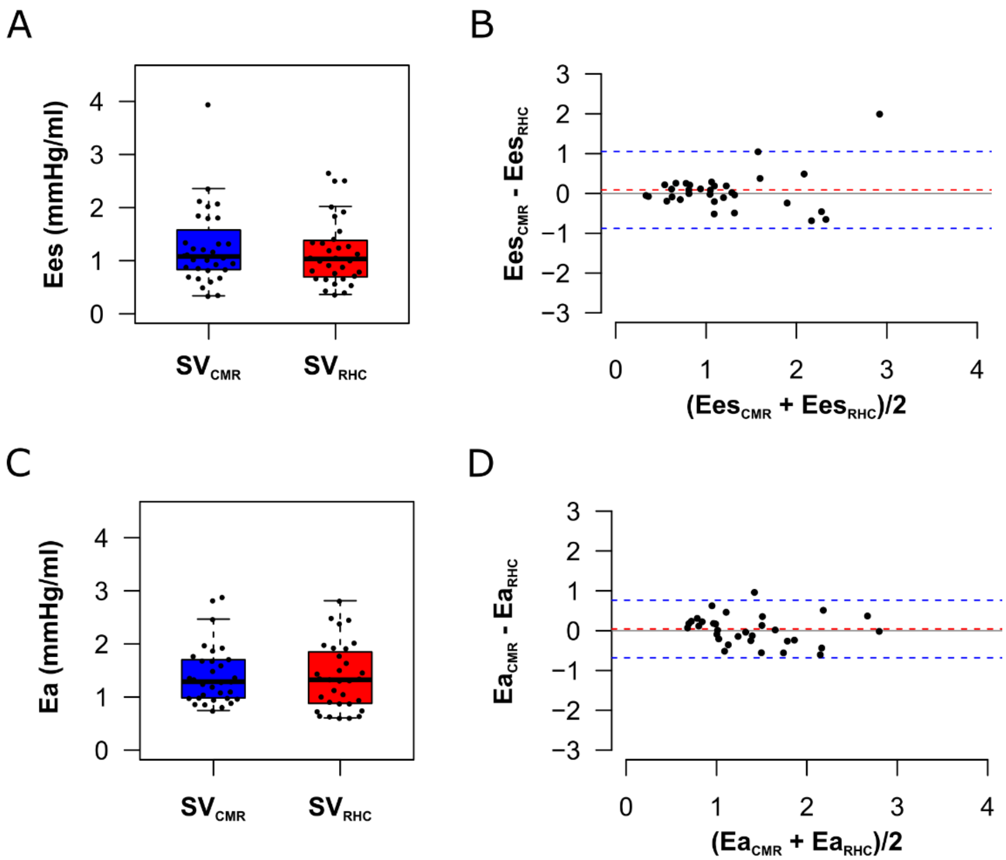
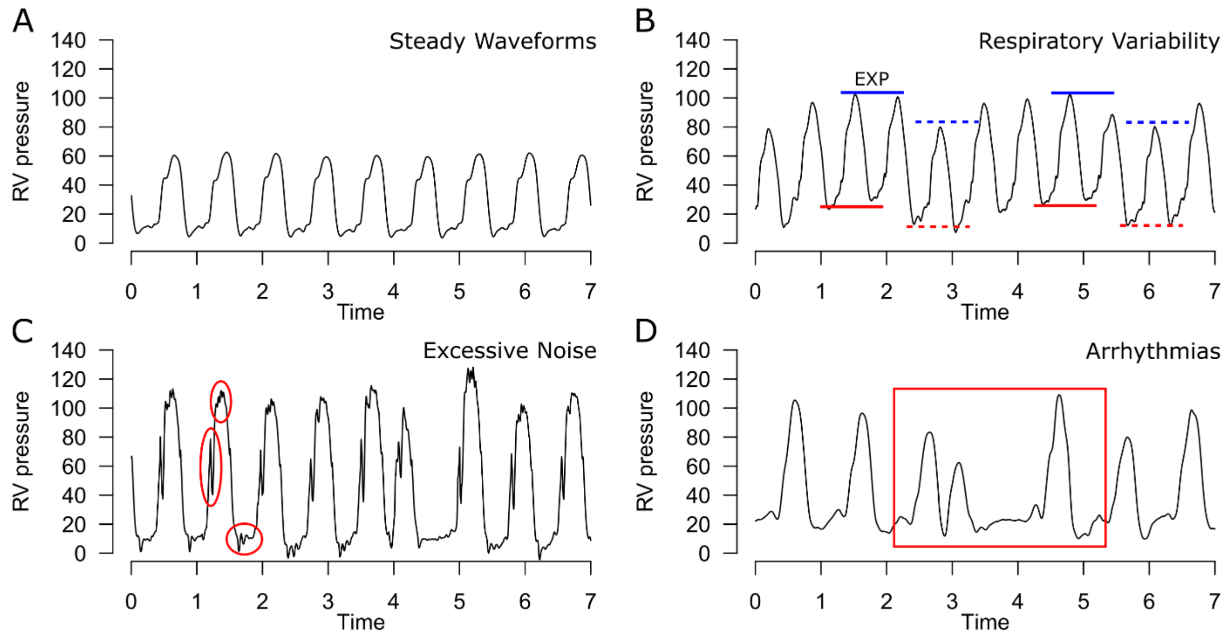
Supplemental Table 1. Summary of observed changes in RHC-derived parameters of right ventricular function and their physiological relevance in patients with mild and severe PAH (Table 3) and incident PAH patients on therapy (Table 2).

