

Supplementary Table 1. Demographic, clinical, functional and hemodynamic characteristics at baseline for all treatment-naïve patients and all previously-treated patients.

	Treatment-Naïve	Previously-treated	p-value
n	725	208	
Male, n (%)	226 (31)	69 (33)	0.584
Age at diagnosis, years	51 (32-67)	43 (25-62)	<0.001
Age at 1° Bologna evaluation, years	53 (36-67)	47 (31-64)	0.005
Aetiology, n (%)			
I/H/D-PAH	405 (56)	100 (48)	0.090
CTD-PAH	173 (24)	53 (25)	
CHD-PAH	147 (20)	55 (26)	
WHO FC III-IV, n (%)	494 (68)	123 (59)	0.016
6MWD, metres	389 (290-468) n= 686	416 (300-500) n= 196	0.060
BNP (ng/l)	146 (53-313) n= 72	118 (33-272) n= 29	0.428
NT-proBNP (ng/l)	807 (268-2237) n= 332	926 (302-2231) n= 123	0.473
RAP, mmHg	7 (4-10)	7 (5-10)	0.182
mPAP, mmHg	53 (42-64)	52 (41-64)	0.406
PAWP, mmHg	8 (6-10)	9 (7-11)	<0.001
mBP, mmHg	90 (82-99)	84 (76-93)	<0.001
CI, l/min/m²	2.4 (1.9-2.9)	2.8 (2.2-3.4)	<0.001
PVR, Wood units	11 (7-16)	9 (6-14)	0.001
SVR, Wood units	21 (17-26)	18 (14-23)	<0.001
Art O₂ Saturation, %	95 (92-97)	95 (92-97)	0.181
SvO₂ Saturation, %	65 (57-71)	67 (60-73)	0.006

All non-percentage values are median (25th-75th percentile). 6MWD, 6-minute walk distance; Art O₂, arterial oxygen, BNP, brain natriuretic peptide; CHD, congenital heart disease; CI, cardiac index; CTD, connective tissue disease; D-PAH, drug-induced PAH; H-PAH, heritable PAH; I-PAH, idiopathic PAH; mBP, mean blood pressure; mPAP, mean pulmonary arterial pressure; NT-proBNP, N-terminal pro brain natriuretic peptide; PAH, pulmonary arterial hypertension; PAWP, pulmonary artery wedge pressure; PVR, pulmonary vascular resistance; RAP, right atrial pressure; SvO₂, mixed venous oxygen saturation; SVR, systemic vascular resistance; WHO FC, World Health Organization Functional Class

Supplementary Table 2. Risk discrimination characteristics of the proposed Bologna simplified risk table vs the COMPERA and the FPHR strategies for all treatment-naïve patients (both at baseline and at follow-up evaluation) and all previously-treated patients.

	Treatment-naïve population – Baseline evaluation		
	Bologna	COMPERA	FPHR
C-statistic (95% CI)	0.663 (0.638-0.688)	0.658 (0.633-0.683)	0.673 (0.647-0.699)
AIC	3743	3750	3744
BIC	3747	3754	3748
12-month survival (%)			
- Low	100	99.1 (96.5-99.8)	100
- Intermediate	92.3 (89.4-94.5)	88.6 (85.1-91.3)	90.5 (87.0-93.1)
- High	74.8 (66.9-81.2)	73.1 (61.4-81.8)	78.3 (71.0-84.0)
	Treatment-naïve population – Follow-up evaluation		
	Bologna	COMPERA	FPHR
C-statistic (95% CI)	0.692* (0.664-0.720)	0.697 (0.667-0.727)	0.716* (0.686-0.747)
AIC	2840	2832	2827
BIC	2845	2837	2832
12-month survival (%)			
- Low	98.5 (96.0-99.4)	97.8 (95.6-98.9)	97.7 (95.2-98.9)
- Intermediate	88.3 (84.0-91.4)	85.0 (79.5-89.1)	92.9 (88.7-95.6)
- High	76.1 (59.1-86.8)	71.8 (49.7-85.4)	65.3 (53.1-75.1)
	Previously-treated patient population – Baseline evaluation		
	Bologna	COMPERA	FPHR
C-statistic (95% CI)	0.712 (0.662-0.762)	0.724 (0.678-0.770)	0.716 (0.662-0.770)
AIC	668	657	670
BIC	671	660	673
12-month survival (%)			
- Low	100	100	98.7 (90.8-99.8)
- Intermediate	92.3(85.3-96.1)	90.0 (82.7-94.3)	92.1 (84.2-96.2)
- High	70.4 (52.9-82.4)	41.9 (16.5-65.6)	68.6 (50.5-81.2)

*p<0.05 pairwise comparison. AIC, Akaike's information criterion; BIC, Bayesian information criterion; COMPERA, Comparative, Prospective Registry of Newly Initiated Therapies for Pulmonary Hypertension; FPHR, French Pulmonary Hypertension Registry.

