

DOPPLER - CIP

Determining **O**ptimal non-invasive **P**arameters
for the **P**rediction of **L**eft **v**entricular
morphologic and functional **R**emodeling
in **C**hronic **I**schemic **P**atients

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on behalf of the DOPPLER-CIP consortium

DOPPLER

CIP



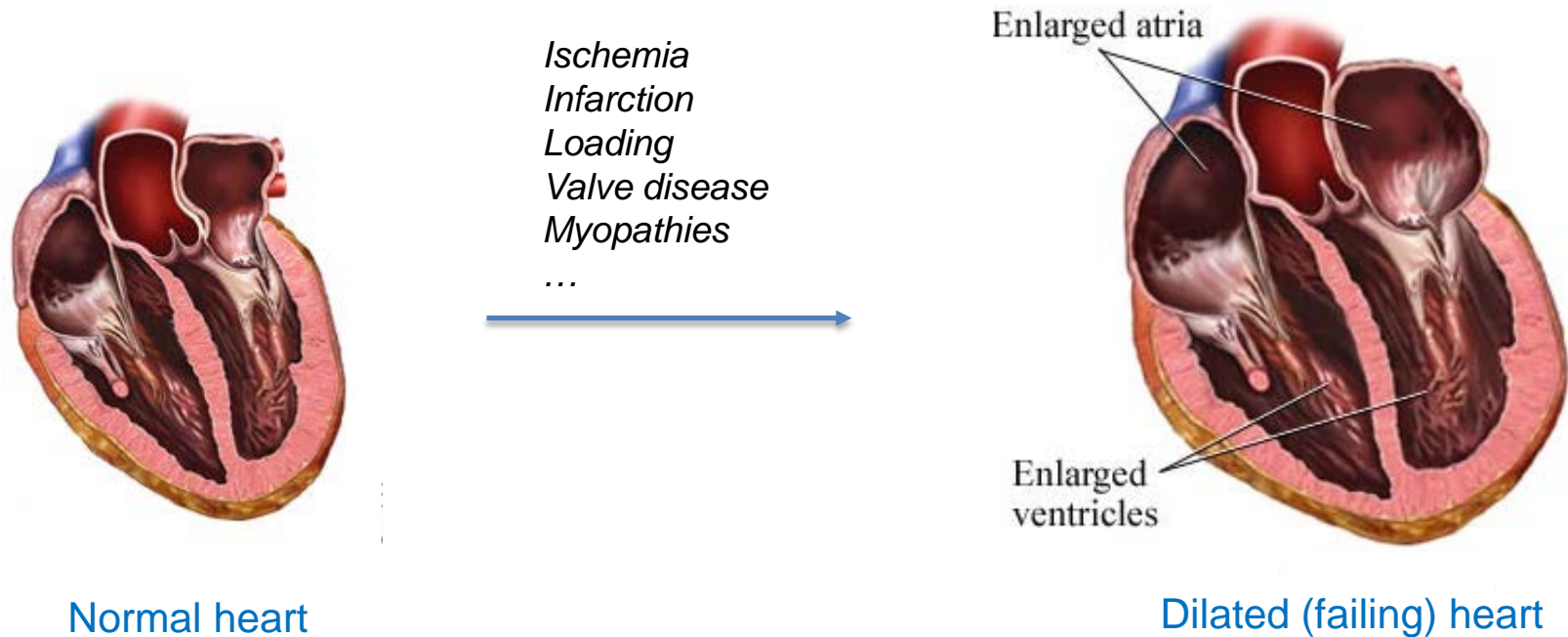
DECLARATION OF INTEREST

- Research contracts

Philips Healthcare
GE Healthcare
MedViso



Cardiac morphologic remodelling



Irreversible process → Early detection of remodelling process critically important to start treatment early

