



IX Congresso
Novas Fronteiras
em Medicina
Cardiovascular

22 a 24 de Fevereiro 2019

The Village Praia
D'El Rey - Óbidos

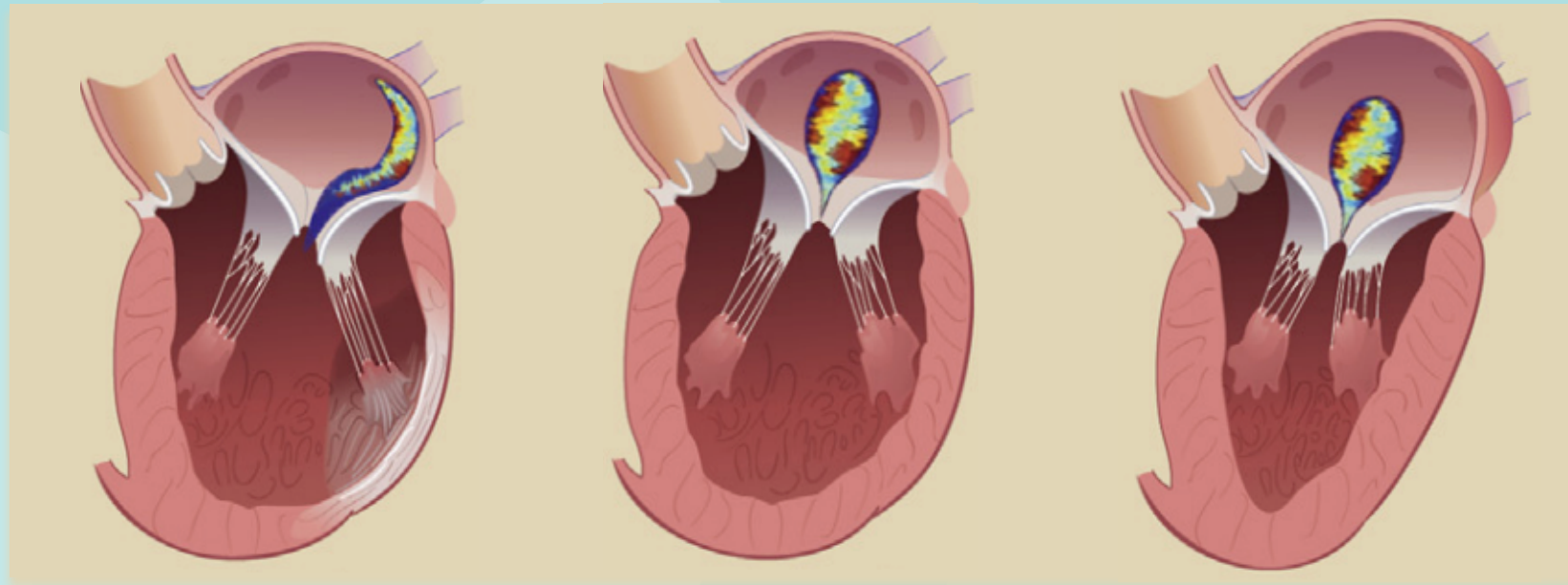
Revisiting functional mitral regurgitation

TOE and Stress Echo – what's the role

Maria João Andrade
Hospital de Santa Cruz



Secondary/Functional Mitral Regurgitation



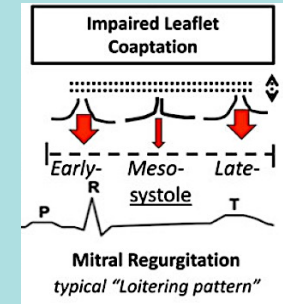
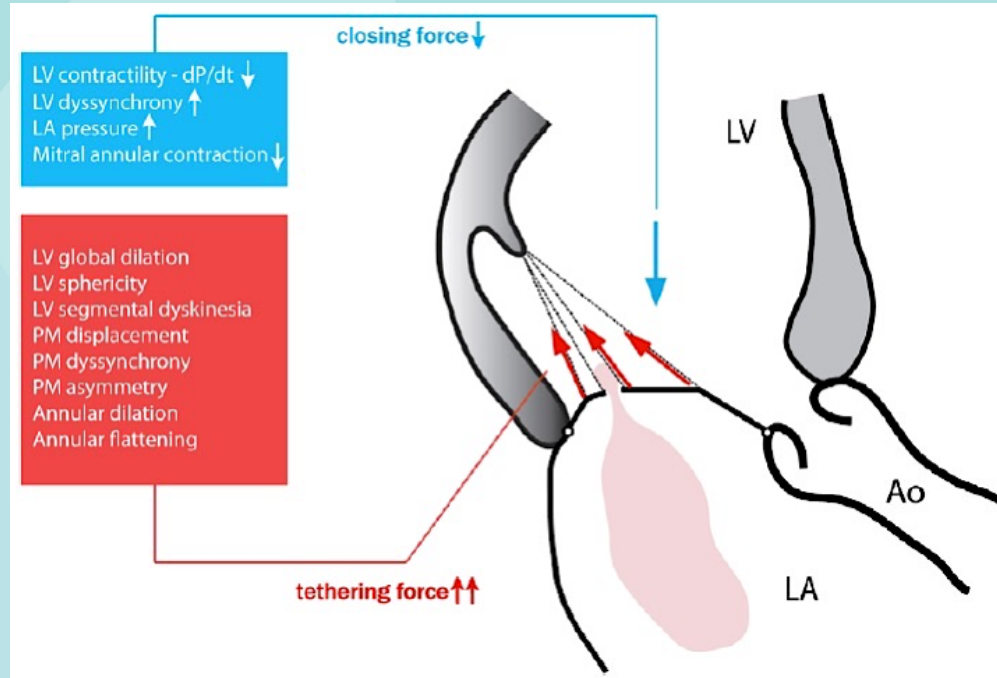
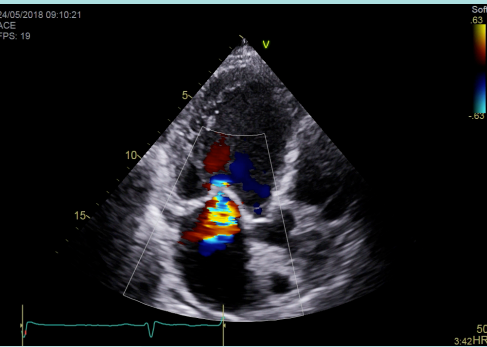
Ischaemic
Cardiomyopathy

