PHYSIODAY
JOURNÉES DE PHYSIOLOGIE
EN CARDIOLOGIE INTERVENTIONNELLE

Integration of FFRangio in an European Cath lab

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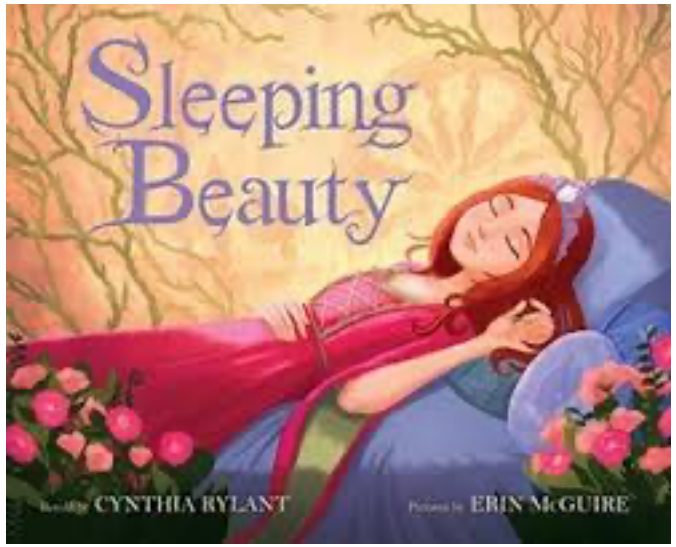
Consultant Cardiologist