	Δ in PAH Severity (Table 3)	Δ with therapy (Table 2)	Physiological Relevance
RV systolic function			
Max dP/dt	↑	- /↓	Maximum rate of pressure change in the ventricle A load-dependent measure of RV contractility that is influenced by preload, afterload, heart rate and myocardial hypertrophy.
Contractile Index	↓	-/↑	Normalizes max dP/dt to systolic RV pressure to account for afterload.
End-systolic Elastance	↑	↓	A load independent measure of RV contractility
RV afterload/work			
Arterial Elastance	↑	↓	A measure of the RV afterload
Stroke Work	↑	-	A measure of RV function that incorporates ventricular function and hemodynamics.
RV-PA coupling			

Ees/Ea (Pmax – ESP)/ESP	-/↓	-/↑	A load independent measure of Ventricular Vascular coupling Reduced ratio in patients with PAH (normal ~1-2) but does not associated with mortality.
RV diastolic function			
Min dP/dt	↓	-/↑	Minimum rate of pressure change in the ventricle. Increased min dP/dt suggests improved relaxation.
Myocardial Performance Index (RV Tei-index)	-	-	A measure of RV global function that is independent of heart rate and ventricular geometry. Potentially useful when there is distorted ventricular geometry
RV diastolic stiffness coefficient, β	↑	↓	A measure of chamber stiffness and is increased in patients with PAH and associates with effect of therapy and mortality in PAH.[1–4]
End-Diastolic Elastance	↑	↓	Slope of the end-diastolic pressure volume relationship at the end-diastolic volume.[1,3]



Supplemental Figure 1. RV stroke volume has a significant effect on the precision of RV contractility (Ees) and afterload (Ea). There were no significant differences in Ees **(A)** or Ea **(C)** when calculated using CMR-derived or RHC-derived stroke volume. Stroke volume has a significant effect on the limits of agreement between estimates of Ees **(B)** and Ea **(D)**.



c

Supplemental Figure 2. The quality of the recorded RV pressure waveform is a major source of variability in the analysis of RV function. ***A)*** Steady waveforms are optimal for analysis because they have little beat to beat variability. ***B)*** In the presence of respiratory variability, there can be large swings in pressure between expiratory (EXP, solid lines) and inspiratory (dotted lines) pressure. ***C)*** Excessive high frequency noise (red circles) is a confounding factor in analysis and can create artificial peaks. D) Arrhythmias tend to reduce the number of representative beats that can be used in the analysis.

Supplemental Material References

1. Trip P, Rain S, Handoko ML, et al. Clinical relevance of right ventricular diastolic stiffness in pulmonary hypertension. *Eur Respir J* 2015; 45: 1603–12.

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