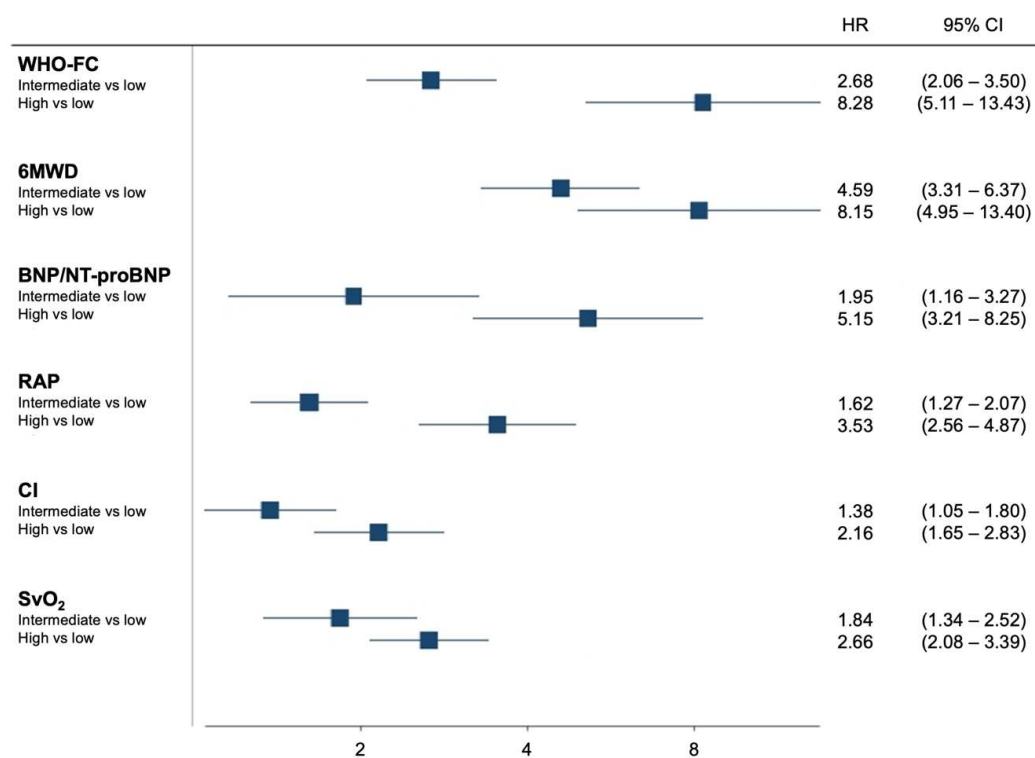
Supplementary Table 3. Cox regression analysis for pair-wise comparisons of risk-groups at baseline and follow-up.

HR (95% CI) p-value	Risk-group comparison	All	IPAH/HPAH/DPAH	CTD-PAH	CHD-PAH
Baseline	Intermediate vs low	2.59 (1.81-3.70) <0.001	3.52 (1.93-6.43) <0.001	2.61 (1.23-5.52) 0.012	1.58 (0.87-2.87) 0.129
	High vs low	7.06 (4.78-10.43) <0.001	8.30 (4.39-15.71) <0.001	5.87 (2.70-12.75) <0.001	6.19 (2.58-14.85) <0.001
	High vs intermediate	2.73 (2.14-3.49) <0.001	2.36 (1.67-3.33) <0.001	2.25 (1.50-3.38) <0.001	3.91 (1.79-8.56) 0.001
Follow-up	Intermediate vs low	4.00 (2.91-5.49) <0.001	4.92 (3.15-7.69) <0.001	3.52 (1.91-6.51) <0.001	2.34 (1.19-4.61) 0.014
	High vs low	9.75 (6.21-15.30) <0.001	10.52 (5.75-19.26) <0.001	6.93 (3.00-16.02) <0.001	18.12 (4.75-69.06) <0.001
	High vs intermediate	2.44 (1.66-3.58) <0.001	2.14 (1.29-3.55) 0.003	1.97 (1.00-3.88) 0.051	7.75 (2.22-27.04) 0.001

Legend: CHD, congenital heart disease; CTD, connective tissue disease; DPAH, drug-induced

PAH; HPAH, heritable PAH; IPAH, idiopathic PAH; PAH, pulmonary arterial hypertension.

Supplementary Figure 1. Forest plot showing the prognostic values of World Health Organization (WHO) functional class (FC), 6-min walking distance (6MWD), brain natriuretic peptide (BNP) or N-terminal fragment of pro-BNP (NT-proBNP), right atrial pressure (RAP), cardiac index (CI), and mixed venous oxygen saturation (SvO₂) in the intermediate-risk and high-risk groups. Values for the parameters were obtained at baseline in the treatment-naïve primary cohort. The reference value is from the respective low-risk group.



Supplementary Figure 2. Risk stratification at baseline for overall previously-treated patient population

