

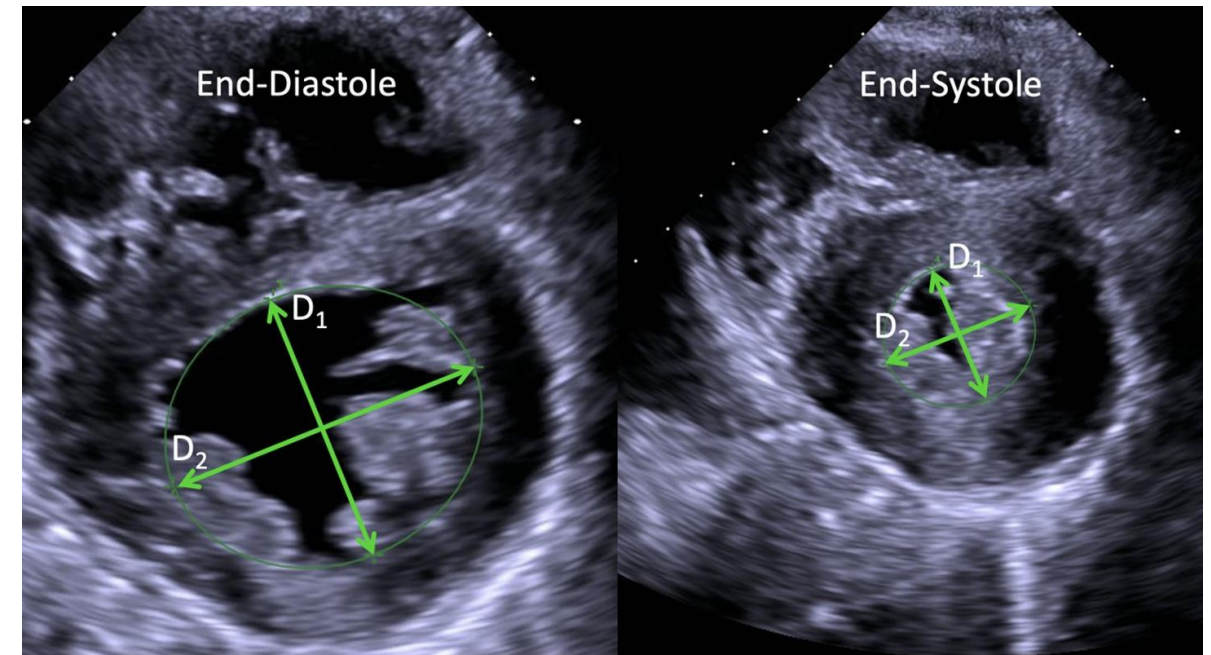
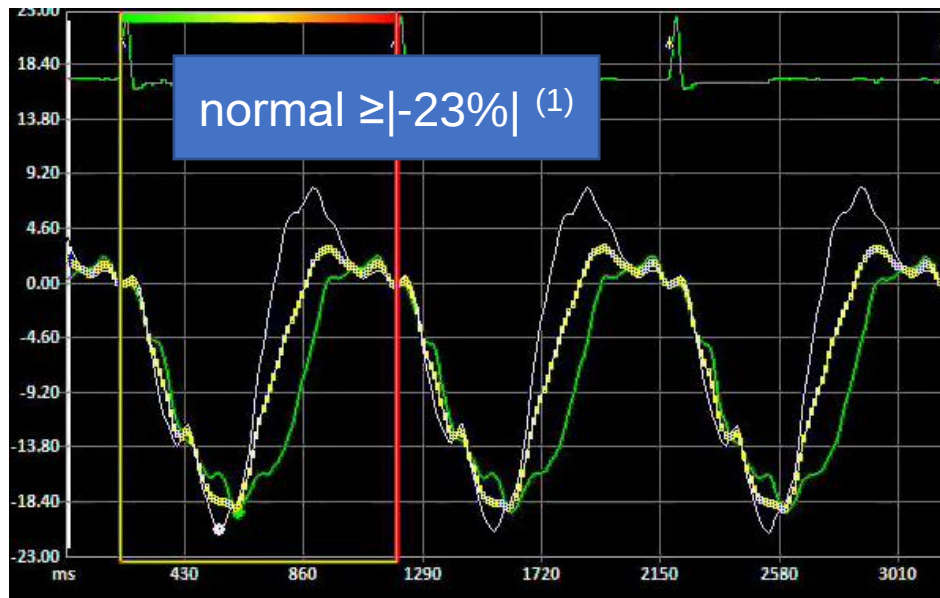
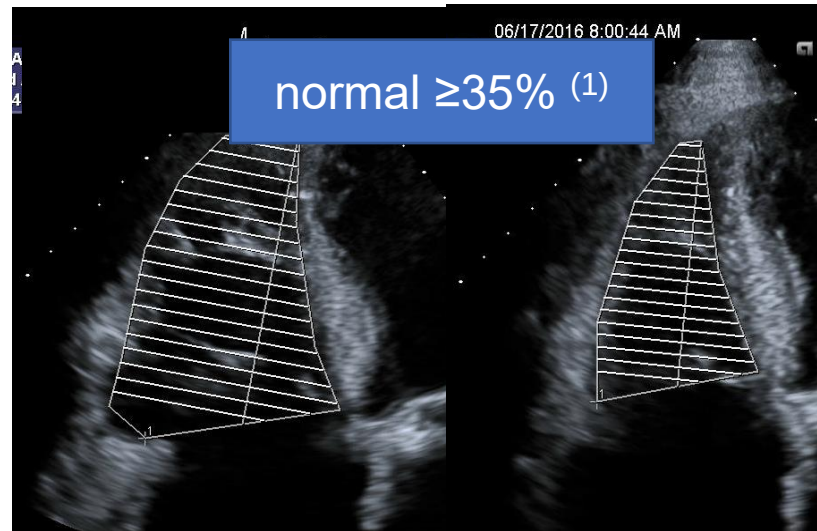