5&6 AVRIL 2024
HÔTEL SHERATON · NICE


SIEMENS
Artis
Excimer Laser
System

7 Interventional Consultants



1 Interventional Fellow

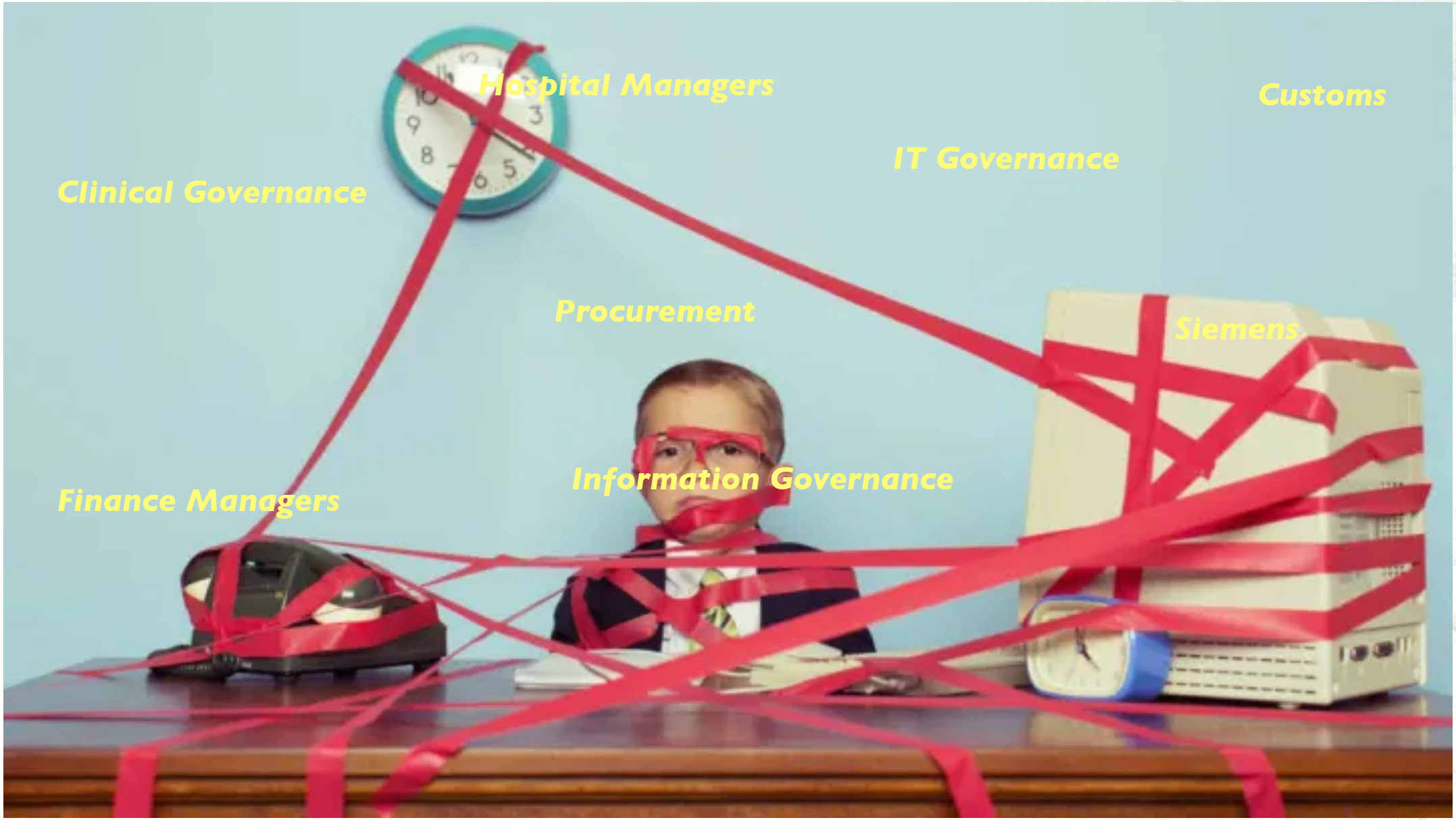
1200

240

The Beginnings

The Beginnings

- It all started in early 00’s
- 2023 (Post Brexit)


Hospital Managers
Customs
IT Governance
Clinical Governance
Procurement
Siemens
Information Governance
Finance Managers

