Supplemental Material

Table S1. Effect of model pretraining on RV ejection fraction prediction from MSH dataset.

		Pretrained model	Non-pretrained model
Regression task metrics	MAE	7.8	8.5
	R^2	0.36	0.29
	CCC	0.57	0.52
	BA mean difference	-0.4	0.5
	BA 95% upper LOA	19.7	21.9
	BA 95% lower LOA	-20.4	-21.8
Classification task metrics	AUROC	0.81	0.78
	AUPRC	0.59	0.54

Table S2. Effect of model pretraining on RV end diastolic volume prediction from MSH dataset.

		Pretrained model	Non-pretrained model
Regression task metrics	MAE	17.6	20.5
	R^2	0.25	0.15
	CCC	0.43	0.38
	BA mean difference	-2.2	-0.25
	BA 95% upper LOA	45	53
	BA 95% lower LOA	-50	-54
Classification task metrics	AUROC	0.81	0.65
	AUPRC	0.35	0.28

MAE: mean absolute error; CCC: Lin's concordance correlation coefficient; BA: Bland Altman; LOA: limit of agreement; AUROC: Area under the receiver operating curve, AUPRC: area under the precision recall curve

Table S3. Comparison of UK Biobanks and MSH test sets.

	UKBB Test set (n=8,588)	$MSH_{original}$ Test set (n=604)	p
Mean Age (SD)	64.7 (7.7)	55.9 (17.0)	<0.001
Sex, Female (%)	4,535 (53.8%)	209 (36.3%)	<0.001
Race:			
White	8,284 (96.5%)	258 (42.7%)	<0.001
Black	57 (0.7%)	101 (16.7%)	
Other/Unknown	247 (2.9%)	245 (40.6%)	
Mean body Surface Area, m^2 (SD)	1.89 (0.23)	1.96 (0.27)	<0.001
Right Ventricular Ejection Fraction <40%	84 (1.0%)	109 (18.0%)	<0.001
Right Ventricular End Diastolic Volume >120	153 (1.8%)	62 (10.6%)	<0.001

Table S4. Comparison of AIC for survival model variable selection.

Model covariates	AIC
LVEF	706.4
LVEF+ age	695.1
LVEF+ age+ hospitalized status	691.7
LVEF+ age+ hospitalized status + race	695.6
LVEF+ age+ hospitalized status + BMI>30	695.2
LVEF+ age+ hospitalized status + normal sinus rhythm	695.0
LVEF+ age+ hospitalized status + sex	694.1
LVEF+ age+ hospitalized status + cardiomyopathy diagnosis	693.0
All the above	709.3

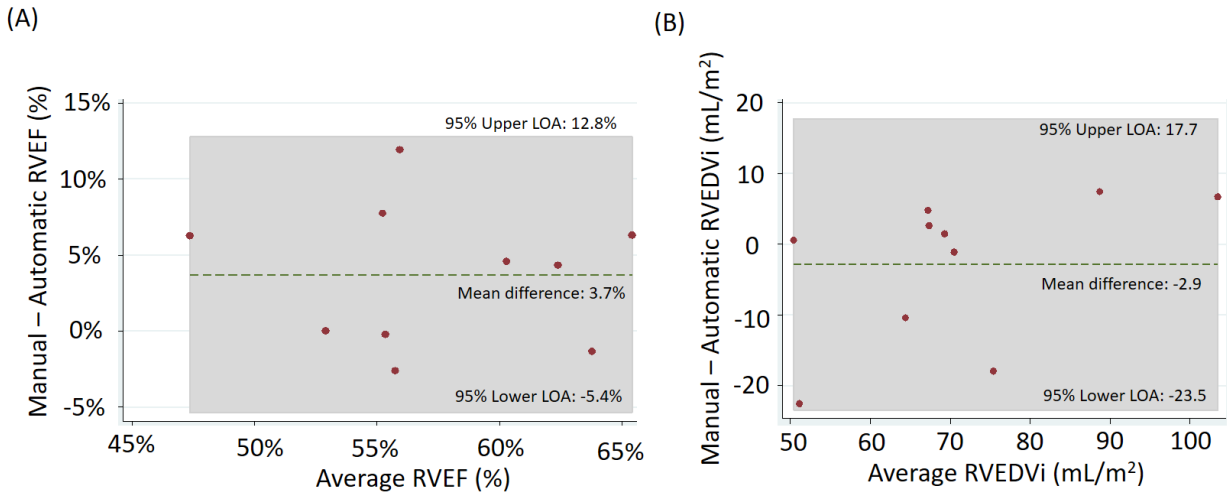
Table S5. Addition of MRI versus ECG-predicted RVEF to base survival model.