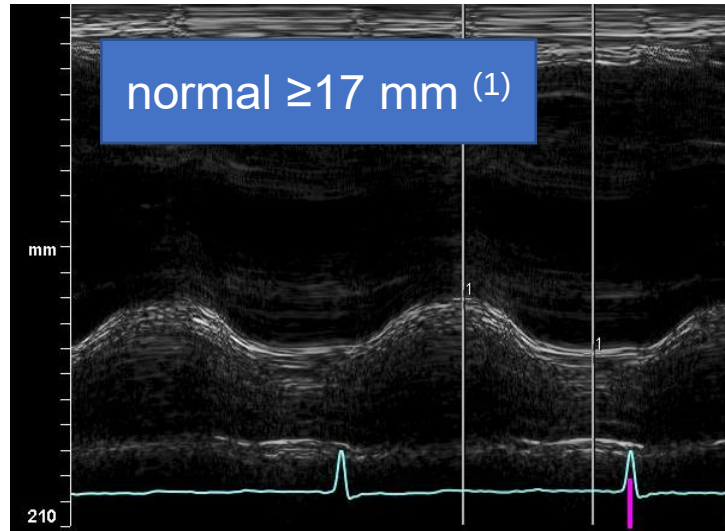
The Right Ventricle: Does it Really Matter?