The Beginning

D Day

D-Day

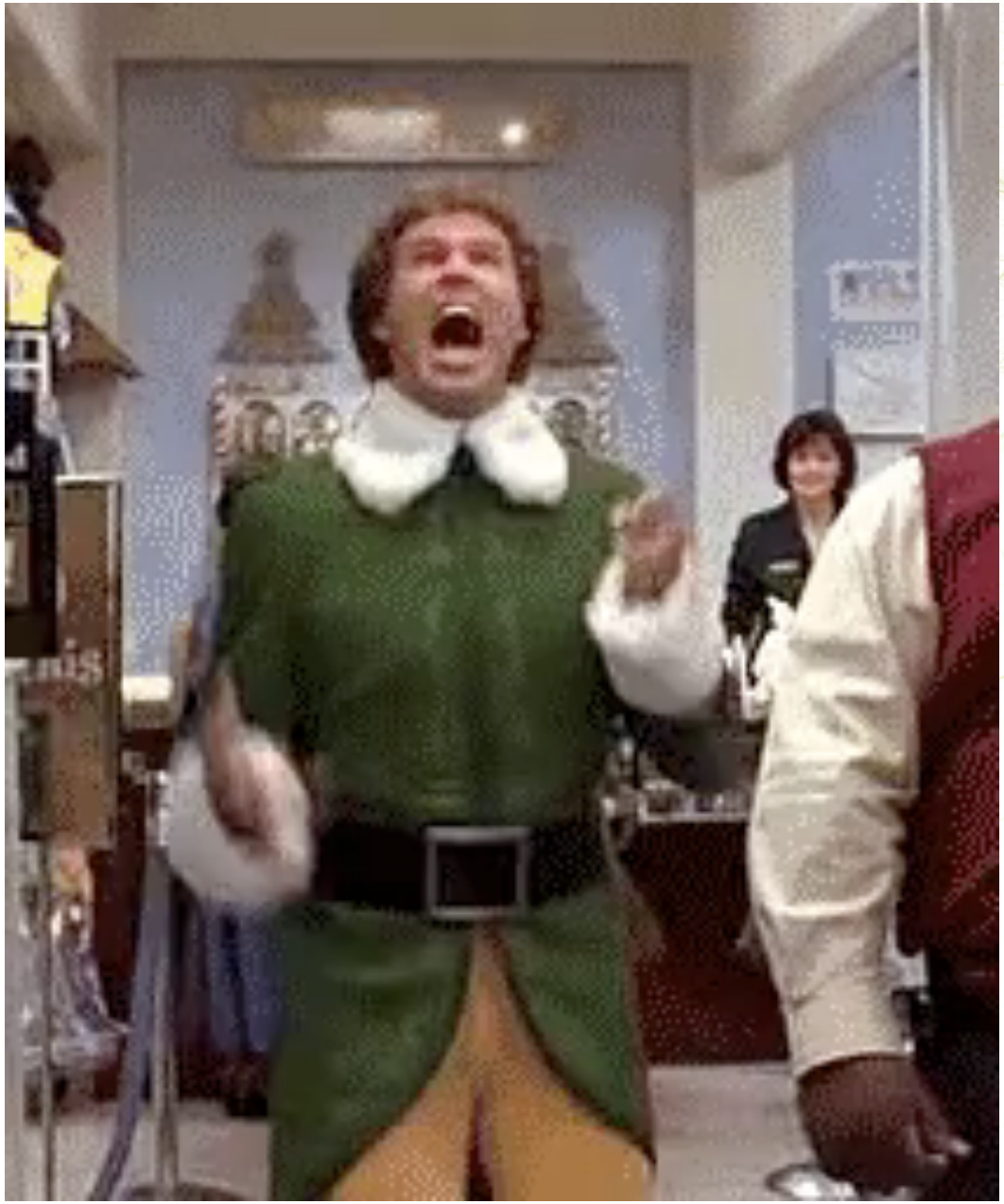

057-Air France
057-04094786
LHR
4
FEA-00175222
75222
AF
LHR
1
4
1/4
BULK M
PLEASE DO NOT OPEN
TO BE HANDLED ONLY BY CATHWORKS REPRESENTATIVE
POR FAVOR NO ABRIR
SOLO PUEDE SER MANIPULADO POR UN REPRESENTANTE DE CATHWORKS
SI PREGA DI NON APRIRE
DA MANEGGIARE SOLO DA PARTE DEL RAPPRESENTANTE CATHWORKS
CATHWORKS
FAP04647-REV02
1/4
FFRangio System
FAU04000
2023-02-28
Qty: 1

D-Day

D-Day


75222
PLEASE DO NOT OPEN
TO BE HANDLED ONLY BY CATHWORKS REPRESENTATIVE
POR FAVOR NO ABRIR
SI PREGA DI NON APRIRE


CATHWORKS



Science of it all!!!

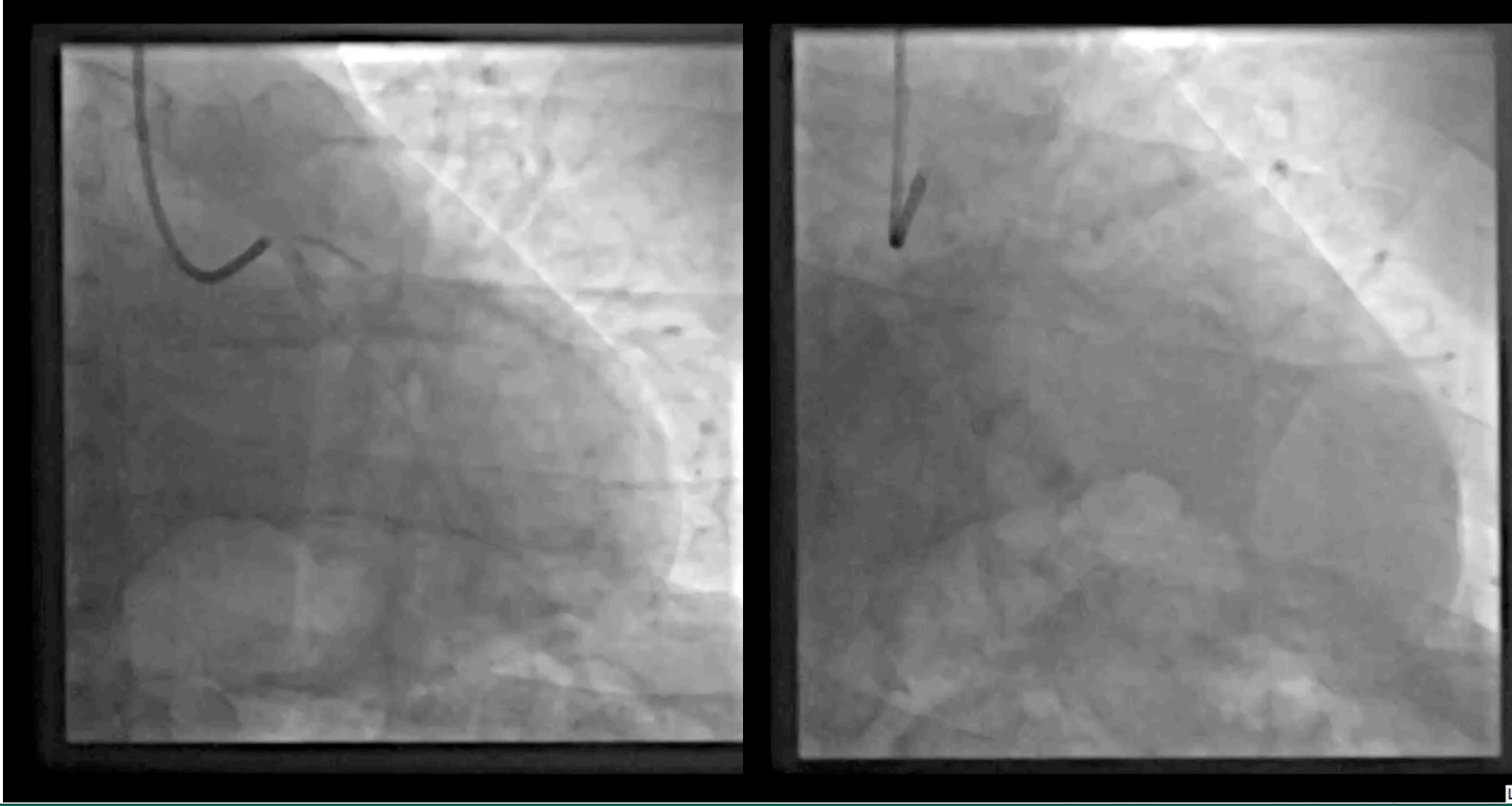
Science of it all!!!

