



PHYSIO DAY

JOURNÉES DE PHYSIOLOGIE
EN CARDIOLOGIE INTERVENTIONNELLE



**ARNAULT
TZANCK**
SAINT-LAURENT-DU-VAR

Lecture des registres France PCI et PhysioMACE

Julien Adjedj

5 & 6 AVRIL 2024

HÔTEL SHERATON · NICE

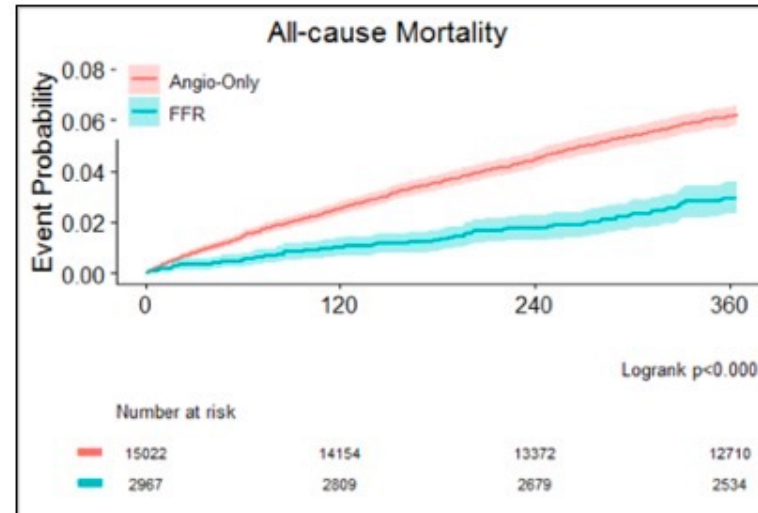
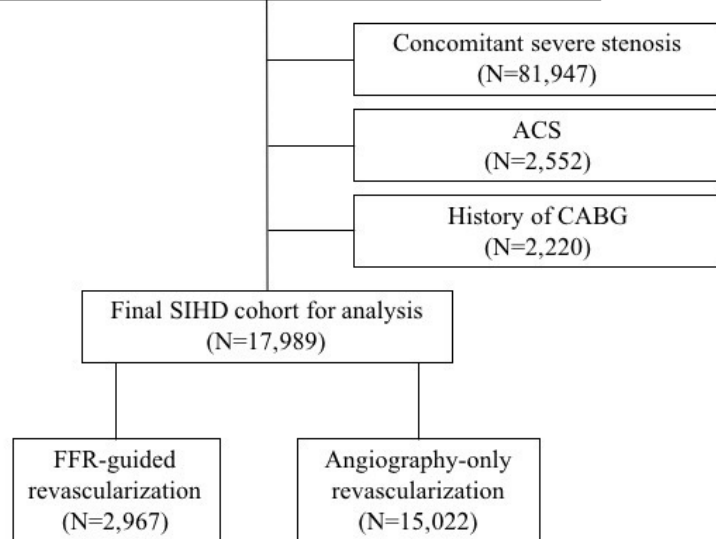


Impact clinique de la FFR

Editorial en 6 points:

