

# Where Do *Your Patients* Want to Be in 5 Years?

Help your patients improve their  
prognosis by achieving low-risk status<sup>1-4</sup>

Risk status can be used to predict your patient's prognosis over the next 3 to 5 years.<sup>1-4</sup>



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# Make Low-Risk the Goal<sup>4,5</sup>

## Having more low-risk criteria may improve your patient's 5-year prognosis<sup>1</sup>

The French PAH Registry\*: Patients were assessed for 4 low-risk criteria; transplant-free survival was estimated based on the number of low-risk criteria present.<sup>1</sup>

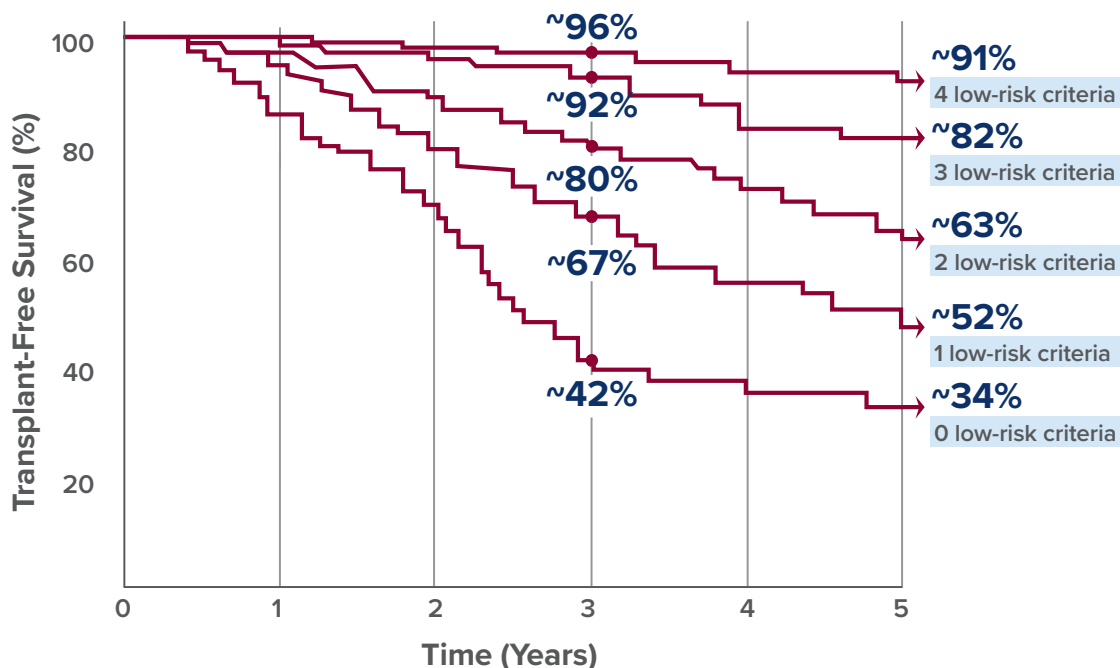
**WHO/NYHA**  
FC I/II

**6MWD**  
>440 m

**RAP**  
<8 mm Hg

**CI**  
≥2.5 L/min/m<sup>2</sup>

**Kaplan–Meier transplant-free survival estimates at follow-up ( $P < 0.001$ )<sup>†</sup>**



**What is your patient's likelihood of survival based on their risk criteria today?**

**WSPH 2018 recommends comprehensive risk assessments every 3 to 6 months<sup>5</sup>**

\*A retrospective analysis (2006–2016) of 1017 patients with PAH.<sup>1</sup>

<sup>†</sup>Median follow-up, 34 (16–56) months. Data are point estimates taken from Kaplan–Meier curves at 3 and 5 years.<sup>1</sup>