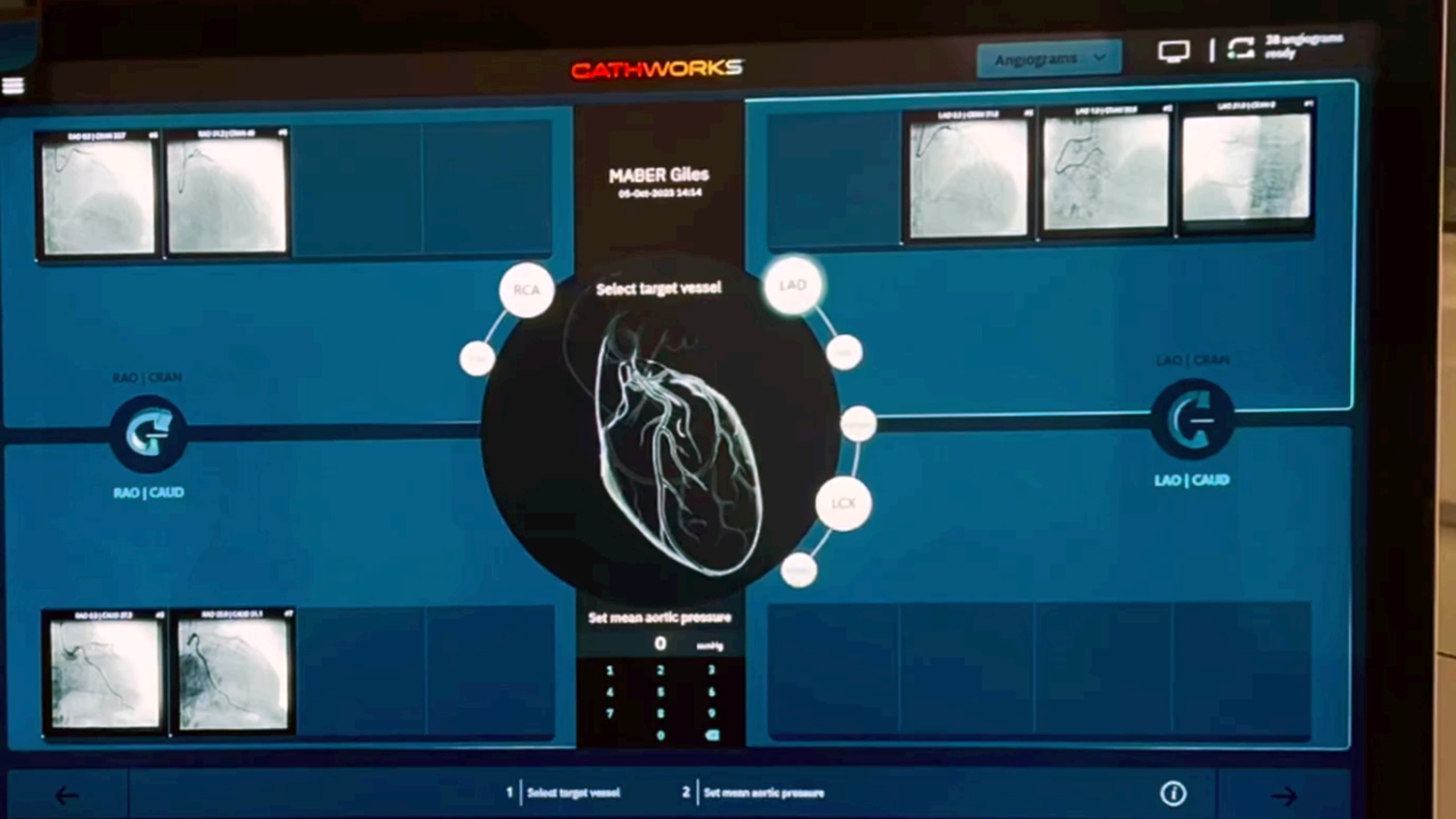
- What can I do with this?
- How reliable is this?
- How much input does it need from me?
- What will be it’s future?

