

## **Supplementary Material**

# **Estimated pulse wave velocity as a novel non-invasive biomarker for metabolic syndrome among people living with HIV**

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**Supplementary Table 1: Demographics and clinical characteristics of participants grouped by the new cutoff of ePWV.**

Characteristics	Overall (N = 485)	Normal risk of MetS (N = 284)	High risk of MetS (N = 201)	P value
Age, years	35.43 ± 12.01	28.63 ± 5.91	45.03 ± 11.88	<b>&lt;0.001</b>
Sex, male	447 (92.16%)	266 (93.66%)	181(90.05%)	0.145
Smoking	150 (36.14%)	75 (30.61%)	75 (44.12%)	<b>0.005</b>
Alcoholism	77 (18.51%)	44 (17.96%)	33 (19.30%)	0.729
Regularly exercise	159 (38.22%)	88 (35.92%)	71 (41.52%)	0.247
Sleep deprivation	68 (16.35%)	38 (15.51%)	30 (17.54%)	0.581
Anxiety/depression	91 (21.88%)	54 (22.04%)	37 (21.64%)	0.922
CVD Family history	152 (36.54%)	72 (29.39%)	80 (46.78%)	<b>&lt;0.001</b>
BMI, kg/m <sup>2</sup>	22.23 [19.75, 24.49]	21.28 [18.92, 23.76]	23.24 [21.05, 25.65]	<b>&lt;0.001</b>
SBP, mmHg	126.32 ± 13.42	120.37 ± 9.28	134.74 ± 13.87	<b>&lt;0.001</b>
DBP, mmHg	86.44 ± 9.72	83.08 ± 8.11	91.17 ± 9.85	<b>&lt;0.001</b>
MBP, mmHg	102.02 ± 10.03	97.64 ± 7.35	108.21 ± 10.07	<b>&lt;0.001</b>
AIDS stage	213 (43.92%)	127 (44.72%)	86 (42.79%)	0.673
CD4+ T counts, cells/μl	799.70 ± 351.37	815.10 ± 350.85	777.95 ± 351.82	0.252
CD8+ T counts, cells/μl	492.59 ± 233.91	526.02 ± 232.69	445.34 ± 227.94	<b>&lt;0.001</b>
HAART duration, months	27.08 ± 18.57	26.26 ± 18.59	28.23 ± 18.53	0.250
Viral load (log <sub>10</sub> ), UI/ml	2.00 [2.00, 2.00]	2.00 [2.00, 2.00]	2.00 [2.00, 2.00]	0.537
CAP, dB/m	222.83 ± 49.84	211.86 ± 44.50	238.33 ± 52.87	<b>&lt;0.001</b>

LSM, kPa	5.21 ± 1.31	5.04 ± 0.87	5.45 ± 1.73	<b>0.002</b>
TG, mmol/L	1.67 ± 1.22	1.40 ± 0.83	2.05 ± 1.55	<b>&lt;0.001</b>
CHOL, mmol/L	4.33 ± 0.95	4.16 ± 0.81	4.56 ± 1.08	<b>&lt;0.001</b>
HDL-C, mmol/L	1.15 ± 0.23	1.18 ± 0.24	1.11 ± 0.21	<b>&lt;0.001</b>
LDL-C, mmol/L	2.77 ± 0.74	2.64 ± 0.65	2.95 ± 0.82	<b>&lt;0.001</b>
ALT, U/L	28.99 ± 24.28	28.89 ± 27.82	29.14 ± 18.21	0.904
AST, U/L	24.36 ± 15.01	24.08 ± 17.94	24.75 ± 9.46	0.599
FPG, mmol/L	5.15 [4.84, 5.58]	5.07 [4.77, 5.36]	5.31 [4.99, 5.97]	<b>&lt;0.001</b>
HbA1c, %	5.49 ± 0.85	5.27 ± 0.49	5.79 ± 1.13	<b>&lt;0.001</b>
UA, μmmol/L	369.46 ± 90.86	377.35 ± 87.73	358.31 ± 94.20	<b>0.025</b>
eGFR, mL/min/1.73m <sup>2</sup>	103.78 ± 18.06	110.75 ± 14.68	93.94 ± 17.84	<b>&lt;0.001</b>

**Notes,** Continuous variables are expressed as mean ± standard deviation or median [interquartile range], and categorical variables are expressed as n (%). Bold text indicates P value < 0.05.