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Disclosures: None



RV function is challenging to assess in chronic TR



¹Nishimura, R.A., et al., Circulation, 2017. 135(25): p. e1159-e1195

²Lang, R.M., et al, J Am Soc Echocardiogr, 2015. 28(1): p. 1-39.E14

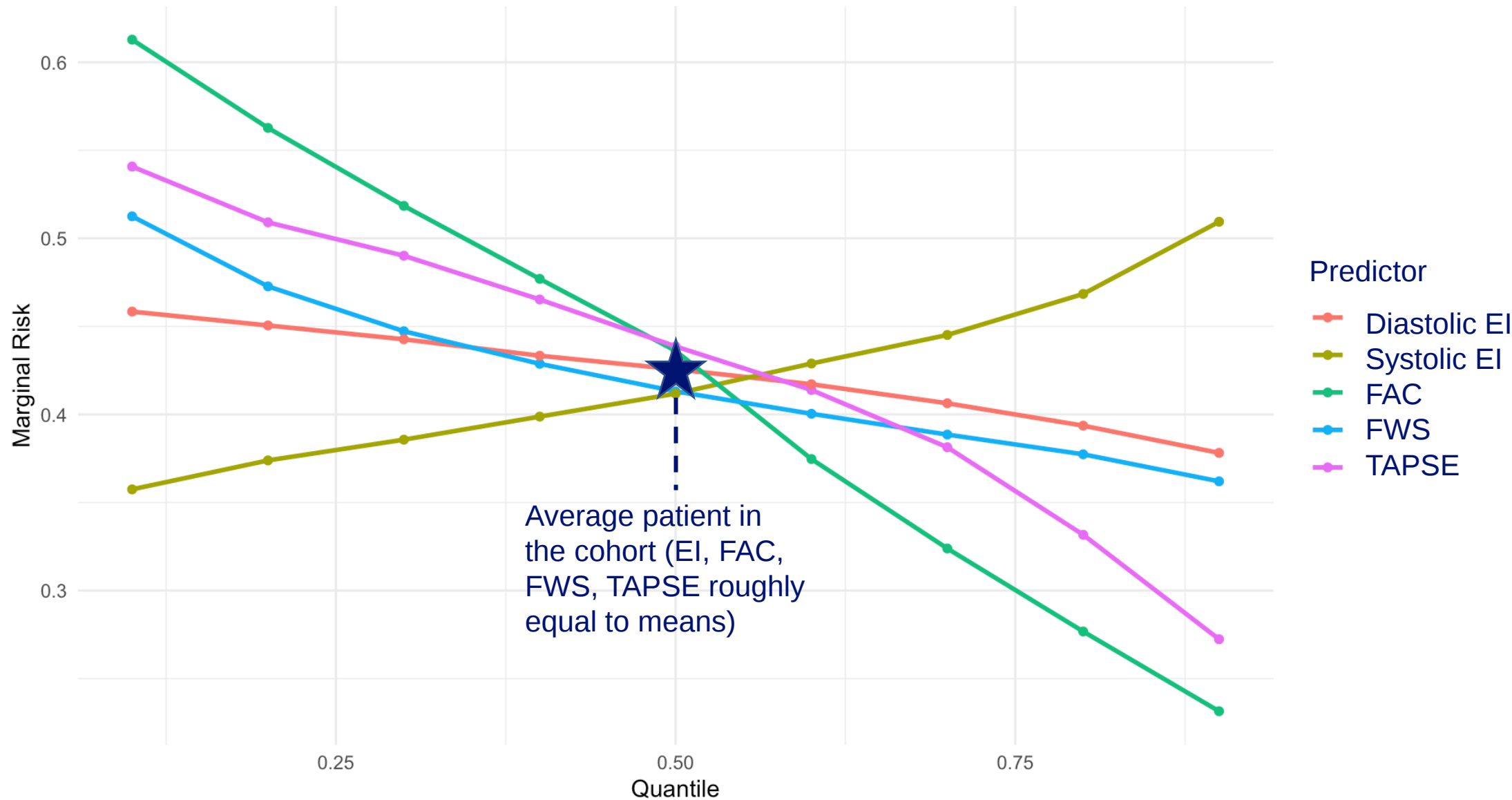
Septal shape: new frontier?

Cox Regression (n = 753 with medically managed TR)