# Determine Your Patients' Risk Status Using the ESC/ERS Guidelines

1 point for each  
**low-risk**  
variable

2 points for each  
**intermediate-risk**  
variable

3 points for each  
**high-risk**  
variable

Variables	Low Risk (<5%*)	Intermediate Risk (5%-10%*)	High Risk (>10%*)	Score
WHO FC	I, II	III	IV	
6MWD	>440 m	165-440 m	<165 m	
NT-proBNP plasma levels	NT-proBNP <300 ng/L BNP <50 ng/L	NT-proBNP 300-1400 ng/L BNP 50-300 ng/L	NT-proBNP >1400 ng/L BNP >300 ng/L	
RAP	<8 mm Hg	8-14 mm Hg	>14 mm Hg	
Clinical signs of right heart failure	Absent	Absent	Present	
Progression of symptoms	No	Slow	Rapid	
Syncope	No	Occasional syncope	Repeated syncope	
RA area	<18 cm <sup>2</sup>	18-26 cm <sup>2</sup>	>26 cm <sup>2</sup>	
Pericardial effusion	None	None or minimal	Yes	
CI	≥2.5 L/min/m <sup>2</sup>	2-2.4 L/min/m <sup>2</sup>	<2 L/min/m <sup>2</sup>	
SvO <sub>2</sub>	>65%	60%-65%	<60%	
Total Risk Score:	Divide the sum of all grades by the number of available variables and round to the nearest integer			

Low Risk  
1 to <1.5

Intermediate Risk  
1.5 to <2.5

High Risk  
2.5 to 3



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\*Likelihood of mortality after 1 year.

# Determine Your Patients' Risk Status Using the REVEAL 2.0 Risk Calculator

				Score
WHO Group 1 Subgroup	APAH-CTD <b>+1</b>	APAH-PoPH <b>+3</b>	FPAH <b>+2</b>	
Demographics	Males Age >60 yr <b>+2</b>			
Comorbidities	eGFR <60 mL/min/1.73 m <sup>2</sup> or renal inefficiency (if eGFR is unavailable) <b>+1</b>			
NYHA/WHO Functional Class	I <b>-1</b>	III <b>+1</b>	IV <b>+2</b>	
Vital Signs	SBP <110 mm Hg <b>+1</b>	HR >96 BPM <b>+1</b>		
All-Cause Hospitalizations ≤6 mo	All-Cause Hospitalizations within 6 mo <b>+1</b>			
6-Minute Walk Test	≥440 m <b>-2</b>	320 to <440 m <b>-1</b>	<165 m <b>+1</b>	
BNP	<50 pg/mL or NT-proBNP <300 pg/mL <b>-2</b>	200 to <800 pg/mL <b>+1</b>	≥800 pg/mL or NT-proBNP ≥1100 pg/mL <b>+2</b>	
Echocardiogram	Pericardial Effusion <b>+1</b>			
Pulmonary Function Test	% predicted DL <sub>co</sub> ≤40 <b>+1</b>			
Right Heart Catheterization	mRAP >20 mm Hg Within 1 Year <b>+1</b>	PVR <5 Wood Units <b>-1</b>		
	Sum of above			
				<b>+6</b>
	Risk score			

Low risk

Intermediate risk

High risk

Risk score

0-6

7-8

≥9



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6MWD=6-minute walk distance; APAH=associated pulmonary arterial hypertension; BNP=B-type natriuretic peptide; BPM=beats per minute; CI=cardiac index; CTD=connective tissue disease;  $DL_{CO}$ =diffusing capacity of the lung for carbon monoxide; eGFR=estimated glomerular filtration rate; ESC/ERS=European Society of Cardiology/European Respiratory Society; FC=Functional Class; FPAH=familial pulmonary arterial hypertension; HR=heart rate; mRAP=mean right atrial pressure; NT-proBNP=N-terminal pro-B-type natriuretic peptide; NYHA=New York Heart Association; PAH=pulmonary arterial hypertension; PoPH=portopulmonary hypertension; PVR=pulmonary vascular resistance; RA=right atrium; RAP=right atrial pressure; REVEAL=Registry to Evaluate Early And Long-term pulmonary arterial hypertension disease management; SBP=systolic blood pressure; SPAHR=Swedish PAH Register;  $SvO_2$ =mixed venous oxygen saturation; WHO=World Health Organization.

**References:** **1.** Boucly A, et al. *Eur Respir J.* 2017;50(2). pii: 1700889. **2.** Kylhammar D, et al. *Eur Heart J.* 2018;39(47):4175-4181. **3.** Hoeper MM, et al. *Eur Respir J.* 2017;50(2). **4.** Galie N et al. *Eur Heart J.* 2016;37(1):67-119. **5.** Galie N, et al. *Eur Resp J.* 2019;53(1):1801889. **6.** Benza RL, et al. *Chest.* 2019;156(2):323-337.