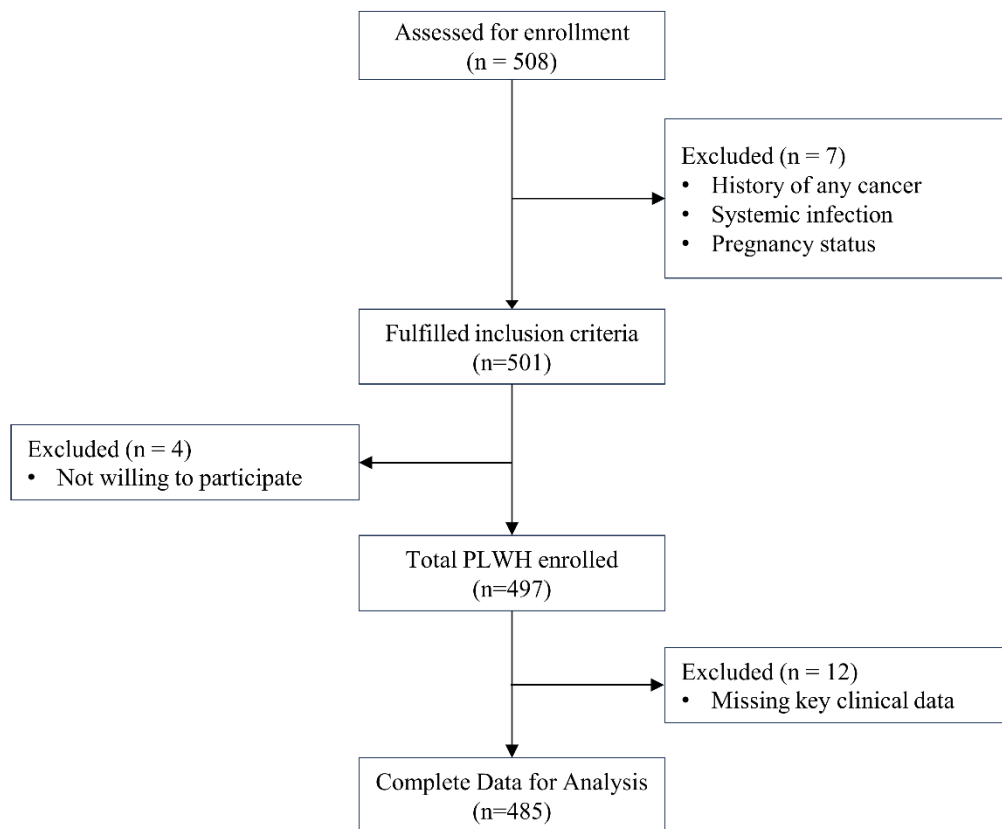
**Abbreviations,** CVD, cardiovascular disease; BMI, body mass index; MBP, mean blood pressure; SBP, systolic blood pressure; DBP, diastolic blood pressure; AIDS, acquired immunodeficiency syndrome; HAART, highly active antiretroviral therapy; CAP, controlled attenuation parameter; LSM, liver stiffness measurement; TG, total triglycerides; CHOL, total cholesterol; HDL-C, High-density lipoprotein cholesterol; LDL-C, Low-density lipoprotein cholesterol; ALT, alanine aminotransferase; AST, aspartic aminotransferase; FPG, Fasting plasma glucose; HbA1c, glycated hemoglobin A1c; UA, uric acid; eGFR, estimated glomerular filtration rate.

