Supplemental Material

Table S1. Baseline Characteristics by Cohort.

	Overall			KPNC			MGB		
	PWH	Control	Std. mean difference[1]	PWH	Control	Std. mean difference[1]	PWH	Control	Std. mean difference[1]
	N=9412	N= 32322		N=7260	N=24597		N=2152	N=7725	
Demographics									
Age, median (Q1, Q3)	45.1 (39.1, 51.4)	43.6 (34.5, 52.4)	0.16	45.7 (39.5, 52.0)	44.4 (35.4, 52.6)	0.18	43.3 (38.0, 49.3)	40.9 (31.8, 51.7)	0.10
Male sex, N (%)	8148 (86.6%)	27719 (85.8%)		6519 (89.8%)	22050 (89.6%)		1629 (75.7%)	5669 (73.4%)	
Race/ethnicity									
Black, N (%)	1649 (17.5%)	5895 (18.2%)		1079 (14.9%)	3949 (16.1%)		570 (26.5%)	1946 (25.2%)	
Hispanic, N (%)	1586 (16.9%)	5737 (17.7%)		1315 (18.1%)	4705 (19.1%)		271 (12.6%)	1032 (13.4%)	
White, N (%)	4933 (52.4%)	16313 (50.5%)		3838 (52.9%)	12348 (50.2%)		1095 (50.9%)	3965 (51.3%)	
Other, N (%)	857 (9.1%)	2982 (9.2%)		722 (9.9%)	2463 (10.0%)		135 (6.3%)	519 (6.7%)	
Unknown/missing, N (%)	387 (4.1%)	1395 (4.3%)		306 (4.2%)	1132 (4.6%)		81 (3.8%)	263 (3.4%)	
Traditional CVD risk factors									
Hypertension, N (%)	2219 (23.6%)	8185 (25.3%)		1687 (23.2%)	5566 (22.6%)		532 (24.7%)	2619 (33.9%)	

	Overall			KPNC			MGB		
	PWH	**Control**	**Std. mean difference[1]**	**PWH**	**Control**	**Std. mean difference[1]**	**PWH**	**Control**	**Std. mean difference[1]**
	N=9412	N= 32322		N=7260	N=24597		N=2152	N=7725	
Systolic blood pressure, median (Q1, Q3)	122 (112,132)	123.4 (15.11)	-0.01	122 (113, 132)	123 (114, 132)	-0.01	121 (111, 132)	120 (110, 130)	0.01
Diastolic blood pressure, median (Q1, Q3)	76 (69, 83)	76 (69, 82)	0.02	75 (68, 82)	75 (68, 82)	0.02	79 (70, 85)	78 (70.0, 84.0)	0.03
Hypertension treatment, N (%)	2547 (27.1%)	8441 (26.1%)		1950 (26.9%)	6075 (24.7%)		597 (27.7%)	2366 (30.6%)	
Hyperlipidemia, N (%)	2984 (31.7%)	8352 (25.8%)		2424 (33.4%)	5361 (21.8%)		560 (26.0%)	2991 (38.7%)	
Total cholesterol, median (Q1, Q3)	179 (152, 207)	180.6 (40.10)	0.02	181 (154, 209)	179 (155, 207)	0.04	172 (144, 202)	174 (149, 202)	-0.03
HDL cholesterol, median (Q1, Q3)	42 (35, 51)	44.5 (12.09)	-0.04	43 (35, 52)	43 (37, 51)	-0.04	40 (32, 51)	42 (35, 50)	-0.05
Statin treatment, N (%)	1441 (15.3%)	4226 (13.1%)		1220 (16.8%)	3069 (12.5%)		221 (10.3%)	1157 (15.0%)	
Diabetes mellitus, N (%)	573 (6.1%)	2059 (6.4%)		399 (5.5%)	1409 (5.7%)		174 (8.1%)	650 (8.4%)	
Smoking, N (%)	2461 (26.1%)	8835 (27.3%)		1523 (21.0%)	5539 (22.5%)		938 (43.6%)	3296 (42.7%)	
CHD event, N (%)	158	402 (1.2%)		121 (1.7%)	306		37	96	

