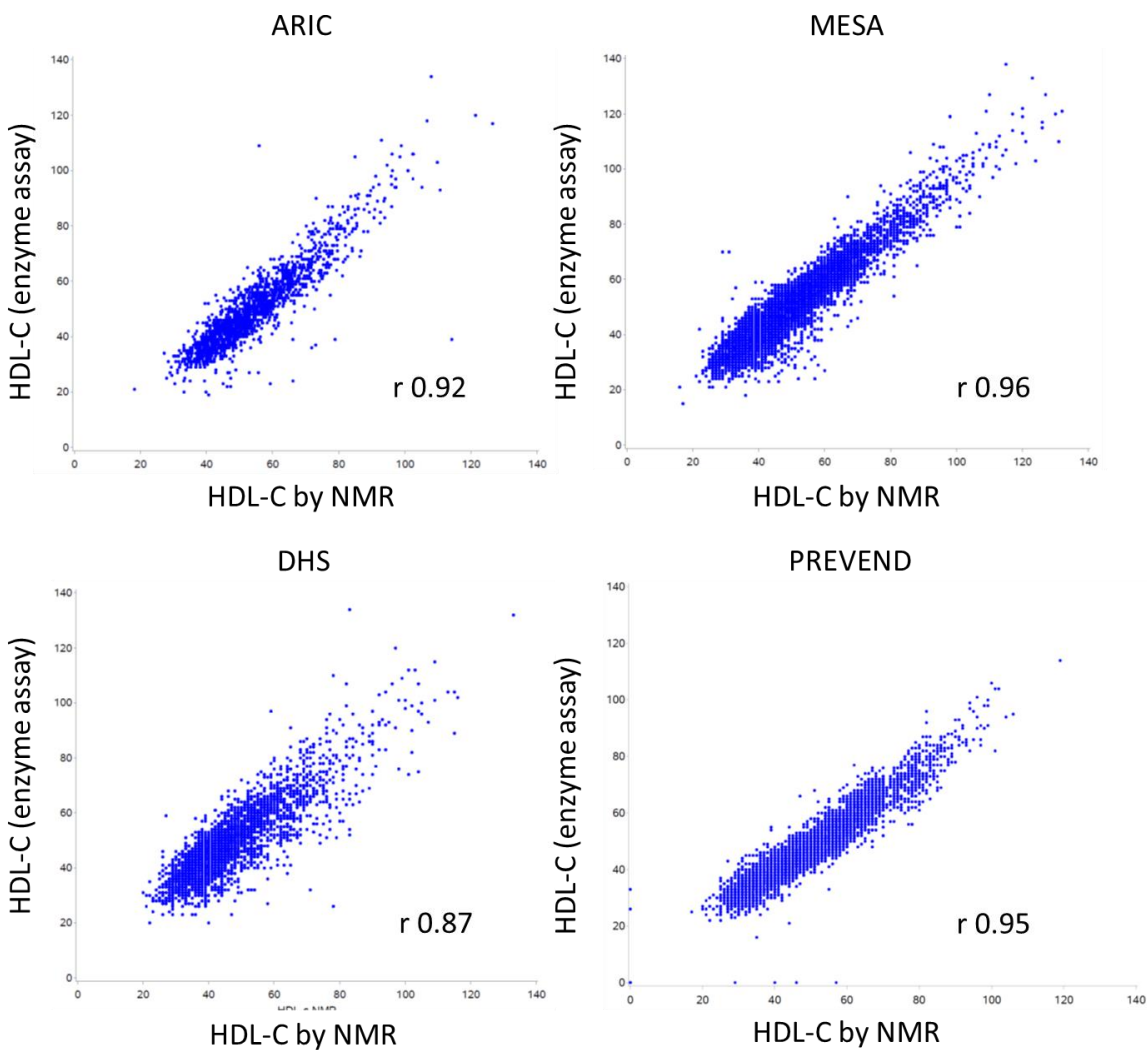


SUPPLEMENTAL MATERIAL

Supplementary Figure I: Scatter plots displaying the spread between HDL-C measured enzymatically and HDL-C derived by NMR LP3 deconvolution algorithm for ARIC, DHS, MESA and PREVEND with Spearman's rank correlation coefficients.



HDL-C=high density lipoprotein concentration; NMR=nuclear magnetic resonance;

ARIC=Atherosclerosis Risk in Communities Study; DHS=Dallas Heart Study;

MESA=Multi-Ethnic Study of Atherosclerosis; PREVEND=Prevention of Renal and Vascular End-stage Disease

Supplementary Table I: Quartiles of HDL-C and HDL-P used for analyses in the overall population. Median values are reported with interquartile intervals in parenthesis.

Quartiles reported are race- and sex-specific.