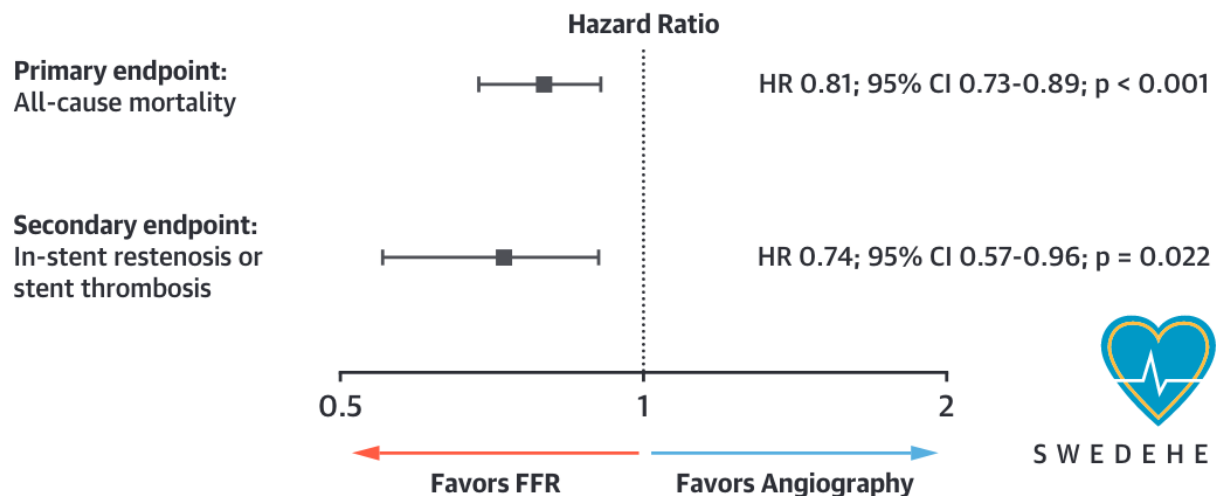
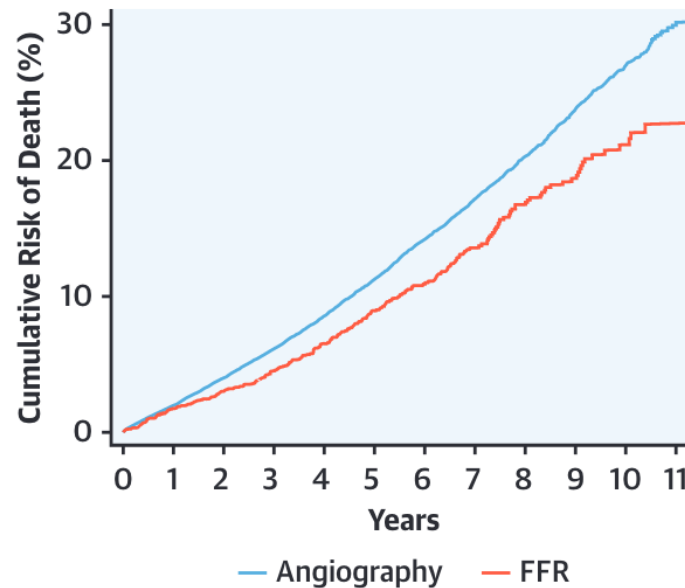
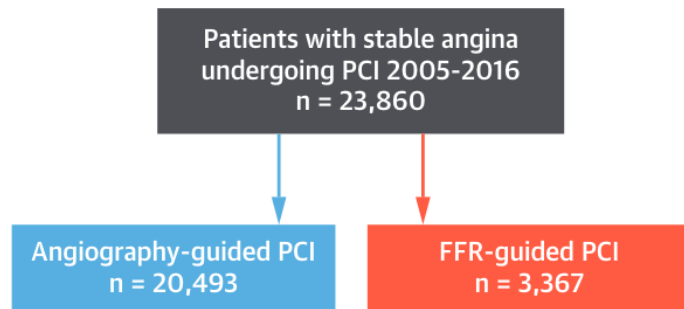
1. PCI 18% groupe FFR vs 4% groupe angiographie seule
2. Adoption modeste de la FFR de 15% en 2009 à 19% en 2017
3. Pas de test non invasif dans 60% des cas
4. Plus de PCI (90%) versus chirurgie (10%) avec FFR
5. 50% PCI et 50% chirurgie avec angiographie seule
6. Réduction de la mortalité de 43%

Total number of patients undergoing coronary angiography at 66 FFR/PCI capable VA cardiac catheterization laboratories from January 1, 2009 to September 30, 2017 with at least 1 angiographically-intermediate stenosis (N=104,708)





Impact clinique de la FFR





CCI Catheterization & Cardiovascular Interventions

ORIGINAL ARTICLE - CLINICAL SCIENCE

Clinical impact of FFR-guided PCI compared to angio-guided PCI from the France PCI registry

Julien Adjedj MD, PhD , Jean-Francois Morelle MD, Christophe Saint Etienne MD, Olivier Fichaux MD, Pierre Marcollet MD, Marie Pascale Decomis MD, Pascal Motreff MD, PhD, Stephane Chassaing MD, Rene Koning MD, Gregoire Range MD, all France PCI investigators