**Supplementary Table 2: Traditional threshold and new threshold of ePWV on diagnosis of MetS.**

Comparison		MetS of Diagnosis		
		Non-MetS	Mets	Total
Traditional threshold (ePWV = 10.0 m/s)	< 10 m/s	398 (94.09%)	56 (90.32%)	454
	≥ 10 m/s	25 (5.91%)	6 (9.68%)	31
	Total	423	62	485
	Chi-square test		P = 0.265	
New threshold (ePWV = 7.4 m/s)	< 7.4 m/s	271 (64.07%)	13 (20.97%)	284
	≥ 7.4 m/s	152 (35.93%)	49 (79.03%)	201
	Total	423	62	485
	Chi-square test		P < 0.001	

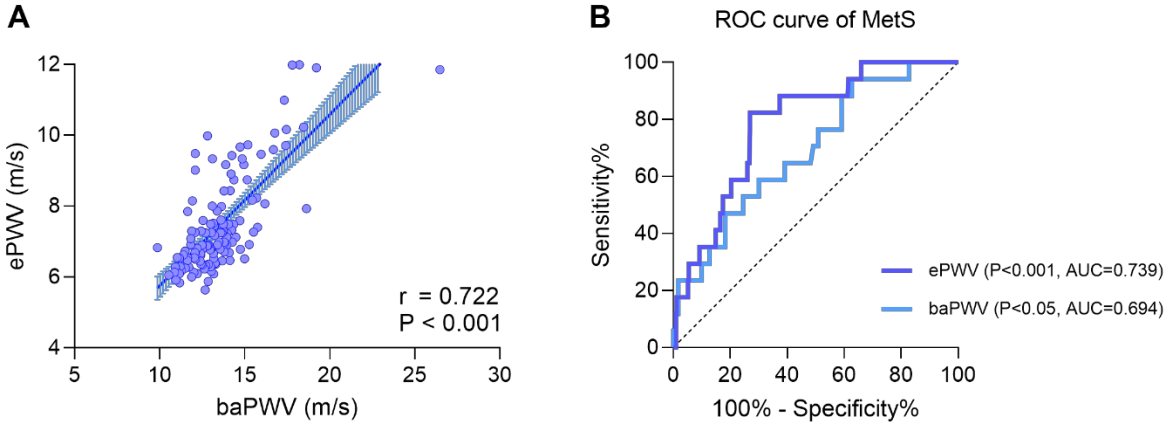
**Abbreviations,** ePWV, estimated pulse wave velocity; MetS, metabolic syndrome.