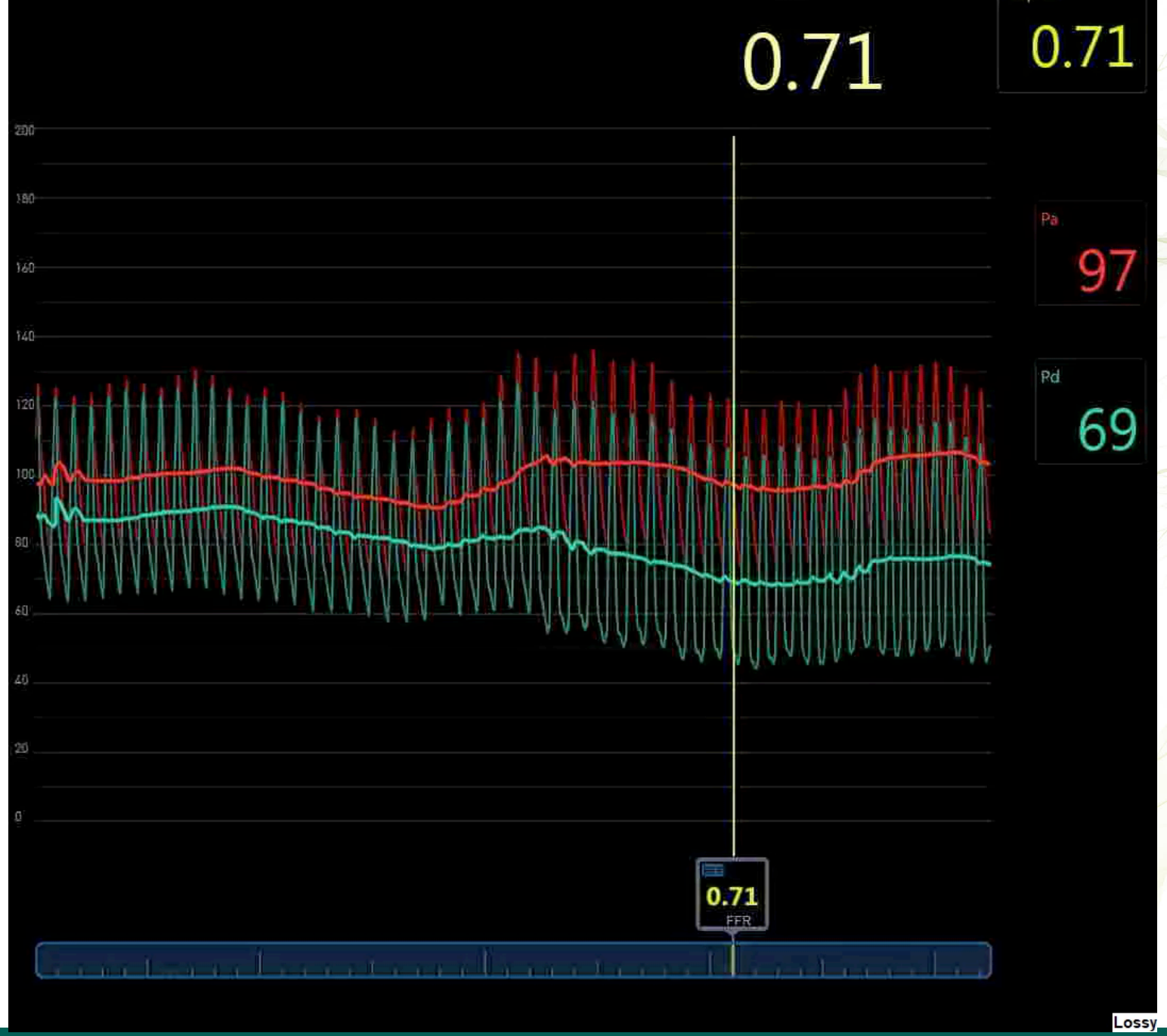
What Can I do with this?