First published: 11 May 2022 | <https://doi.org/10.1002/ccd.30225>



Registre France PCI

14 centres participants



52610 PCI included in FPCI
Between 2014 and 2019

Exclusion:
25553 ACS
9578 coronary stenosis >90%
2770 no follow up performed
208 lost of follow up
18 CABG PCI
7 PCI with mechanical assistance

14384 PCI in patients with chronic
coronary syndrome
and one year of clinical follow up

13125 Angio guided PCI (91%)

1259 FFR guided PCI (9%)



Caractéristiques cliniques



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	Angio guided PCI n=13125	FFR guide PCI n= 1259	P value
Age (year)	69.6 ± 11	67.6 ± 10	<0.0001
Sex (male)	9935 (76%)	1015 (81%)	<0.0001
BMI	27.6 ± 4.8	27.7 ± 4.7	0.486
Hypertension	8159 (62%)	763 (61%)	0.056
Diabetes	3929 (30%)	402 (32%)	0.005
Dyslipidemia	6846 (52%)	676 (54%)	0.215
Active smoker	2181 (17%)	193 (15%)	0.015
Family history of CAD	2953 (23%)	319 (25%)	<0.0001
PAD	1479 (11%)	148 (12%)	0.333
Previous stroke	697 (5%)	47 (4%)	0.003
Previous MI	2247 (17%)	213 (17%)	0.704
Previous PCI	5342 (41%)	561 (45%)	<0.0001
Previous CABG	260 (2%)	24 (2%)	0.714
Severe Kidney insufficiency (creatinine level >200)	283 (2%)	21 (2%)	0.250
LVEF (%)	55.7 ± 9	56.4 ± 9	<0.0001



Caractéristiques de la procédure



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	Angio guided PCI n=13125	FFR guide PCI n= 1259	P value
Vascular access			
Radial	12022 (92%)	1200 (95%)	<0.0001
Femoral	1069 (9%)	55 (4%)	<0.0001
Humeral	34 (0.3%)	4 (0.3%)	0.699
Sheath size (French)			
5F	1593 (12%)	153 (12%)	0.987
6F	10968 (84%)	1058 (84%)	0.668
7F	306 (2%)	25 (2%)	0.435
8F	12 (0.1%)	0	0.283
Left main stenosis	642 (5%)	42 (4%)	0.012
Global syntax score	7 ± 6	8 ± 6	0.201
Number of vessel treated	1.16 ± 0.43	1.14 ± 0.42	0.104
Number of coronary segment treated	1.44 ± 0.73	1.43 ± 0.70	0.671
Number of stents implanted	1.48 ± 0.81	1.47 ± 0.85	0.208
Contrast medium administered (mL)	132 ± 60	154 ± 64	0.002
Fluoroscopy time (min)	10 ± 8	11 ± 7	0.103
X rays delivered (cGY.cm)	3228 ± 3229	3895 ± 3420	0.082