	Overall			KPNC			MGB		
	PWH	**Control**	**Std. mean difference[1]**	**PWH**	**Control**	**Std. mean difference[1]**	**PWH**	**Control**	**Std. mean difference[1]**
	N=9412	N= 32322		N=7260	N=24597		N=2152	N=7725	
	(1.7%)				(1.2%)		(1.7%)	(1.2%)	
CVD event, N (%)	309 (3.3%)	803 (2.5%)		252 (3.5%)	634 (2.6%)		57 (2.6%)	169 (2.2%)	
HIV-related factors									
CD4 count, median (Q1, Q3)	492 (316, 690)			509 (334, 703)			438 (263, 657)		
CD4 count nadir, median (Q1, Q3)	283 (132, 468)			310 (166, 498)			181 (54, 346)		
HIV RNA <400 (copies/ml), N (%)	6356 (68.0%)			5317 (73.9%)			1039 (48.3%)		
Antiretroviral therapy, N (%)	7833 (83.2%)			6065 (83.5%)			1768 (82.2%)		
NRTI, N (%)[2]	7618 (97.3%)			5947 (98.1%)			1671 (94.5%)		
NNRTI, N (%)[2]	3871 (49.4%)			3001 (49.5%)			870 (49.2%)		
PI, N (%)[2]	3281 (41.9%)			2449 (40.4%)			832 (47.1%)		
INSTI, N (%)[2]	1609 (20.5%)			1377 (22.7%)			232 (13.1%)		

	Overall			KPNC			MGB		
	PWH	**Control**	**Std. mean difference**[1]	**PWH**	**Control**	**Std. mean difference**[1]	**PWH**	**Control**	**Std. mean difference**[1]
	N=9412	N= 32322		N=7260	N=24597		N=2152	N=7725	
Other, N (%)[2]	1450 (18.5%)			714 (11.8%)			736 (41.6%)		
Duration HIV, median (Q1, Q3)	6.5 (1.3, 14.1)			9.4 (3.5, 16.1)			0.8 (0.0, 3.8)		
Cohort characteristics									
Year of baseline, median (Q1, Q3)	2009 (2006, 2013)	2009 (2006, 2013)	-0.05	2010 (2007, 2014)	2010 (2007, 2014)	-0.06	2005 (2002, 2009)	2005 (2003, 2008)	-0.08

[1] Standardized mean difference is calculated as a difference between PWH mean vs. control mean divided by a pooled standard deviation
[2] Percent of those on ART
KPNC, Kaiser Permanente Northern California; MGB, Mass General Brigham; CVD, cardiovascular disease; HDL, high-density lipoprotein; CHD, coronary heart disease; NRTI, nucleoside reverse transcriptase inhibitor; NNRTI, non-nucleoside reverse transcriptase inhibitor; PI, protease inhibitor; INSTI, Integrase strand transfer inhibitor.

Table S2. CVD Risk Scores, Discrimination and Calibration by Cohort.

	N	Median Years of Follow-up (Q1,Q3)	Events	Median Risk Score (Q1,Q3)	Discrimination c statistic (95% CI)	Calibration χ^2	Calibration p-value
MGB							
ACC/AHA							
Women	312	7.35 (3.17, 10.00)	11	0.022 (0.009, 0.055)	0.779 (0.633, 0.926)	N/A	N/A
Men	1107	6.54 (2.33, 10.00)	37	0.054 (0.029, 0.098)	0.727 (0.634, 0.821)	13.88	0.0077
FHS CHD							
Women	522	8.31 (3.35, 10.00)	7	0.007 (0.004, 0.017)	0.953(0.926, 0.980)	N/A	N/A
Men	1628	6.65 (2.40,10.00)	30	0.034 (0.019,0.060)	0.748 (0.668, 0.827)	13.07	0.0045
FHS CVD							
Women	522	8.08 (3.32, 10.00)	14	0.013 (0.007, 0.025)	0.745 (0.605, 0.885)	3.40	0.0652
Men	1628	6.48 (2.38, 10.00)	43	0.039 (0.022, 0.068)	0.731 (0.646, 0.817)	7.04	0.0707
KPNC							
ACC/AHA							
Women	498	5.92 (2.90, 10.00)	20	0.017 (0.009, 0.040)	0.787 (0.679, 0.895)	5.45	0.0654
Men	4819	5.21 (2.53, 9.76)	211	0.046 (0.025,0.084)	0.706 (0.670, 0.743)	15.76	0.0460