Case 1

- 55 year old male
- FHX
- CCS class II angina despite OMT

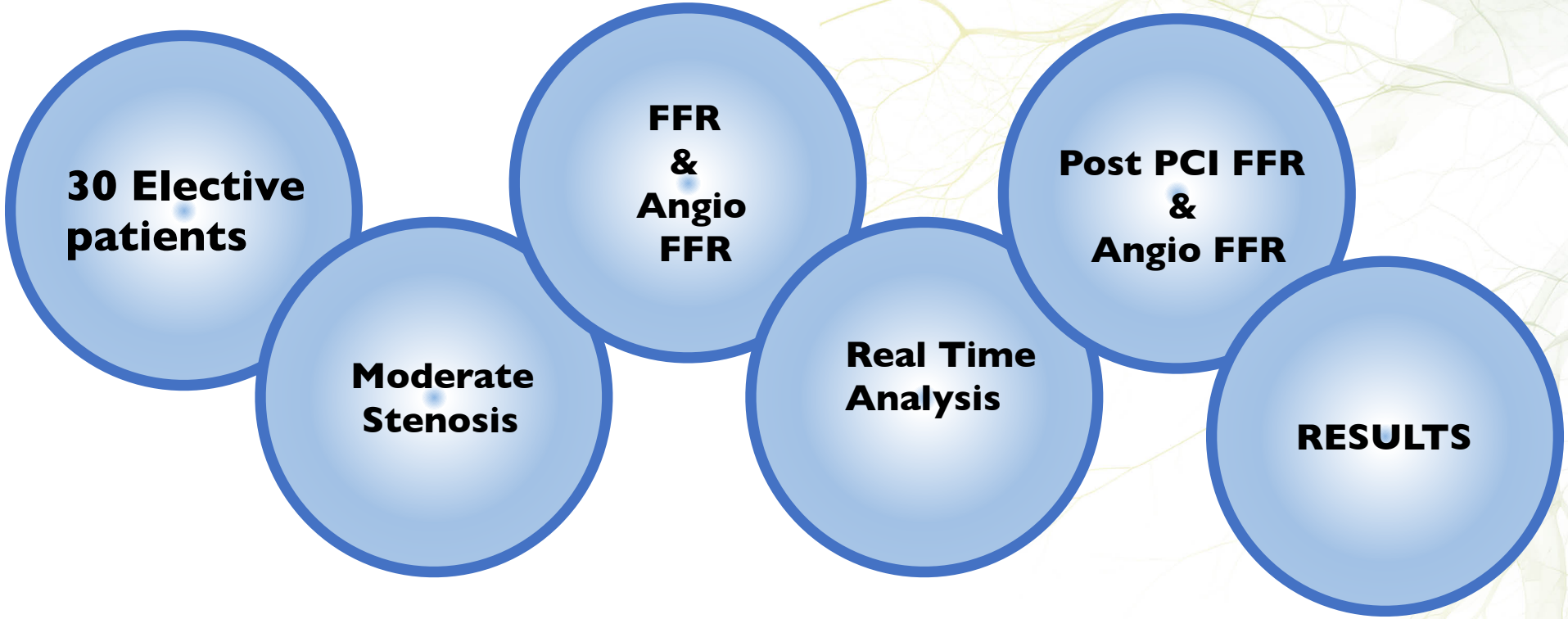



CATHWORKS
Angiograms
MABER Giles
Select target vessel
RCA
LAD
LCX
RAO | CRAN
RAO | CAUD
LAO | CRAN
LAO | CAUD
Set mean aortic pressure
0
1 2 3
4 5 6
7 8 9
1 Select target vessel
2 Set mean aortic pressure