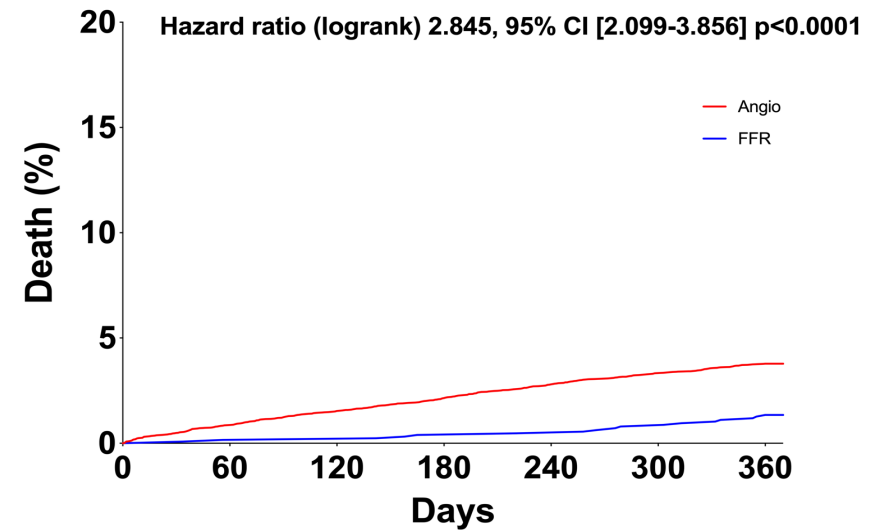
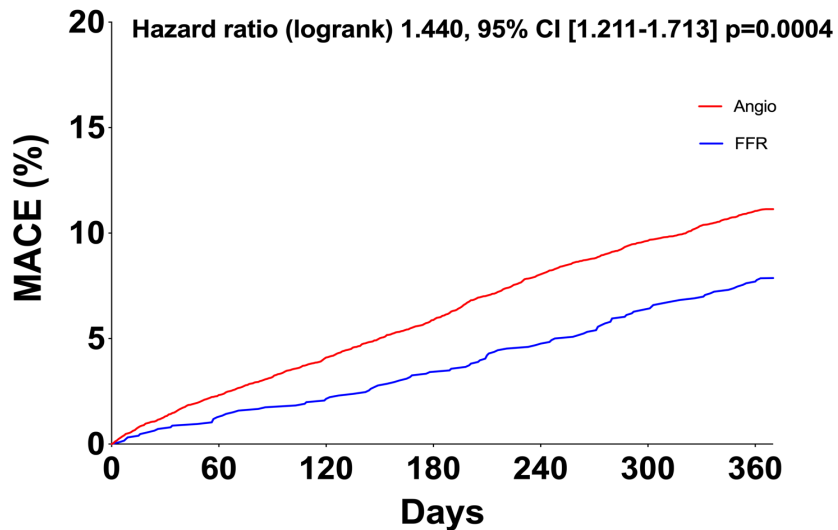


Evènements cliniques à un an



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	Angio guided PCI	FFR guided PCI	P value
MACE	1478 (11.3%)	100 (7.9%)	<0.0001
Overall deaths	506 (3.9%)	17 (1.4%)	<0.0001
Cardiovascular death	177 (1.3%)	6 (0.5%)	0.008
Non cardiovascular death	231 (1.8%)	8 (0.6%)	0.003
Unknown cause of death	98 (0.7%)	3 (0.2%)	0.039
MI	145 (1.1%)	12 (1.0%)	0.302
Any Revascularization	692 (5.3%)	60 (4.8%)	0.101
Target lesion revascularization	222 (1.7%)	14 (1.1%)	0.002
Stent Thrombosis	49 (0.4%)	3 (0.2%)	0.121
Stroke	82 (0.6%)	4 (0.3%)	0.006
Major bleeding	309 (2.4%)	24 (1.9%)	0.036



Numbers	Angio 13112	12814	12581	12343	12061	11850	11667
At risk	FFR 1259	1244	1233	1217	1200	1181	1163

Numbers	13115	13003	12917	12860	12740	12682	12620
At risk	1259	1258	1258	1255	1254	1250	1243



Résultats après ajustement

- Age
- Sex
- Smoking Status
- Diabetes
- Family history of CAD
- Left ventricle ejection fraction
- Vascular access
- Previous stroke
- Previous PCI
- Left Main stenosis
- Contrast medium volume

