Online supplementary table 1. Baseline characteristics by PVR Status

	Overall (n=977)	PVR (n=440)	No PVR (n=537)	P-value
Follow up time (years)	5.3 ± 3.1	4.8 ± 3.0	5.8 ± 3.1	<.001
Median age at repair, years (IQR)	2.5 (0.5, 6.1)	1.2 (0.3, 4.9)	3.5 (1.1, 7.6)	<.001
First repair era <1980	309 (31.6%)	106 (24.1%)	203 (37.8%)	<.001
Male	536 (54.9%)	253 (57.5%)	283 (52.7%)	0.14
Age at CMR (years)	26.4 ± 14.5	23.5 ± 13.2	28.7 ± 15.0	<.001
RV EDV / BSA (n=948)	151.8 ± 49.8	179.4 ± 48.6	130.2 ± 38.8	<.001
RV EDV / BSA$^{1.3}$ (n=948)	133 ± 45.4	158.7 ± 44.6	112.8 ± 34.6	<.001
RV ESV / BSA (n=948)	79.1 ± 35.7	96.2 ± 36.4	65.7 ± 28.9	<.001
RV ESV / BSA$^{1.3}$ (n=948)	69.1 ± 31.4	84.8 ± 31.7	56.8 ± 25.1	<.001
RV EF (%)	49.1 ± 8.6	47.3 ± 8.4	50.6 ± 8.4	<.001
RV mass:volume ratio	0.23 ± 0.09	0.22 ± 0.10	0.23 ± 0.08	0.04
LV EF (%)	57.9 ± 7.6	57.3 ± 7.0	58.5 ± 8.0	0.01
Peak VO2 (mL/kg/min) (n=449)	25 ± 8	26 ± 8	25 ± 7	0.34
QRS duration (n=945)	143 ± 28	149 ± 27	139 ± 28	<.001
Proactive criteria met (%)	298 (41%)	235 (64%)	63 (21%)	<.001
Conservative criteria met (%)	167 (23%)	146 (40%)	21 (6%)	<.001
Primary outcome:	41 (4.2%)	15 (3.4%)	26 (4.8%)	
Sustained VT	6	3	3	
Sudden death revival	5	4	1	
Death	30	8	22	

Online supplementary table 1: Baseline characteristics of subjects included in the present study, stratified according to PVR status. Mean and standard deviation or frequency and percentage are presented unless otherwise specified. Percentage of patients meeting proactive and conservative criteria among subject (n=724) with data to assess guideline criteria. Abbreviations: BSA: body surface area, CMR: cardiovascular magnetic resonance, EF: ejection fraction, EDV: end-diastolic volume, ESV: end-systolic volume, LV: left ventricle, PVR: pulmonary valve replacement, RV: right ventricle, VO2: oxygen consumption, VT: ventricular tachycardia.

Online supplementary table 2: Logistic regression model for PVR (N=977, 440 subjects with PVR)

	Odds ratio	95% CI	P-value
Site			<.001
Age at first repair (years)	0.92	0.88, 0.96	<.001
First repair, era <1980	0.28	0.16, 0.51	<.001
Age at CMR (years)	1.06	1.03, 1.09	<.001
RV EDV / BSA$^{1.3}$	1.09	1.07, 1.12	<.001
RV ESV / BSA$^{1.3}$	0.90	0.87, 0.94	<.001
RV mass/volume (0.1units)	1.28	1.05, 1.60	0.04
RV EF (%)	0.87	0.82, 0.92	<.001
LV EF (%)	1.003	0.98, 1.03	0.79
QRS duration (msec)	1.01	1.00, 1.01	0.04

Online supplementary table 2: Logistic regression model to calculate the PVR propensity score. The C-statistic of the final model was 0.85. Abbreviations: BSA: body surface area, CMR: cardiovascular magnetic resonance, EF: ejection fraction, EDV: end-diastolic volume, ESV: end-systolic volume, LV: left ventricle, RV: right ventricle.

Footnote: repair date was imputed by earliest available ECG/MRI/EX test/Echo date in four subjects. Twenty-nine subjects did not have a BSA value. BSA was imputed using the predicted mean value obtained from a regression of BSA on age at MRI derived from subjects with a qualifying MRI. Mean imputation was used for 7 subjects with missing RV mass. Mean imputation was used for 12 subjects with missing LV ejection fraction. Imputation by regression of QRS duration on age at first repair was used for 32 subjects with missing qualifying ECG.

Online supplementary table 3a:

Multivariable Cox regression model of secondary outcome in full cohort (N=884; 88 events)

Predictor	HR	95% CI	p-value
PVR	1.43	0.83, 2.46	0.19
Propensity score	2.84	1.22, 6.60	0.02
Age at CMR (years)	1.05	1.04, 1.07	<.001
TOF (versus TOF/PA or AV canal)	0.39	0.23, 0.66	<.001
LV ESV / BSA[1.3]	1.02	1.005, 1.03	0.008

Online supplementary table 3b:

Multivariable Cox regression model of secondary outcome in 1:1 matched cohort (N=418; 41 events)

Predictor	HR	95% CI	p-value
PVR	1.28	0.65, 2.54	0.48
Age at CMR (years)	1.06	1.04, 1.09	<.001
TOF (versus TOF/PA or AV canal)	0.38	0.18, 0.78	0.008
LV EDV / BSA[1.3]	1.02	1.004, 1.03	0.01

Online supplementary table 3: Multivariable Cox Regression analysis for the secondary outcome in full cohort (supplementary table 3a) and in the cohort matched 1:1 on propensity score (supplementary table 3b). Abbreviations: AV: atrioventricular, BSA: body surface area, CMR: cardiovascular magnetic resonance, EF: ejection fraction, EDV: end-diastolic volume, ESV: end-systolic volume, LV: left ventricle, PA: pulmonary atresia, PVR: pulmonary valve replacement, RV: right ventricle, VT: ventricular tachycardia