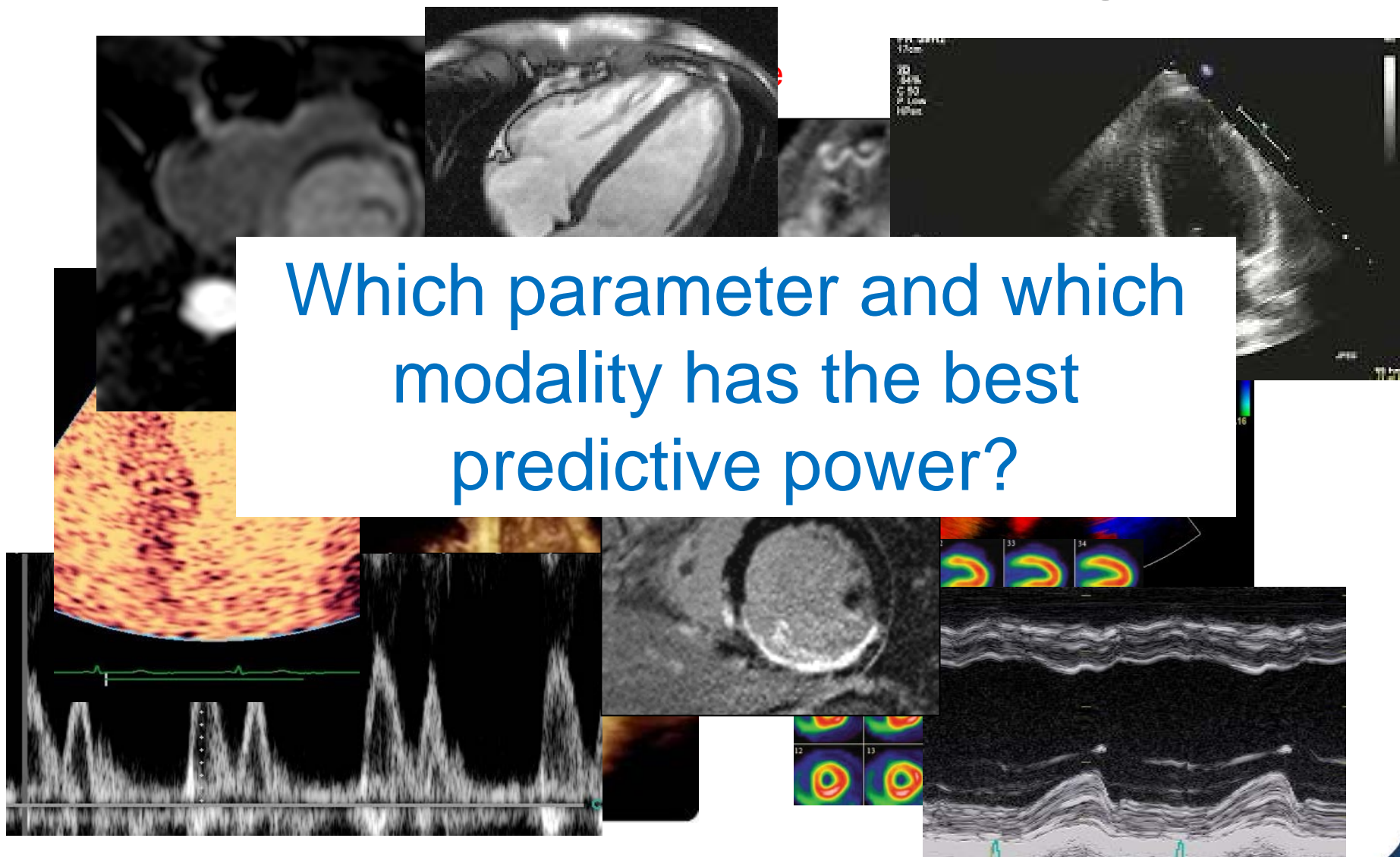
Coronary Heart Disease: ~2 million deaths/year in Europe (~25% of all deaths)

Better treatment primary disease → Increasing incidence of heart failure
└→ Amplified by aging population

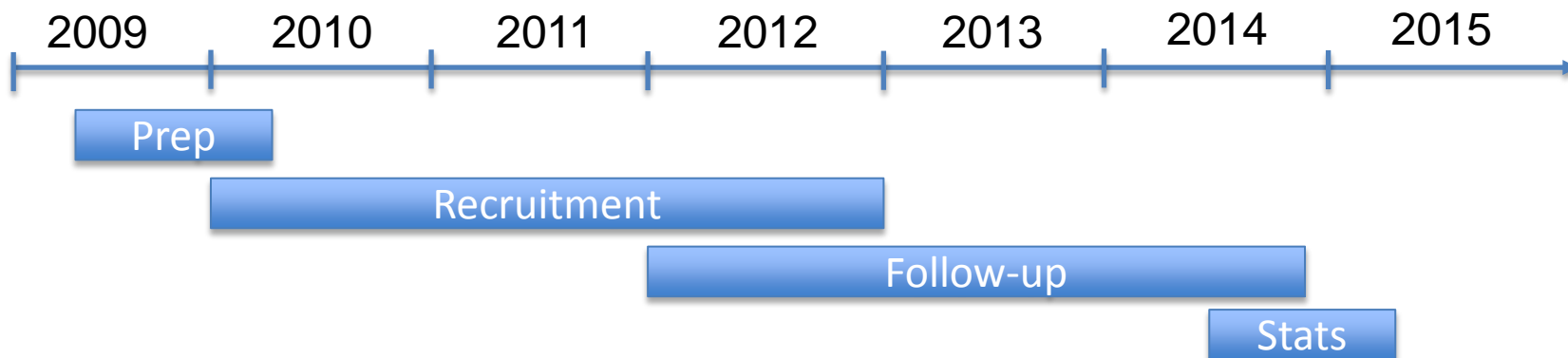


Detection of remodelling

Which parameter and which modality has the best predictive power?