	N	Median Years of Follow-up (Q1,Q3)	Events	Median Risk Score (Q1,Q3)	Discrimination c statistic (95% CI)	Calibration χ^2	Calibration p-value
FHS CHD							
Women	739	5.45 (2.65, 10.00)	8	0.007 (0.003, 0.014)	0.869 (0.785, 0.953)	N/A[1]	N/A[1]
Men	6505	4.92 (2.34, 9.65)	113	0.030 (0.012, 0.053)	0.711 (0.658, 0.763)	24.0513	0.0011
FHS CVD							
Women	739	5.40 (2.61, 10.00)	22	0.013 (0.008, 0.026)	0.811 (0.732,0.890)	8.75821	0.0125
Men	6505	4.83 (2.28, 9.47)	224	0.037 (0.021, 0.064)	0.722 (0.686, 0.758)	16.6573	0.0544

[1]N/A indicates that there were not enough events to obtain the calibration results.
CVD, cardiovascular disease; MGB, Mass General Brigham; ACC/AHA, American College of Cardiology/American Heart Association; FHS, Framingham Heart Study; CHD, coronary heart disease; KPNC, Kaiser Permanente Northern California.

Table S3. Coefficients for CHD and CVD risk functions.

Risk Factor	Men		Women	
	Original Function Beta	HIV Dataset Beta (Std. Err.)	Original Function Beta	HIV Dataset Beta (Std. Err)
ACC/AHA				
White Coefficients				
Ln Age	12.344	-8.607 (10.43)	−29.799	-59.83 (92.84)
Ln Total Cholesterol	11.853	-7.889 (8.34)	13.540	43.58 (28.32)
Ln HDL Cholesterol	-7.990	-2.439 (6.27)	−13.578	-38.23 (18.71)
Ln Treated SBP	1.797	1.068 (0.57)	2.019	1.405 (1.85)
Ln Untreated SBP	1.764	0.998 (0.57)	1.957	1.273 (1.88)
Smoking	7.837	4.369 (4.50)	7.574	-21.86 (15.93)
Diabetes	0.658	0.221 (0.224)	0.661	0.792 (0.68)
Ln Age x Ln Total Cholesterol	-2.664	2.251 (2.11)	−3.114	-11.42 (7.22)
Ln Age x Ln HDL Cholesterol	1.769	0.312 (1.58)	3.149	9.64 (4.75)
Ln Age x Smoking	-1.795	-0.931 (1.14)	−1.665	5.86 (4.08)
Ln Age x Ln Age	NA	NA	4.884	10.53 (10.35)
African-American Coefficients				
Ln Age	2.469	1.977 (1.18)	17.114	38.75 (57.03)
Ln Total Cholesterol	0.302	0.171 (0.71)	0.940	0.651 (1.01)
Ln HDL Cholesterol	−0.307	-0.079 (0.52)	−18.920	-21.63 (24.78)
Ln Treated SBP	1.916	3.495 (1.36)	29.291	45.12 (44.26)
Ln Untreated SBP	1.809	3.543 (1.38)	27.820	43.73 (45.06)
Smoking	0.549	0.798 (0.33)	0.691	1.220 (0.55)
Diabetes	0.645	0.868 (0.38)	0.874	-0.522 (0.82)
Ln Age x Ln HDL Cholesterol	NA	NA	4.475	5.108 (6.30)
Ln Age x Ln Treated SBP	NA	NA	−6.432	-11.00 (11.13)
Ln Age x Ln Untreated SBP	NA	NA	−6.087	-10.71 (11.33)
FHS CHD				
Age	0.05	0.067 (0.010)	0.17	0.380 (0.335)