0.71
0.71
Pa
97
Pd
69
200
180
160
140
120
100
80
60
40
20
0
0.71
FFR


Lossy

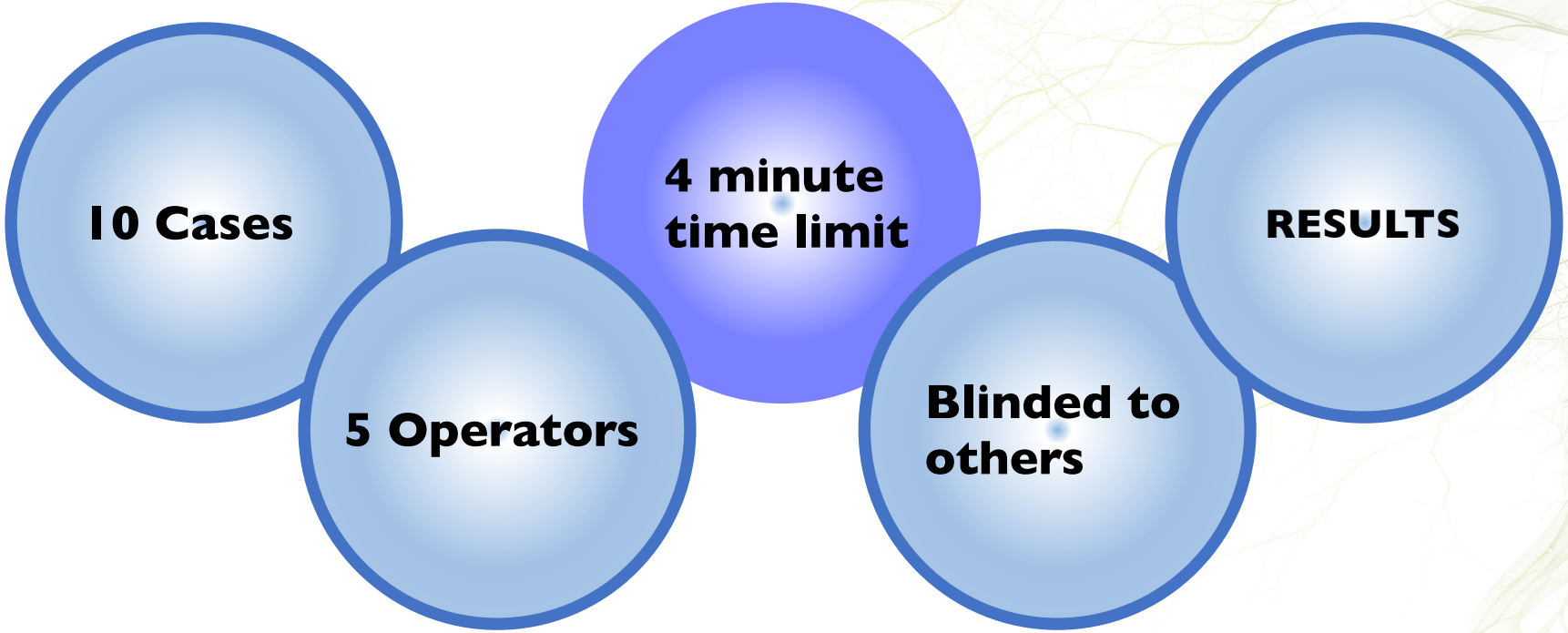
How reliable is this?


30 Elective patients
Moderate Stenosis
FFR & Angio FFR
Real Time Analysis
Post PCI FFR & Angio FFR
RESULTS

RESULTS

- There was 98% correlation between angio FFR and invasive FFR
- The was no difference in results
- There was only 0.01-0.02 difference in number

How reproducible is this?


10 Cases
5 Operators
4 minute time limit
Blinded to others
RESULTS

RESULTS

- The was no difference in analysis outcome
- Although numbers were different!!!!

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Head-to-head comparison of two angiography-derived fractional flow reserve techniques in patients with high-risk acute coronary syndrome: A multicenter prospective study

Ioannis Skalidis [a,b,1], Nathalie Noirclerc [a,1], David Meier [a], Wongsakorn Luangphiphat [a], Aurelien Cagnina [a], Sarah Mauler-Wittwer [a], Thabo Mahendiran [a], Bernard De Bruyne [a,c], Alessandro Candreva [d], Carlos Collet [c], Jeroen Sonck [c], Olivier Muller [a], Stephane Fournier [a,*]

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FFRangio
FFR
HIGH-RISK ACS
QFR

ABSTRACT

Background: FFRangio and QFR are angiography-based technologies that have been validated in patients with stable coronary artery disease. No head-to-head comparison to invasive fractional flow reserve (FFR) has been reported to date in patients with acute coronary syndromes (ACS).

Methods: This study is a subset of a larger prospective multicenter, single-arm study that involved patients diagnosed with high-risk ACS in whom 30–70% stenosis was evaluated by FFR. FFRangio and QFR – both calculated offline by 2 different and blinded operators – were calculated and compared to FFR. The two co-primary endpoints were the comparison of the Pearson correlation coefficient between FFRangio and QFR with FFR and the comparison of their inter-observer variability.