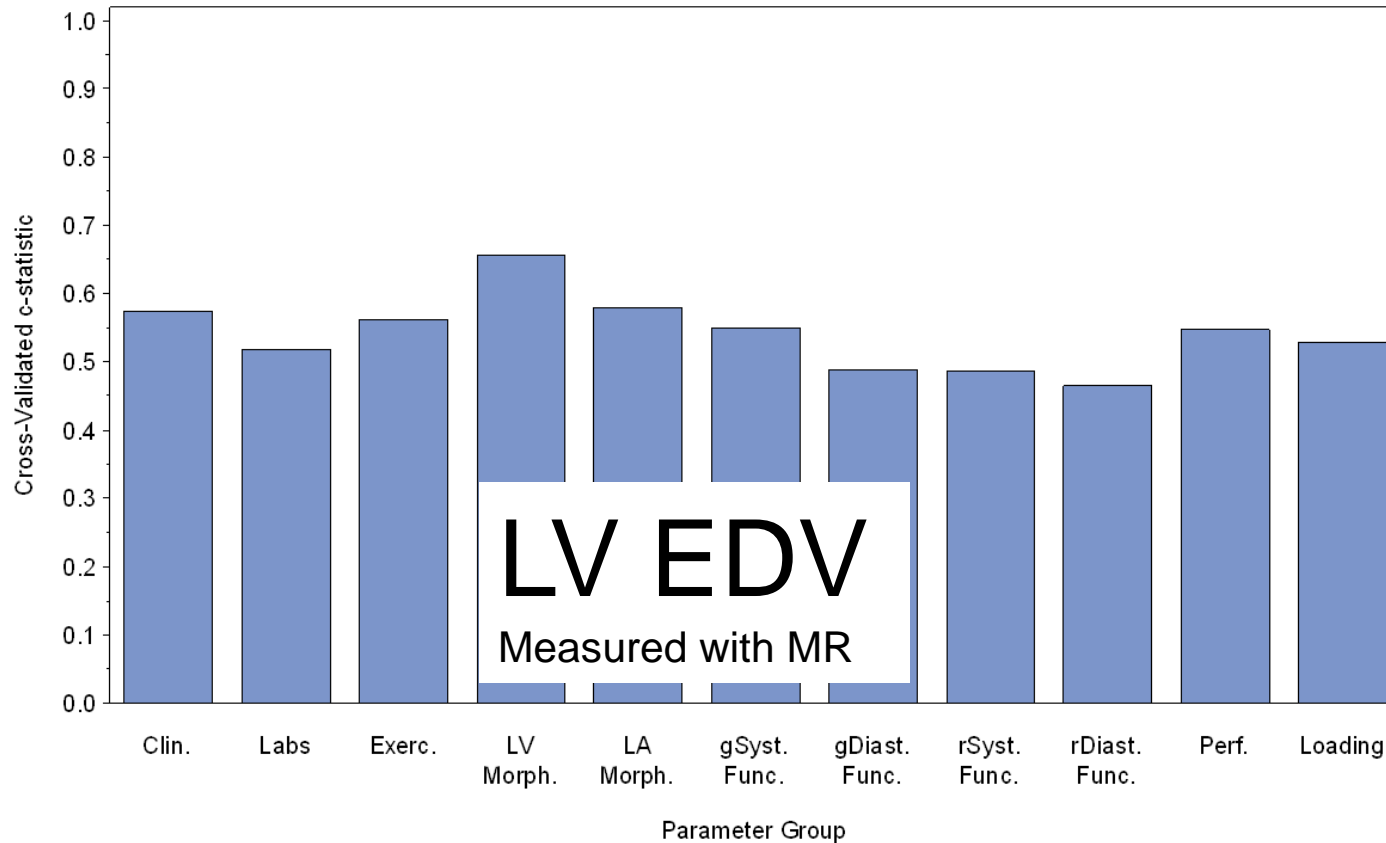
Study design



- 676 patients ~~recruited from only artery disease patients~~ ~~with a positive test for (8% drop-out) ischemia~~ in 6 clinical centres across Europe
- Clinical data, quality of life
- As many imaging exams as logistically possible (Echo, SPECT, MRI) ~~imaging (Echo, SPECT, MRI)~~
- Blood samples, clinical data, exercise testing, quality of life questionnaire