Non-ischaemic
Cardiomyopathy

Atrial MR

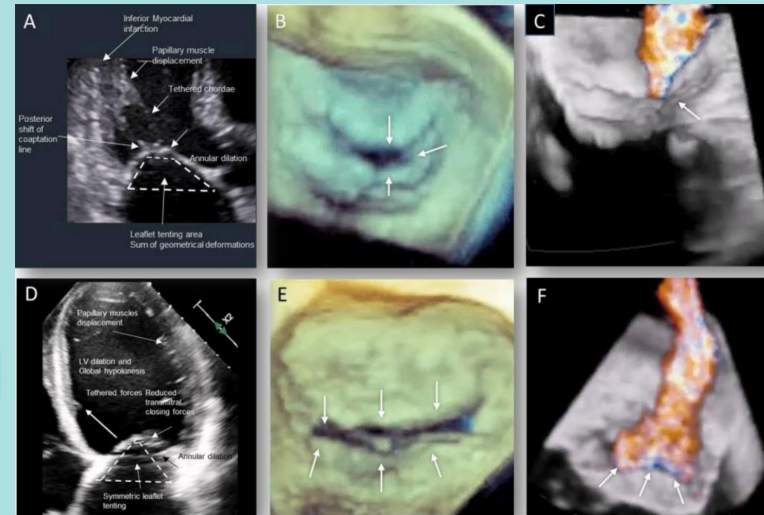
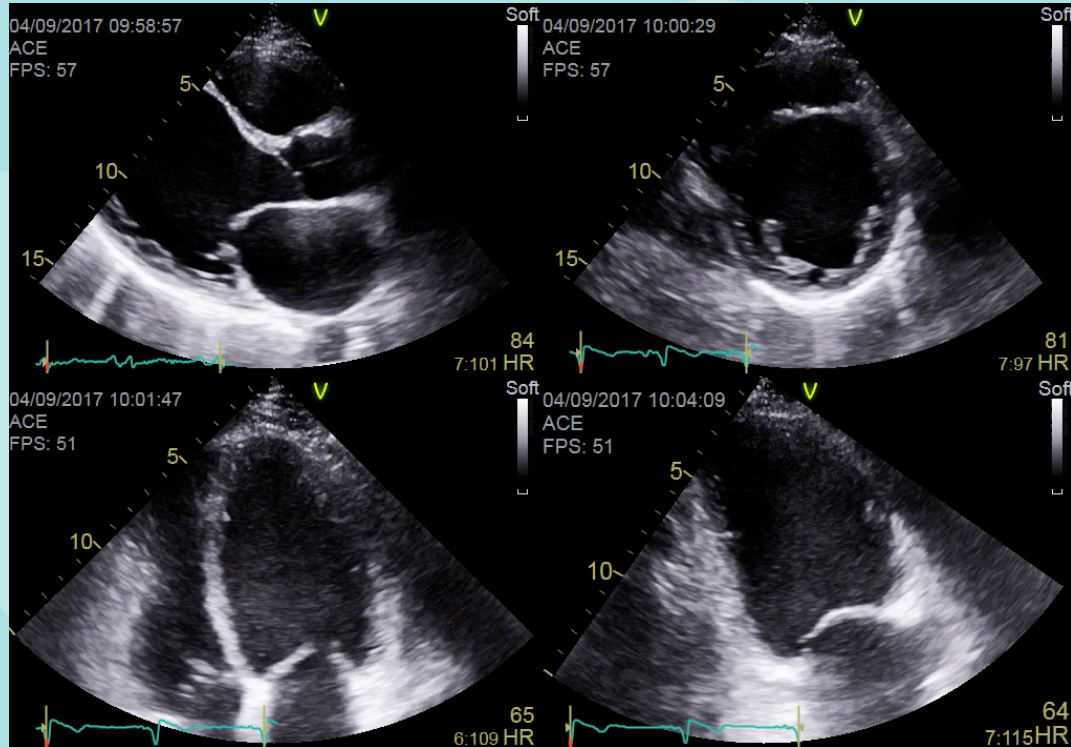
El Sabbagh, A. et al. J Am Coll Cardiol Img. 2018;11(4):628–43.

Dynamics of secondary MR: Governed by the balance between tethering and closing forces