MACE

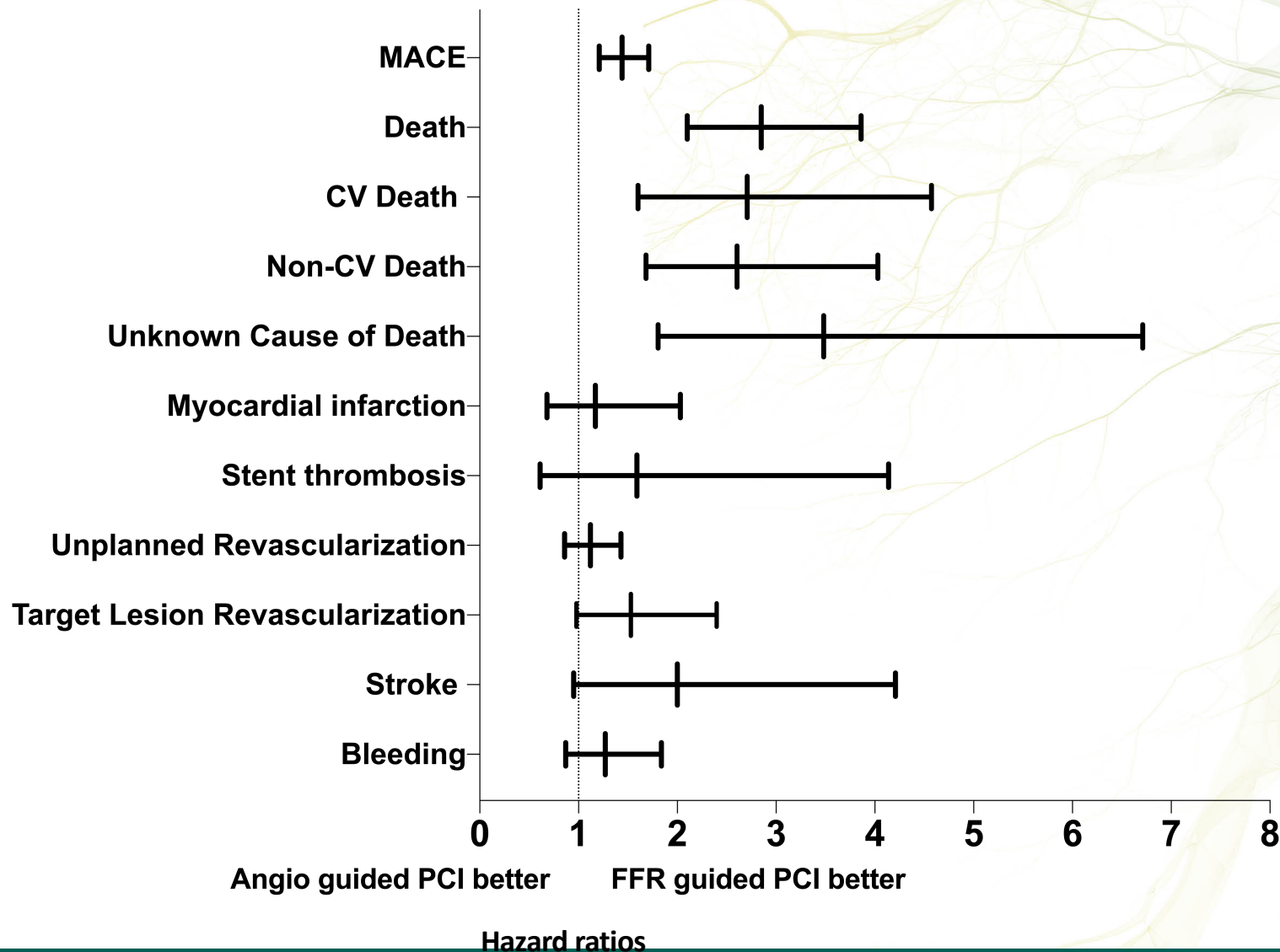
**FFR adjusted Hazard ratio: 1.289, 95% CI [1.030-1.614]
(p value = 0.027)**