All data analysed in a blinded, anonymized manner by core-labs

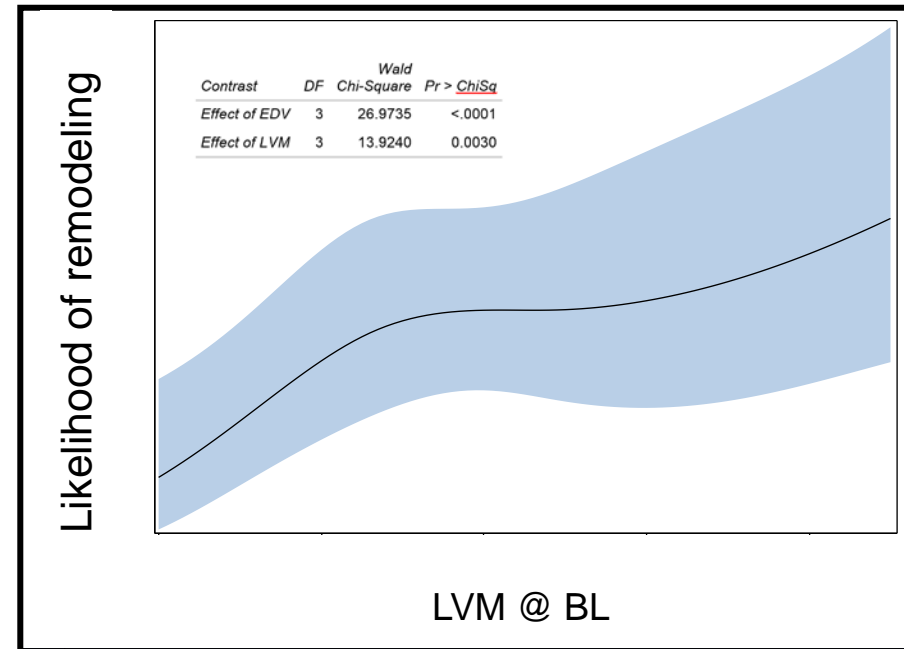
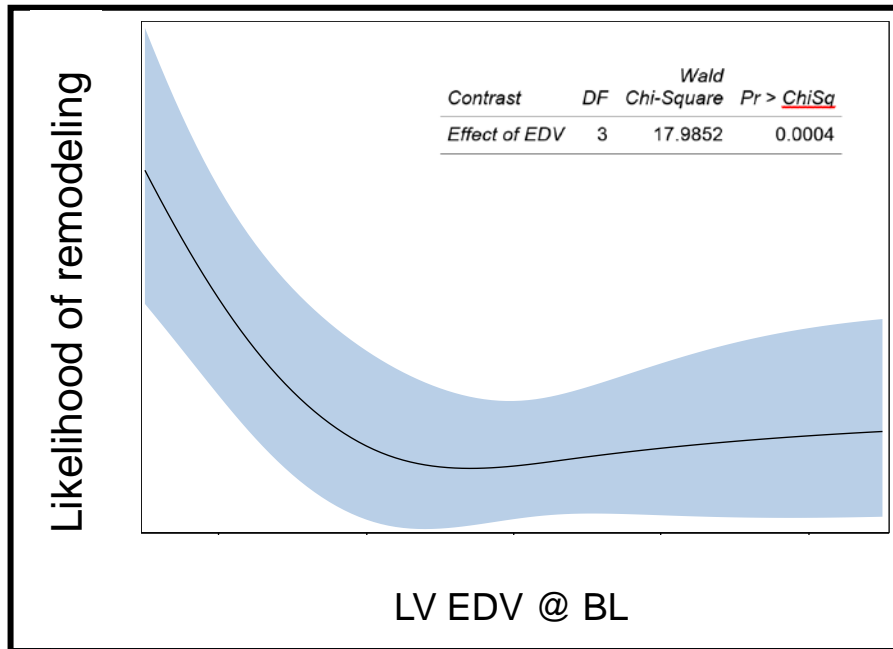
Results



The logistic regression analyses include PCA scores that explain up to 80% of the total variability of the data in the relevant parameter group. PCA scores were included in the model using restricted cubic splines.



Predicted Probability of Remodelling



Small ventricles with thick walls more likely remodel



Conclusion

In this group of stable CAD patients

- Morphologic remodeling is **best predicted by morphologic characteristics of the LV**, in particular EDV
- **EDV measured by MRI** showed to be the **most prognostic**. *A future cost-benefit analysis will need to demonstrate if this continues to hold when cost for the exam is taken into account.*
- Remodeling is frequently observed
- Occurs **often in normally sized ventricles!**
- Goes against the well-established hypothesis that the cause of remodeling is increased wall stress



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