Bertrand P et al. Circulation. 2017;135:297–314

Evaluation of the left ventricle



Faletra F et al. Prog Cardiovasc Dis 2017; 60(3):305-321

Quantifying Severity in Functional MR

PARAMETERS

Valve morphology

Jet characteristics

Vena contracta

ERO

Regurgitant volume

MV inflow pattern

TVI MV/TVI LVOT ratio

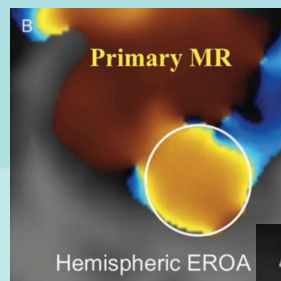
E wave

Systolic regurgitant flow in PV

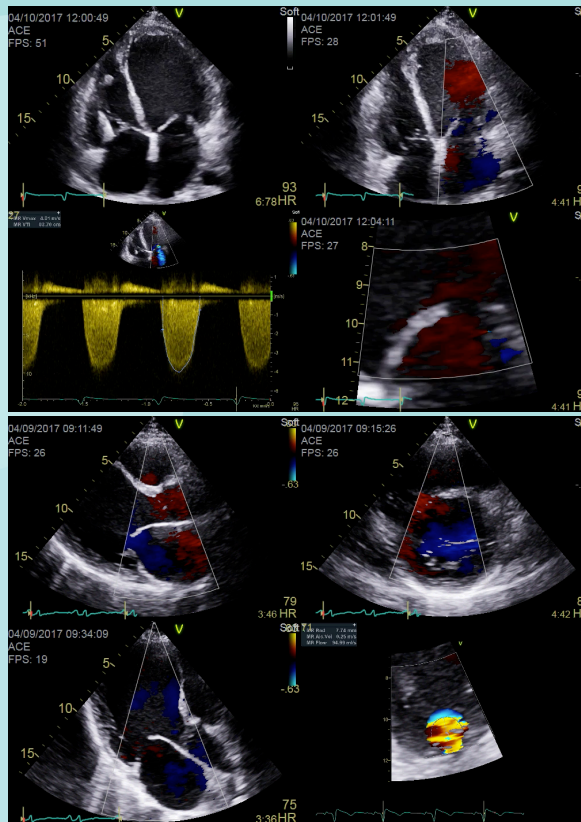
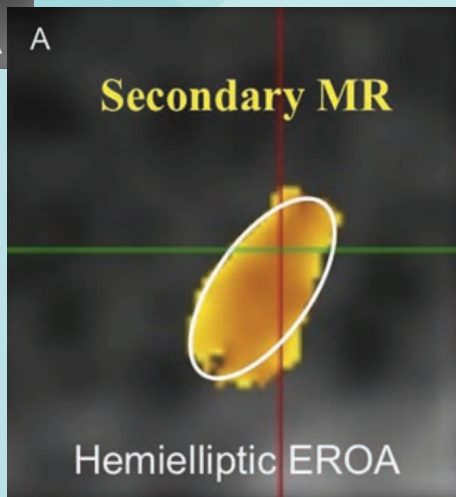
LAVi

LV dimensions

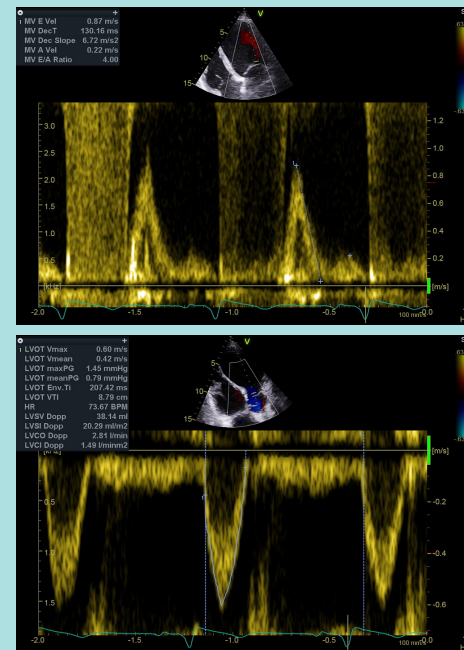
- LV dysfunction can underestimate MR severity using color flow Doppler imaging
- PISA can underestimate the severity of MR
 - elliptical regurgitant orifice
 - ERO changes dynamically throughout systole
- Lower thresholds proposed to define severe MR compared with primary MR [20 mm² for EROA and 30 mL for RV]
- Classification of a patient as having severe secondary MR should be deferred until guideline-directed medical therapy, resynchronization, and revascularization are optimized.