Quartiles of HDL-C in overall population				
	Quartile 1 (Q1) n=4381	Quartile 2 (Q2) n=4388	Quartile 3 (Q3) n=4264	Quartile 4 (Q4) n=4416
HDL-C (mg/dL)	36 (32.8-40.3)	45.2 (40-49)	53 (46-57)	65 (57.7-72.8)
HDL-P (µmol/L)	28.3 (25.5-31.4)	31.4 (28.5-34.4)	33.6 (30.7-37.2)	37.2 (33.6-41.3)
HDL size (nm)	8.8 (8.6-9.0)	9.0 (8.7-9.3)	9.2 (8.9-9.6)	9.7 (9.3-9.9)
Quartiles of HDL-P in overall population				
	Quartile 1 (Q1) n=4353	Quartile 2 (Q2) n=4377	Quartile 3 (Q3) n=4365	Quartile 4 (Q4) n=4368
HDL-C (mg/dL)	39 (34.1-45.1)	45.6 (40.0-52.8)	50 (43.9-58.0)	58 (50.0-68.0)
HDL-P (µmol/L)	26.5 (24.6-28.3)	30.9 (29.1-32.6)	34.7 (32.4-36.5)	40.1 (37.2-43.2)
HDL size (nm)	8.9 (8.6-9.3)	9.1 (8.7-9.5)	9.2 (8.8-9.6)	9.3 (9.0-9.6)

HDL-C=high density lipoprotein concentration; HDL-P=high density lipoprotein particle concentration.

Supplementary Table II: Quartiles of HDL-C divided by race and gender. Median values are reported with interquartile intervals in parenthesis. Quartiles reported are race- and sex-specific.

Quartiles of HDL-C (mg/dL) by gender				
	Quartile 1 (Q1)	Quartile 2 (Q2)	Quartile 3 (Q3)	Quartile 4 (Q4)
Women	40 (37.0-43.0)	49 (47.0-51.0)	57 (54.9-59.0)	70 (65.0-78.0)
Men	33 (31.0-35.0)	40 (38.3-41.0)	46 (44.0-48.0)	57 (53.0-63.1)
Quartiles of HDL-C (mg/dL) by race				
	Quartile 1 (Q1)	Quartile 2 (Q2)	Quartile 3 (Q3)	Quartile 4 (Q4)
White	35.6 (32.2-40.0)	45.0 (39.7-49.0)	53 (45.6-56.9)	64.1 (56.4-71.9)
Black	37 (34.0-41.0)	46 (42.0-50.0)	55 (50.0-59.0)	67 (64.0-77.0)

HDL-C=high density lipoprotein concentration.

Supplementary Table III: Quartiles of HDL-P divided by race and gender. Median values are reported with interquartile intervals in parenthesis. Median values are reported with interquartile intervals in parenthesis.

Quartiles of HDL-P ($\mu\text{mol/L}$) by gender				
	Quartile 1 (Q1)	Quartile 2 (Q2)	Quartile 3 (Q3)	Quartile 4 (Q4)
Women	28.1 (26.4-29.5)	32.5 (31.7-33.5)	36.4 (35.3-37.4)	42.0 (40.2-45.2)
Men	25.2 (23.5-26.3)	29.0 (28.2-29.8)	32.3 (31.4-33.1)	37 (35.3-39.6)
Quartiles of HDL-P ($\mu\text{mol/L}$) by race				
	Quartile 1 (Q1)	Quartile 2 (Q2)	Quartile 3 (Q3)	Quartile 4 (Q4)
White	26.5 (24.7-28.4)	30.9 (29.0-32.7)	34.5 (32.2-36.4)	39.9 (36.9-43.0)
Black	26.4 (24.4-28.0)	31.1 (29.9-32.6)	35.0 (33.4-36.8)	40.9 (39.0-43.7)

HDL-P=high density lipoprotein particle concentration.

Supplementary Table IV: Hazard ratios of quartiles of HDL-size and HDL-C/HDL-P.

	Outcome	Hazard ratio Q4 vs Q1	95% CI
HDL size	Ischemic Stroke	1.05	0.75-1.47
	MI	0.86	0.66-1.13
	Stroke + MI	0.89	0.72-1.11
	Composite	0.91	0.77-1.09
HDL-C/HDL-P	Ischemic Stroke	1.00	0.72-1.39
	MI	1.03	0.79-1.35
	Stroke + MI	0.99	0.80-1.23
	Composite	1.00	0.84-1.20

MI=myocardial infarction; HDL-C=high density lipoprotein concentration; HDL-P=high density lipoprotein particle concentration

Supplementary Table V: Hazard ratios of HDL-size/HDL-P and 1/HDL-P with CV events.

Cox proportional hazards models of quartile 4 (Q4) vs quartile 1 (Q1) of HDL-size/HDL-P and the inverse ratio of HDL-P for stroke, MI and composite ASCVD outcomes in the overall population. This model is adjusted for risk factors (age, race, gender, diabetes, hypertension, smoking, LDL-C, triglycerides, BMI, waist circumference and hs-CRP) as well as cohorts.

		HDL-size/HDL-P HR Q4 vs Q1 (95% CI)	1/HDL-P HR Q4 vs Q1 (95% CI)
Outcomes	Ischemic Stroke	1.45 (1.05 -2.01)	1.52 (1.09-2.12)
	MI	1.59 (1.23-2.07)	1.57 (1.22-2.01)
	Stroke + MI	1.54 (1.26-1.90)	1.56 (1.27-1.92)
	Composite	1.51 (1.28-1.78)	1.56 (1.33-1.84)

MI=myocardial infarction; HDL-size=high density lipoprotein size; HDL-P=high density lipoprotein particle concentration; HR=hazard ratio; CI=confidence interval.