Risk Factor	Men		Women	
	Original Function Beta	HIV Dataset Beta (Std. Err.)	Original Function Beta	HIV Dataset Beta (Std. Err)
Age Squared	-	-	0.001	-0.003 (0.003)
Blood Pressure				
Optimal (SBP<120, DBP<80)	0.09	-0.089 (0.247)	-0.74	-1.188 (0.810)
Normal (SBP<130, DBP<85)	Reference		Reference	
High Normal (SBP<140, DBP<90)	0.42	0.280 (0.248)	-0.37	-1.739 (1.226)
Stage I HTN (SBP<160, DBP<100)	0.66	0.602 (0.243)	0.22	0.433 (0.747)
Stage II-IV HTN (SBP≥160, DBP≥100)	0.9	0.191 (0.421)	0.61	0.458 (0.944)
Total Cholesterol				
< 160	-0.38	-0.073 (0.219)	0.21	21 (12185)
160-199	Reference		Reference	
200-239	0.57	0.033 (0.225)	0.44	20 (12185)
240-279	0.74	0.219 (0.314)	0.56	22 (12185)
>= 280	0.83	1.027 (0.364)	0.89	23 (12185)
HDL				
<35	0.61	0.156 (0.293)	0.73	19 (3053)
35-44	0.37	0.300 (0.275)	0.60	18 (3053)
45-49	Reference		0.60	2.04 (3769)
50-59	0	-0.430 (0.361)	Reference	
>= 60	-0.46	-0.485 (0.413)	0.54	17 (3053)
Diabetes	0.53	0.677 (0.239)	0.87	0.309 (0.729)
Smoking	0.73	0.843 (0.175)	0.98	2.484 (0.682)
FHS CVD				
Ln Age	3.061	3.351 (0.38)	2.329	2.838 (1.00)
Ln Total Cholesterol	1.124	0.781 (0.26)	1.209	-0.479 (0.65)
Ln HDL Cholesterol	-0.933	-1.028 (0.19)	-0.708	-0.807 (0.50)

Risk Factor	Men		Women	
	Original Function Beta	HIV Dataset Beta (Std. Err.)	Original Function Beta	HIV Dataset Beta (Std. Err)
Ln Treated SBP	1.999	1.371 (0.50)	2.822	2.319 (1.08)
Ln Untreated SBP	1.933	1.313 (0.50)	2.762	2.122 (1.10)
Smoking	0.655	0.684 (0.13)	0.529	1.060 (0.34)
Diabetes	0.574	0.338 (0.19)	0.692	0.245 (0.47)

CHD, coronary heart disease; CVD, cardiovascular disease; ACC/AHA, American College of Cardiology/American Heart Association; HDL, high-density lipoprotein; SBP, systolic blood pressure; FHS, Framingham Heart Study; DBP, diastolic blood pressure.

Table S4. Observed and Predicted Risk by Tertile among Individuals without HIV.

	ACC/AHA			FHS CHD			FHS CVD		
	Tertile 1	Tertile 2	Tertile 3	Tertile 1	Tertile 2	Tertile 3	Tertile 1	Tertile 2	Tertile 3
Men									
Predicted Risk	0.022	0.060	0.166	0.014	0.035	0.099	0.016	0.041	0.116
Observed Risk	0.028	0.059	0.114	0.006	0.022	0.052	0.015	0.039	0.099
Predicted-to-Observed Risk Ratio	0.79	1.02	1.46	2.33	1.59	1.90	1.07	1.05	1.17
Women									
Predicted Risk	0.006	0.022	0.108	0.002	0.007	0.038	0.005	0.013	0.046
Observed Risk	0.010	0.028	0.059	0.003	0.005	0.022	0.005	0.017	0.046
Predicted-to-Observed Risk Ratio	0.60	0.79	1.83	0.67	1.40	1.72	1.00	0.76	1.00

Demler/D'Agostino-Nam χ^2 (p-value) for men: χ^2=83.44 (p<0.0001) for ACC/AHA; χ^2=248 (p<0.0001) for FHS CHD; χ^2=13.86 (p=0.001) for FHS CVD.
Demler/D'Agostino-Nam χ^2 (p-value) for women: χ^2=21.93 (p<0.0001) for ACC/AHA; χ^2=9.33 (p=0.009) for FHS CHD; χ^2=0.58 (p=0.747) for FHS CVD.
ACC/AHA, American College of Cardiology/American Heart Association; FHS, Framingham Heart Study; CHD, coronary heart disease; CVD, cardiovascular disease.