FMR: elliptical regurgitant orifice



TVI MV/TVI LVOT ratio >1,4

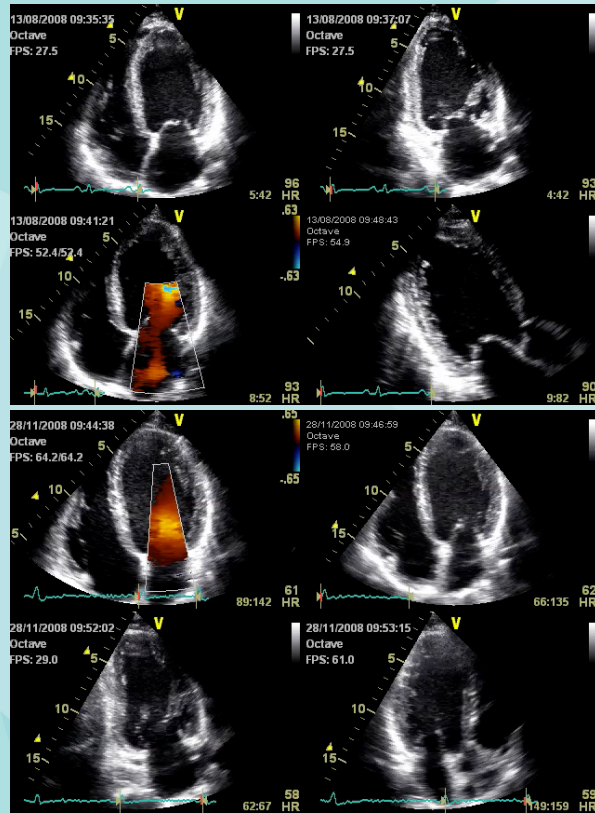


Lancellotti P et al. Eur Heart J Cardiovasc Imaging 2013;14(7):611-44

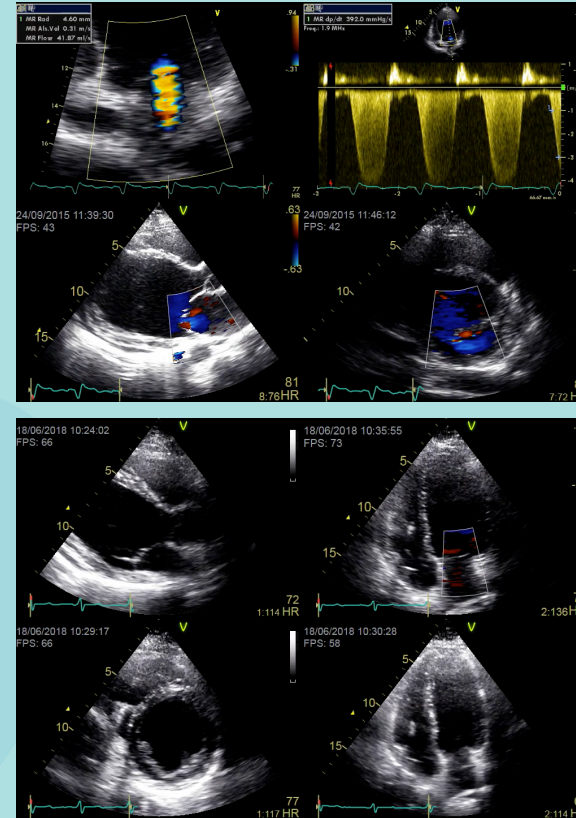
TOE/Stress Echo FMR

M^a João Andrade, HSC

FMR – effect of medical therapy



FMR – before and after CRT



Therapeutic role of CRT in IMR

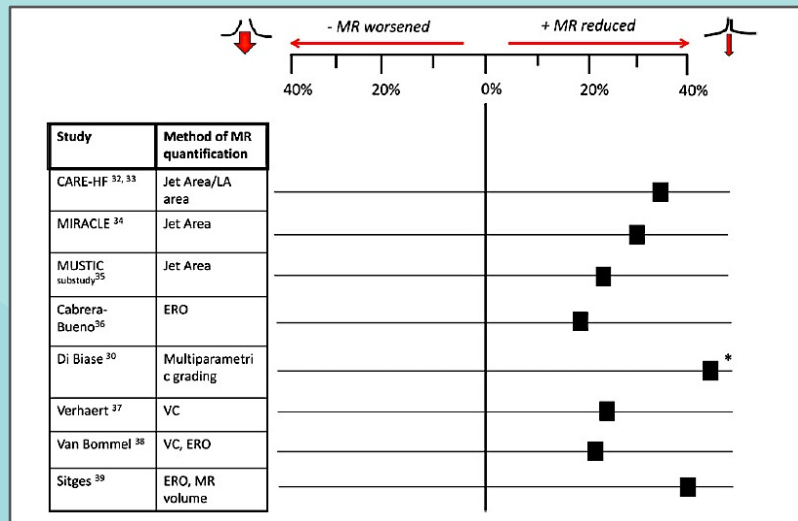
increasing 'closing forces'
(global synchronization)

reducing 'tethering forces'
(local synchronization)

reshaping annular geometry and function
(local synchronization)

correcting diastolic MR
(AV synchronization)

MR reduction after CRT implantation



Dependency of Cardiac Resynchronization Therapy on Myocardial Viability at the LV Lead Position

Spartera M et al. Eur Heart J- Cardiovasc Imag 2016. 1, 471-480

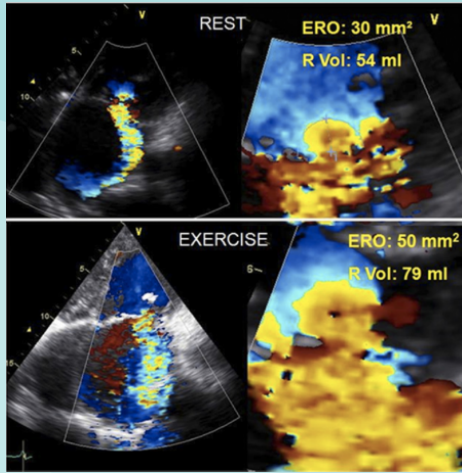
Secondary mitral regurgitation: a dynamic condition

- ❑ In secondary MR, dynamic changes in MR may play a role in the pathogenesis of pulmonary oedema and of reduced survival.
- ❑ Exercise stress echocardiography is preferred for assessing the dynamic behavior of MR
- ❑ General anaesthesia may significantly reduce the severity of regurgitation

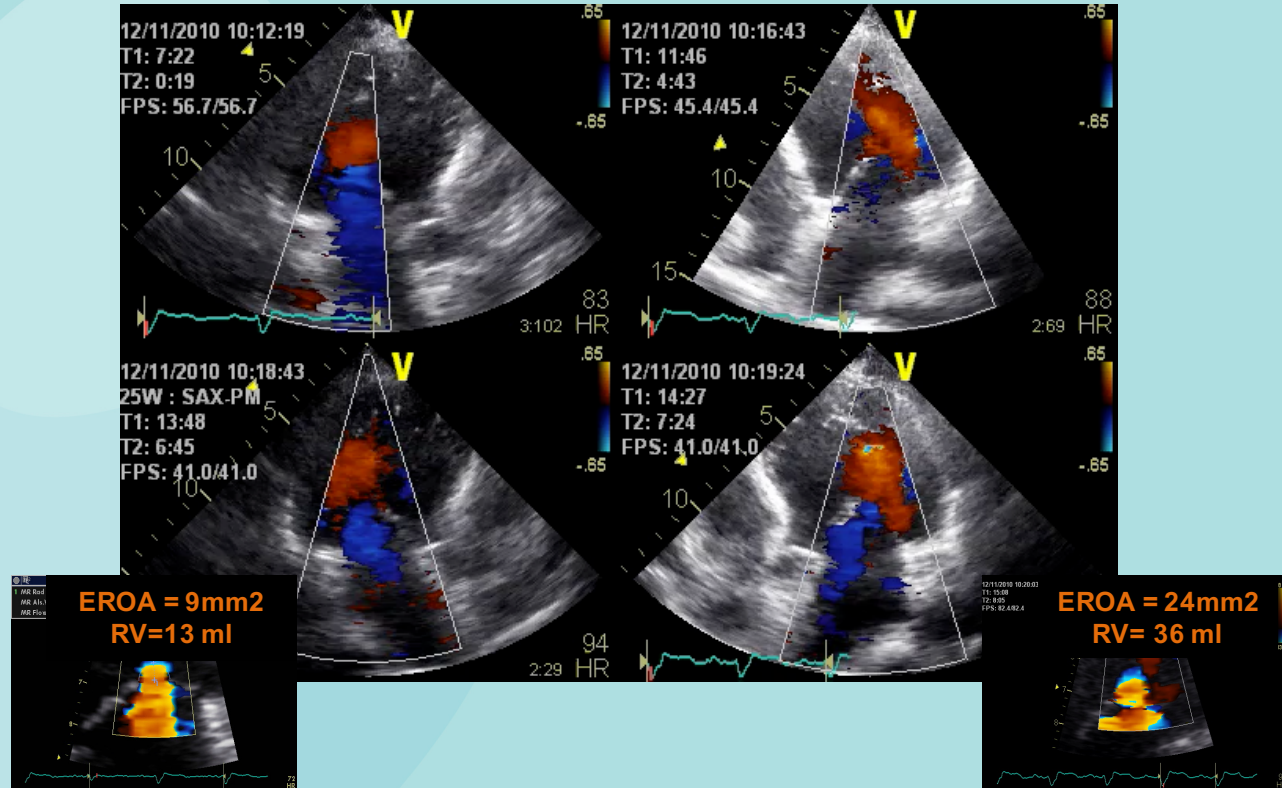
In pts undergoing CABG, the evaluation and decision to (or not to treat) ischaemic MR should be made before surgery