**Supplementary Figure 1: Study flow diagram for inclusion of participants.**



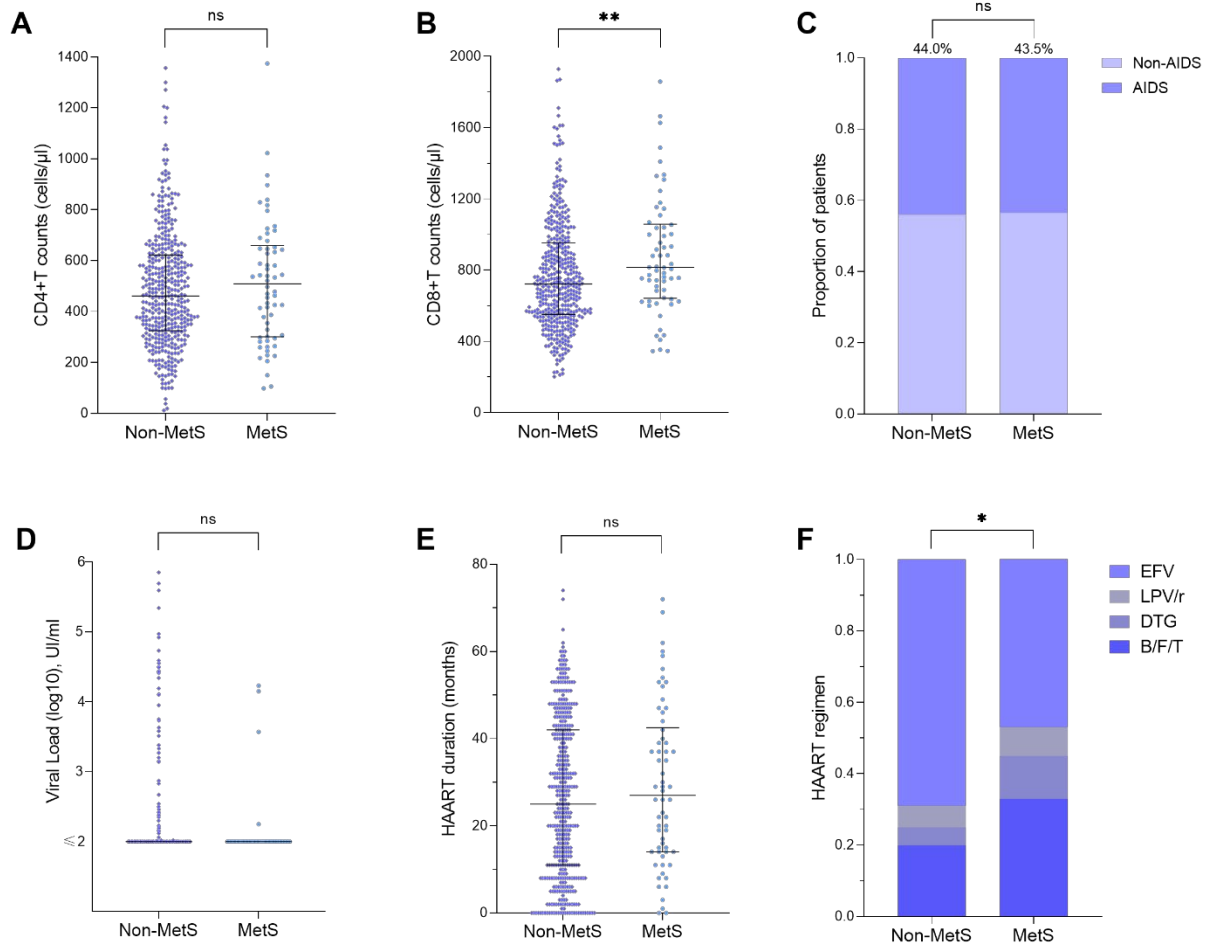
Abbreviations: PLWH, people living with HIV.

**Supplementary Figure 2: Correlation and diagnostic ability of ePWV and baPWV in PLWH.**



(A) Scatter plot of ePWV and baPWV level. (B) The ROC curve of MetS relating to ePWV and baPWV level. Abbreviations: ePWV, estimated pulse wave velocity; baPWV, brachial-ankle pulse wave velocity; MetS, metabolic syndrome.

**Supplementary Figure 3: The influence of HIV infection and HAART between PLWH with or without MetS.**



(A) CD4+T counts level in PLWH between non-MetS group and MetS group (461.00 [325.50, 621.50] versus 509.00 [303.25, 651.75];  $P > 0.05$ ). (B) CD8+T counts level in PLWH between non-MetS group and MetS group (722.00 [552.50, 950.00] versus 816.00 [654.25, 1051.25];  $P < 0.01$ ). (C) The proportion of PLWH in AIDS stage between non-MetS group and MetS group (186 (43.97%) versus 27 (43.55%);  $P > 0.05$ ). (D) HIV viral load level in PLWH between non-MetS group and MetS group (2.00 [2.00, 2.00] versus 2.00 [2.00, 2.00];  $P > 0.05$ ). (E) HAART duration in PLWH between non-MetS group and MetS group (25.00 [11.00, 42.00] versus 27.00 [14.00, 41.50];  $P > 0.05$ ). (F) The proportion of PLWH with different HAART regimens between non-MetS group and MetS group ( $P < 0.05$ ).

Abbreviations: ePWV, estimated pulse wave velocity; AIDS, acquired immunodeficiency syndrome; HAART, highly active antiretroviral therapy; EFV, Efavirenz group; LPV/r, lopinavir/ritonavir group; DTG, dolutegravir group; B/F/T, Bictegravir group.