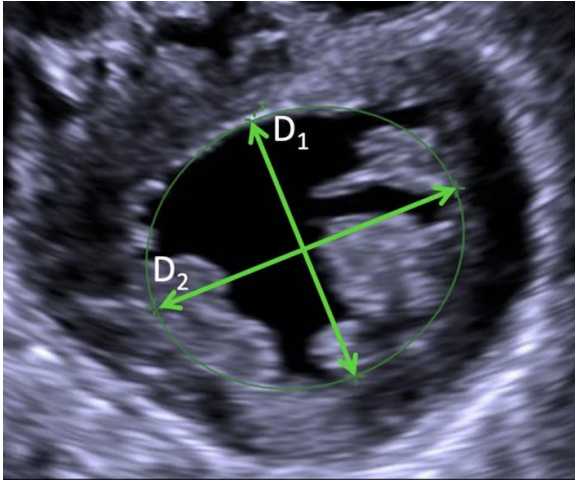
Variable	Hazard Ratio	Std. Error	95% CI	p-value
Female Sex	1.38	0.113	1.11, 1.72	0.004
BMI (kg/m ²)	0.99	0.009	0.97, 1.01	0.200
NYHA Class				
NYHA Class II	1.34	0.204	0.90, 1.99	0.200
NYHA Class III	1.85	0.205	1.24, 2.76	0.003
NYHA Class IV	2.02	0.226	1.30, 3.14	0.002
Hypertension	1.25	0.135	0.96, 1.63	0.093
Hyperlipidemia	1.02	0.105	0.83, 1.25	0.900
Coronary artery disease	1.33	0.110	1.07, 1.65	0.009
Atrial fibrillation	1.16	0.109	0.93, 1.43	0.200
Chronic kidney disease	0.97	0.106	0.79, 1.20	0.800
Chronic lung disease	1.69	0.129	1.31, 2.18	<0.001
Tobacco use	0.83	0.107	0.67, 1.02	0.074
Percutaneous coronary intervention	1.18	0.150	0.88, 1.58	0.300
Pacemaker implantation	1.26	0.117	1.01, 1.59	0.044
TTE TR Vmax (m/s)	0.86	0.093	0.72, 1.03	0.100
TTE TR Vena Contracta (mm)	0.98	0.017	0.95, 1.02	0.300
TTE TR EROA (cm ²)	1.05	0.156	0.77, 1.42	0.800
TTE TR Grade = Torrential	1.17	0.179	0.83, 1.67	0.400
TTE RV FAC (%)	1.0	0.014	0.97, 1.02	0.700
TTE TAPSE (mm)	0.99	0.012	0.96, 1.01	0.200
TTE RV ED SAi (cm/m ²)	1.0	0.065	0.88, 1.13	>0.900
TTE RV ES SAi (cm/m ²)	1.04	0.094	0.87, 1.25	0.600
TTE RA Pressure (mmHg)	1.00	0.010	0.98, 1.02	>0.9
TTE RA Volume (ml)	1.00	0.001	1.00, 1.00	0.100
TTE LAVi (ml/m ²)	1.00	0.002	1.00, 1.01	0.400
TTE MR Grade	1.08	0.042	1.00, 1.18	0.058
TTE EF (%)	1.00	0.004	0.99, 1.01	0.800
TTE Systolic EI	2.85	0.427	1.24, 6.58	0.014
TTE Diastolic EI	0.29	0.496	0.11, 0.77	0.013

Septal shape: new frontier?