When MR severity is assessed intraoperatively, the use of acute volume challenge and an increase in afterload may be helpful

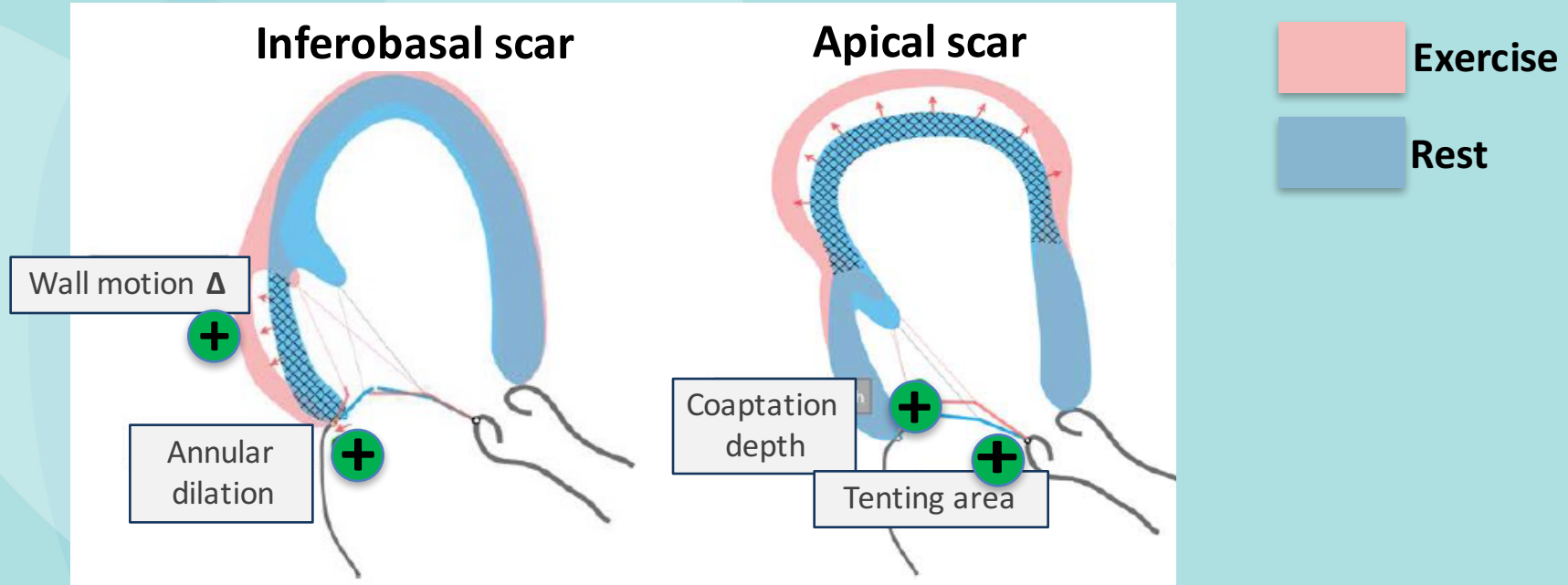
Dynamic component during exercise



Sensitive to changes
in ventricular geometry
and loading

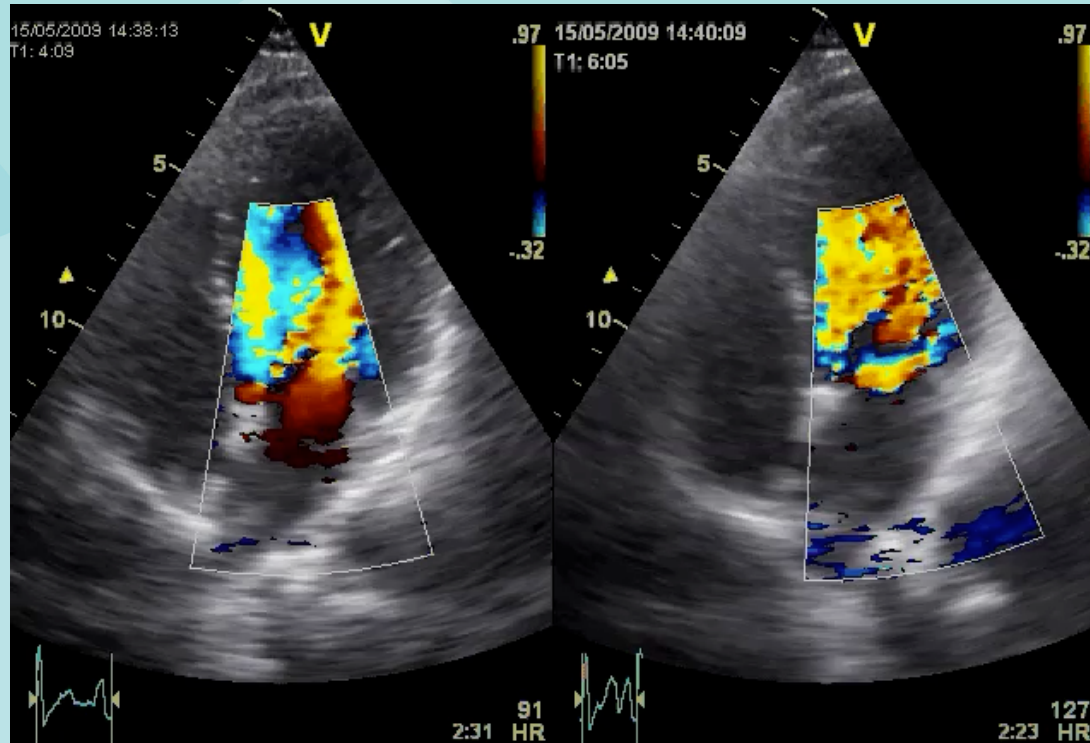


The differential LV response to exercise in ischaemic cardiomyopathy based on location of the scar