	AIC	Model C-statistic
Base Model: LVEF + age+ hospitalized	691.8	.690
Model 1 : LVEF+ MRI-quantified RVEF+ age+ hospitalized	681.4	.724
Model 2: LVEF+ ECG-predicted RVEF+ age+ hospitalized	689.2	.699

Table S6. Cox multivariable model for survival including MRI-quantified RVEF.

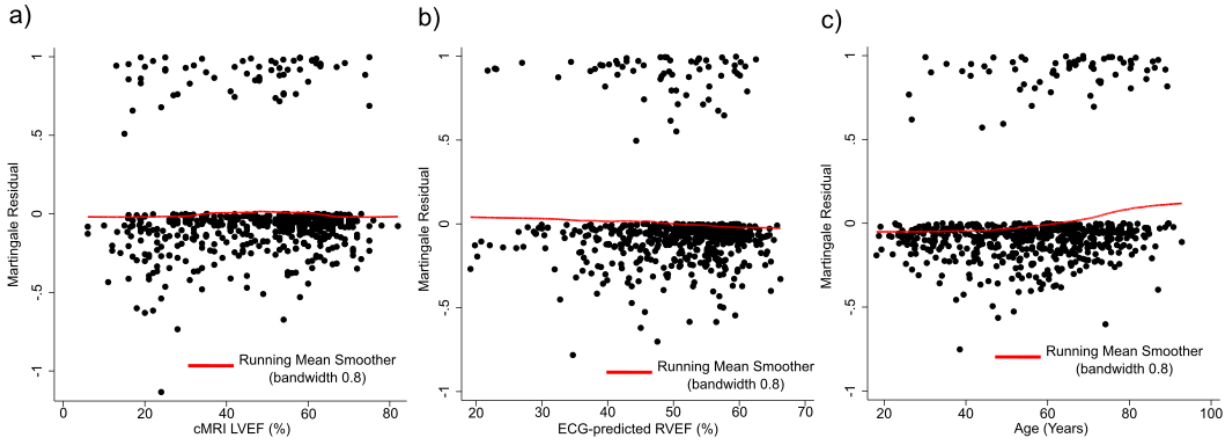
Model Variable	HR [95%CI]	p
MRI RVEF (every 10% decrease)	1.55 [1.22-1.99]	<0.001
MRI LVEF (every 10% decrease)	0.88 [0.72-1.06]	0.19
Age ≥60	3.10 [1.8-5.3]	<0.001
Hospitalized at cMRI	1.94 [1.14-3.29]	0.014

Figure S1. Bland-Altman analysis of manual versus automated contouring methods.



Bland-Altman plot comparison between automatic versus manual contouring of (a) RV ejection fraction and (b) BSA-indexed RV end diastolic volume

Figure S2. Martingale Residual plots Cox Proportional Hazards Models.



Martingale Residual plots for analysis of linear risk assumption of continuous variables for Cox Proportional Hazards Models. Visual inspection of mean smoother line suggests linear risk in LVEF (a) and ECG-predicted RVEF (b) variables. However, age (c) is nonlinearly related to risk with an increase in risk suggested after age 60 years.