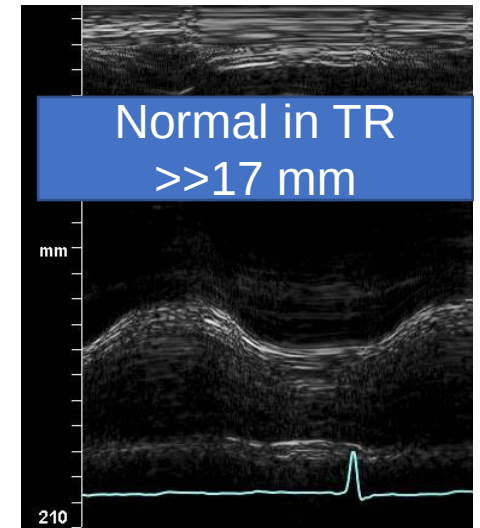
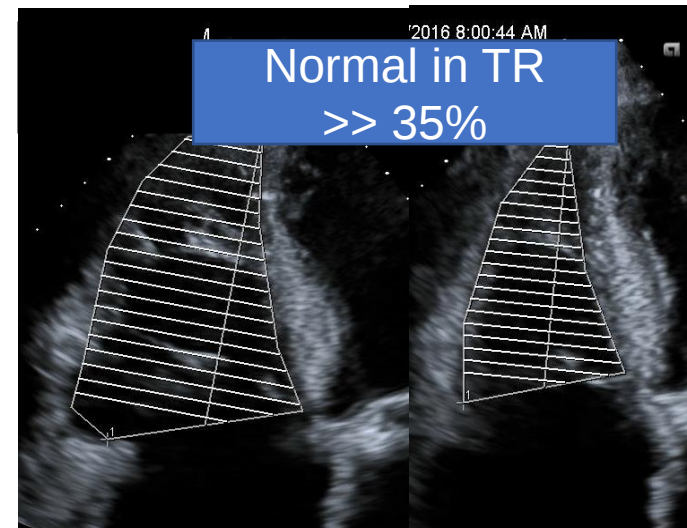
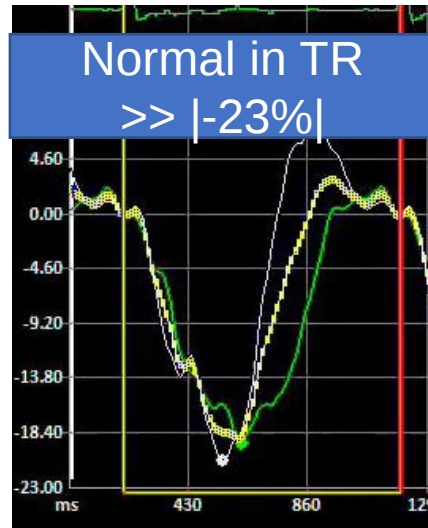
1-year marginal risk functions for death or HF hospitalization (n = 753 patients with medically managed TR)



Perhaps best used as
an eyeball test...



...so if you're still going to
use FWS, FAC, and TAPSE,
please consider increased
cutoffs!



FWS, FAC, and TAPSE are higher than the current cutoffs in compensated ventricles with chronic TR

Variable	Patients with normal FWS, FAC, and TAPSE (n = 107)	Patients with one variable reduced (FWS, FAC, or TAPSE) (n = 186)	Patients with two variables reduced (FWS, FAC, and/or TAPSE) (n = 163)	Patients with all variables reduced (n = 297)	p-value
Baseline TR Grade					
Mild (1)	19 (17.8%)	26 (14.0%)	24 (14.7%)	26 (8.8%)	0.139
Moderate (2)	36 (33.6%)	47 (25.3%)	39 (23.9%)	85 (28.6%)	
Severe (3)	24 (22.4%)	52 (28.0%)	50 (30.7%)	103 (34.7%)	
Massive (4)	9 (8.4%)	30 (16.1%)	23 (14.1%)	37 (12.5%)	
Torrential (5)	19 (17.8%)	31 (16.7%)	27 (16.6%)	46 (15.5%)	
RV Functional & Geometric Indices					
RV FWS (%)	-28.2 ± 4.5	-18.4 ± 4.6	-15.0 ± 4.7	-12.7 ± 4.5	<0.001
FAC (%)	48.4 ± 7.4	45.3 ± 7.1	32.7 ± 11.5	24.2 ± 6.4	<0.001
TAPSE (mm)	22.6 ± 4.2	20.6 ± 3.7	18.2 ± 3.5	12.1 ± 2.6	<0.001
Diastolic EI	1.10 ± 0.16	1.11 ± 0.15	1.14 ± 0.16	1.16 ± 0.18	0.001
Systolic EI	1.09 ± 0.18	1.09 ± 0.16	1.15 ± 0.19	1.15 ± 0.23	0.001
Mean Event-Free Survival (months)	31.8 ± 25.5	29.3 ± 23.7	28.0 ± 23.6	24.0 ± 25.8	0.018

Summary

- Septal shape is a helpful crude metric for staging RV function in chronic TR
- Diastolic flattening only → compensated RV; progression to include systolic flattening → worsened prognosis)
- When measuring FWS, FAC, and TAPSE in chronic TR, consider higher cutoffs

Acknowledgements

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