Bertrand P et al. Circulation. 2017;135:297–314

Exercise induced mitral regurgitation

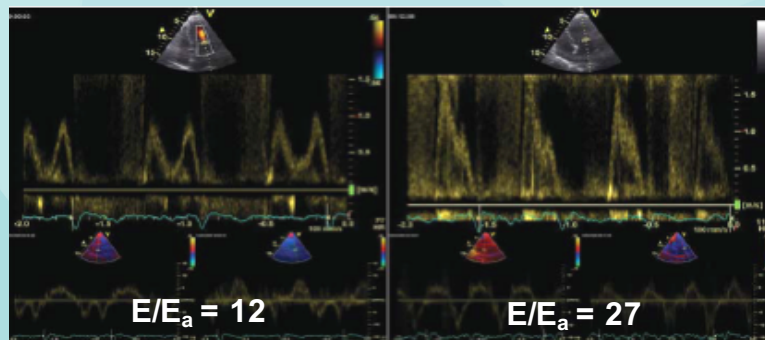
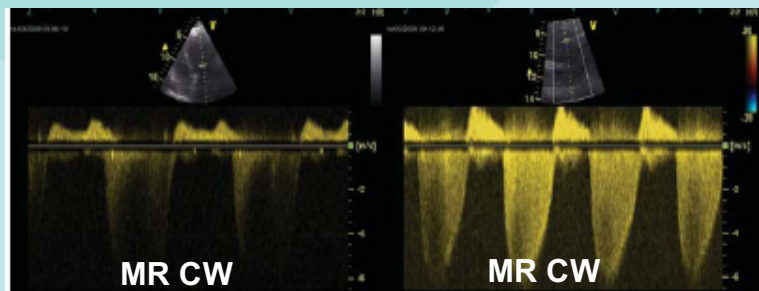


Maréchaux S et al. *Eur J Echo* 2010; 11 (4): E14

Exercise induced mitral regurgitation

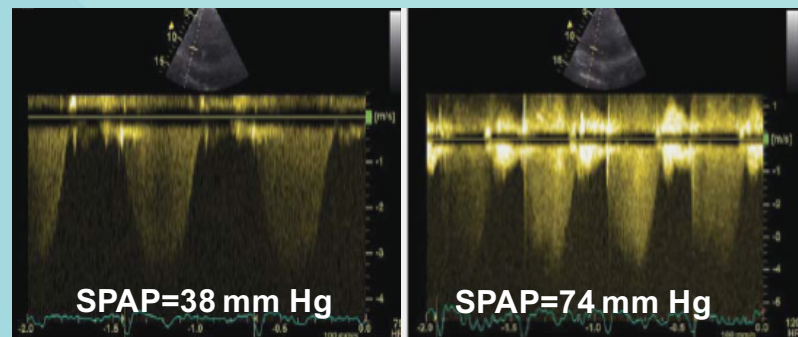
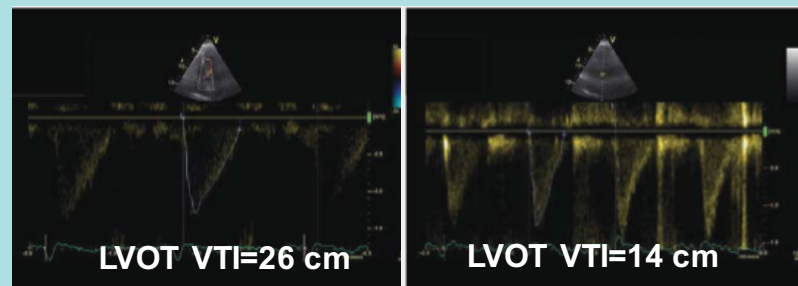
Rest