Results: Among 134 high-risk ACS screened patients, 59 patients with 84 vessels underwent FFR measurements and were included in this study. The mean FFR value was 0.82 ± 0.40 with 32 (38%) being ≤0.80. The mean FFRangio was 0.82 ± 0.20 and the mean QFR was 0.82 ± 0.30, with 27 (32%) and 37 (44%) being ≤0.80, respectively. The Pearson correlation coefficient was significantly better for FFRangio compared to QFR, with R values of 0.76 and 0.[illegible], respectively ($p = 0.01$). The inter-observer agreement was also significantly better for FFRangio compared to QFR (0.86 vs 0.79, $p < 0.05$). FFRangio had 91% sensitivity, 100% specificity, and 96.8% accuracy, while QFR exhibited 86.4% sensitivity, 98.4% specificity, and 93.7% accuracy.

Conclusion: In patients with high-risk ACS, FFRangio and QFR demonstrated excellent diagnostic performance. FFRangio seems to have better correlation to invasive FFR compared to QFR but further larger validation studies are required.

1. Introduction

Invasive physiological assessment has become a fundamental aspect of clinical decision-making in the management of coronary artery disease (CAD). It is indeed well-established that angiographic evaluation of lesion severity does not correlate well with functional significance [1,2] and that even mild angiographic stenoses, in vessels supplying a large myocardial territory can be associated with ischemia and future adverse vascular events [3]. Fractional Flow Reserve (FFR) has been validated to assess the functional significance of coronary stenosis and select the most adequate revascularization strategy, thus improving patient outcomes [1,2]. Despite the clinical evidence, FFR remains however underutilized [4]. This may be related to several factors, such as the additional time needed to perform the measurements, technical issues and risks associated with wiring of the coronary artery, or the potential side effects related to the use of some hyperemic agents.

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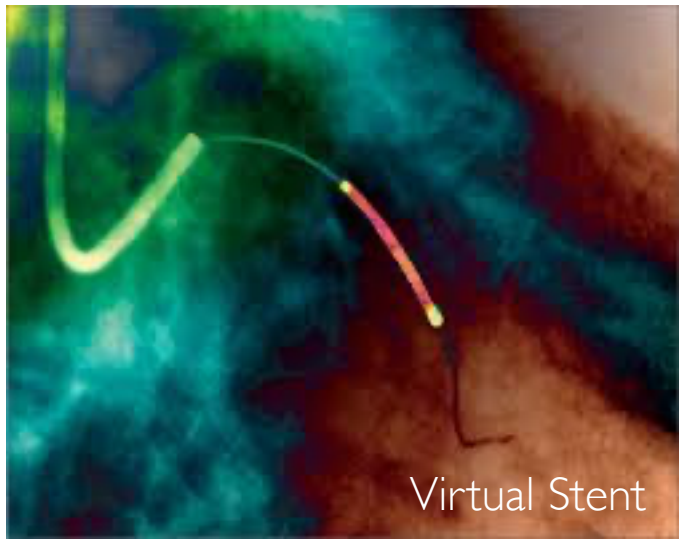
Where is it’s future?


September
4
1883


Virtual Stent


GOOD
BEST
BETTER
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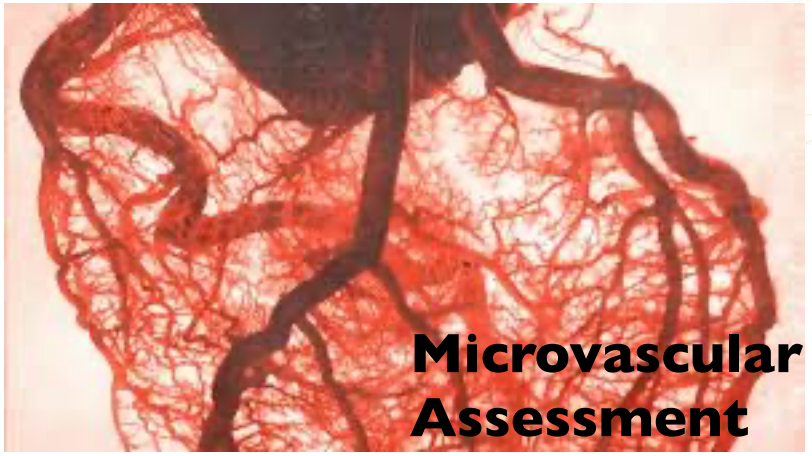
Microvascular
Assessment

Thank you