Exercise



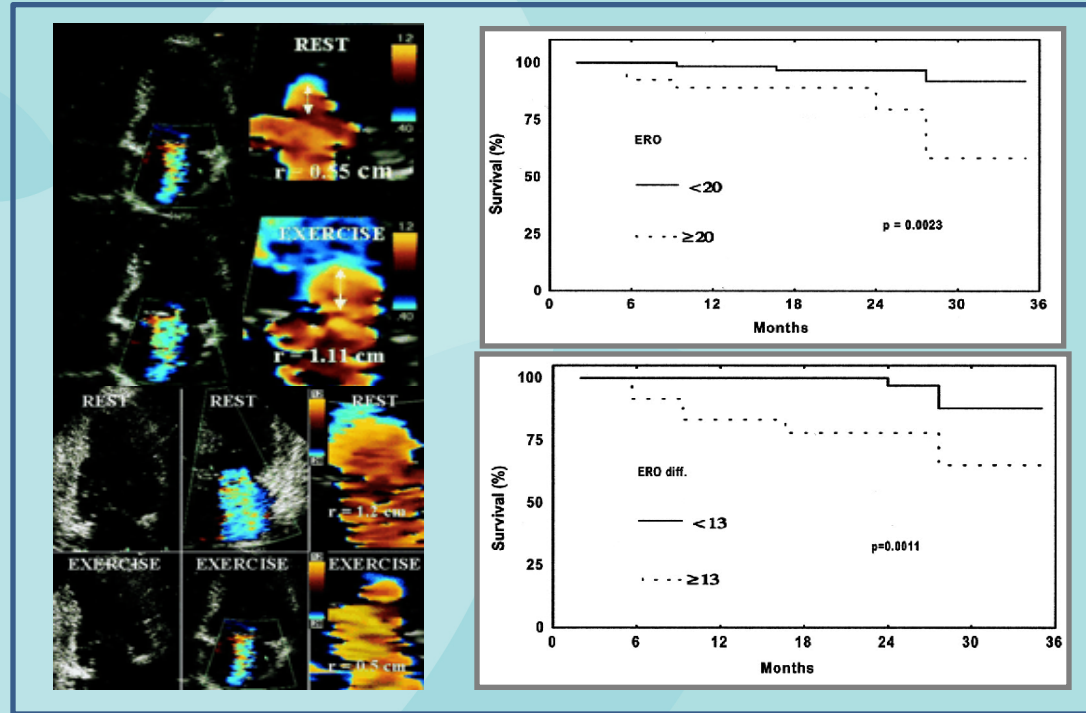
Rest

Exercise



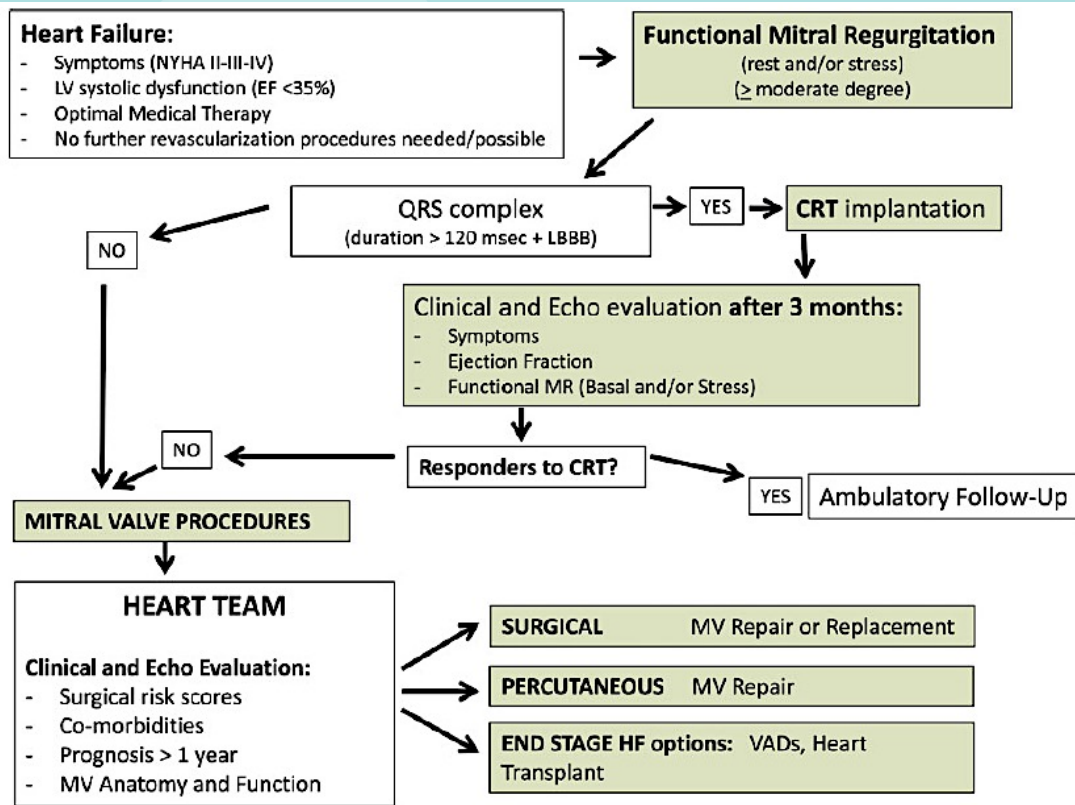
Maréchaux S et al. *Eur J Echo* 2010; 11 (4): E14

Prognostic importance of exercise-induced changes in MR in patients with chronic ischaemic LV dysfunction

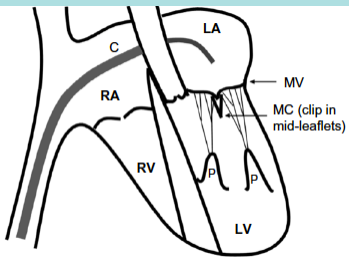


Lancellotti P et al. Circulation 2003;108:1713-7

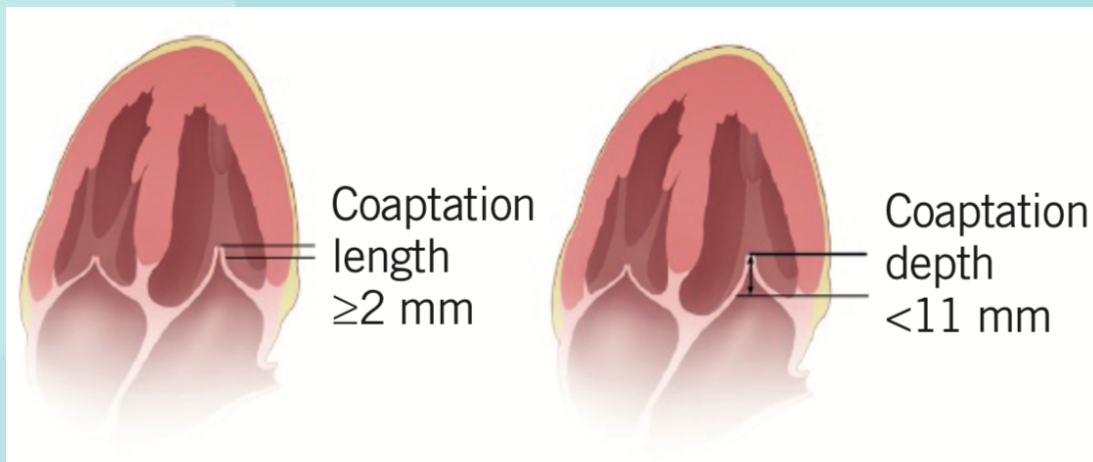
Management of symptomatic patients with severe LV dysfunction and FMR



MitraClip Device



Criteria of eligibility for implantation

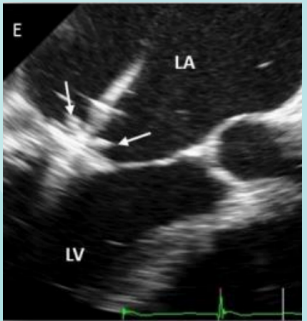
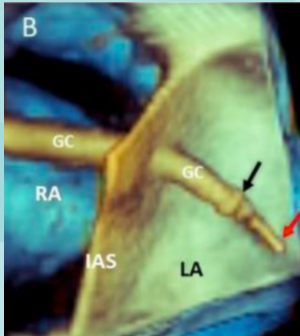
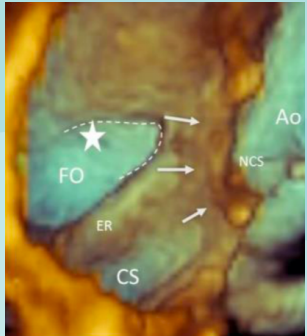


MV area > 4 cm² in order to avoid mitral stenosis

Dimension of the LA and interatrial septal morphology

González-Gómez A et al. EuroIntervention 2015; 11: W32-W36

Procedural steps in Mitraclip



3D TOE: a New Imaging Tool for Assessment of MR and for Guiding Percutaneous Repair

Transseptal puncture

Advancement and steering the Clip delivery system into the left atrium

Positioning the CDS above the MV

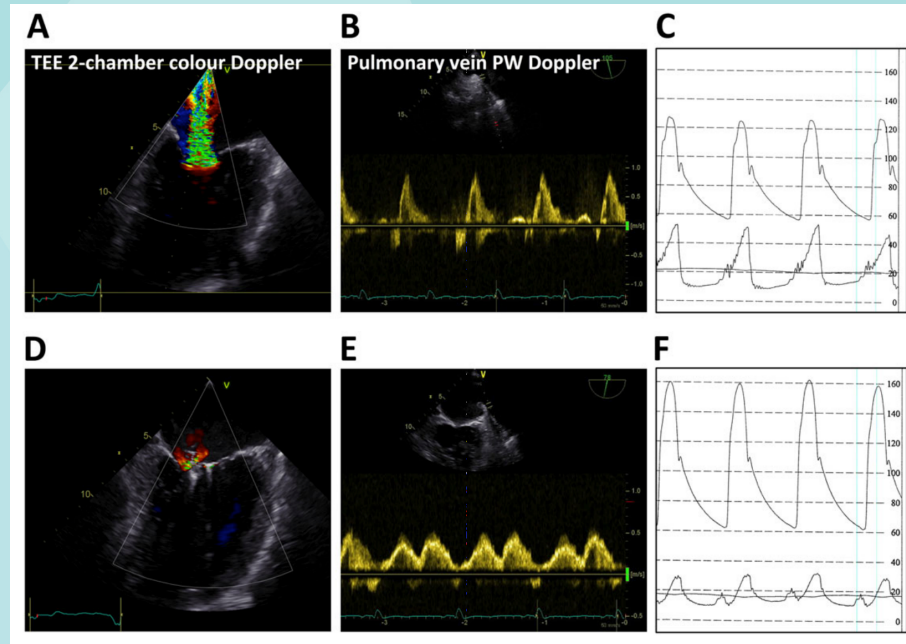
Advancing the CDS into the LV

Grasping of the leaflets

Assessment of results after clip implant

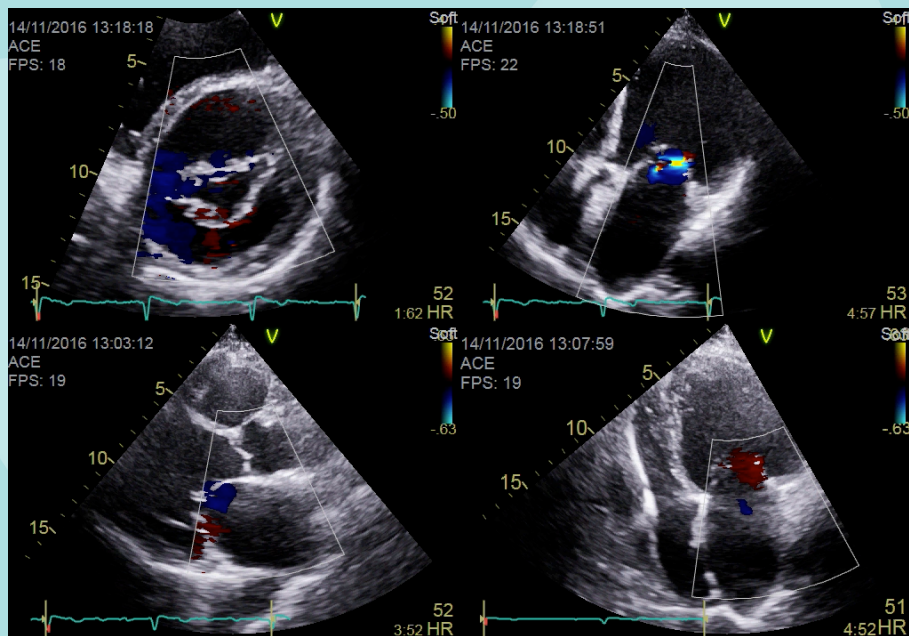
Faletra F et al. Prog Cardiovasc Dis 2017; 60(3):305-321

TOE and haemodynamic changes during percutaneous edge-to-edge repair

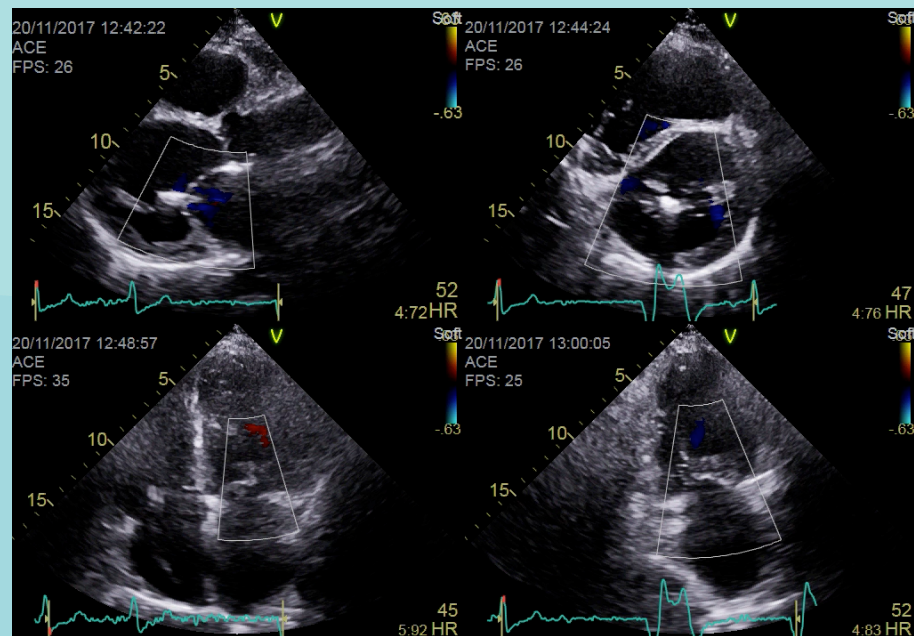


Lavall D et al. ESC Heart Failure 2018; 5: 552–561

Pré- MitraClip



1 ano pós- MitraClip



Severe secondary mitral regurgitation and left ventricular dysfunction: a 'deadly combination' against which the fight is not over!

Alec Vahanian* and Bernard lung

Multidisciplinary Team
approach!