Mortalité

**FFR adjusted hazard ratio: 2.524, 95% CI [1.421-4.312]
(p value = 0.001)**

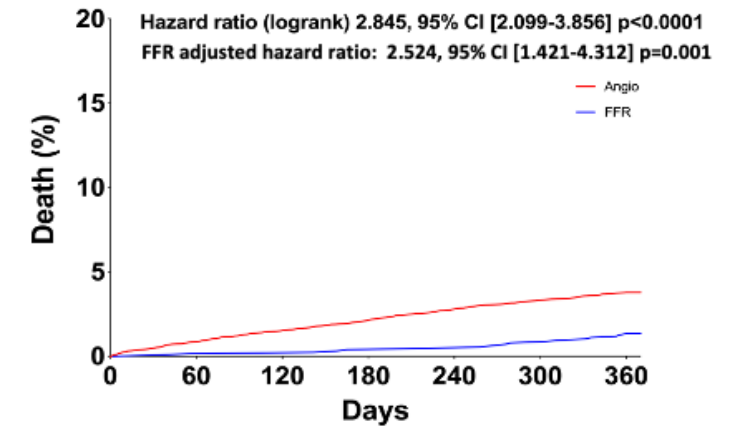
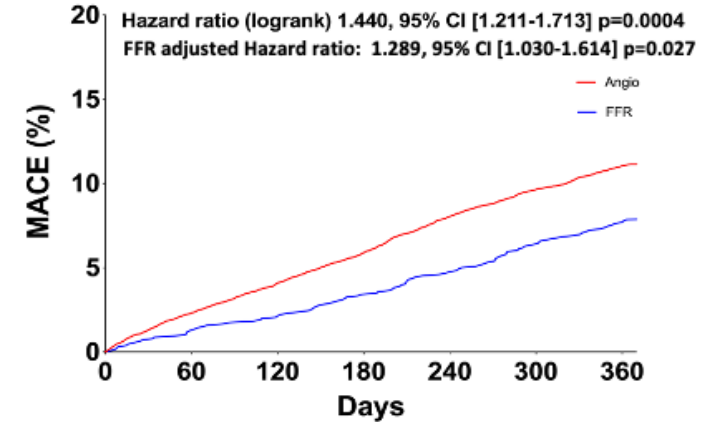
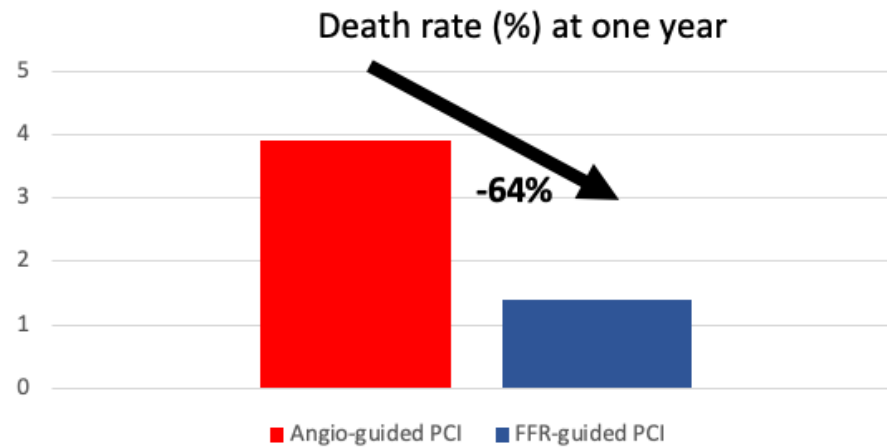
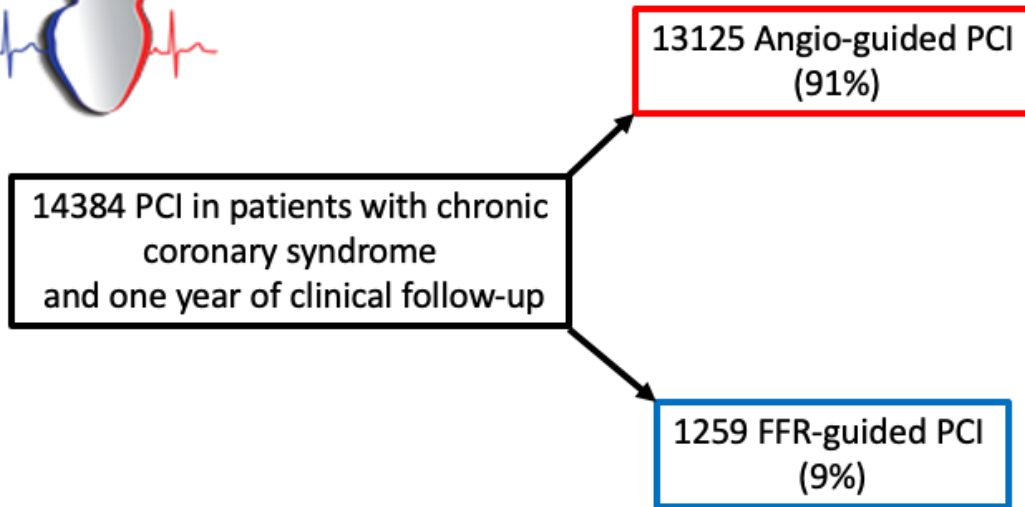


Evènements cliniques à un an





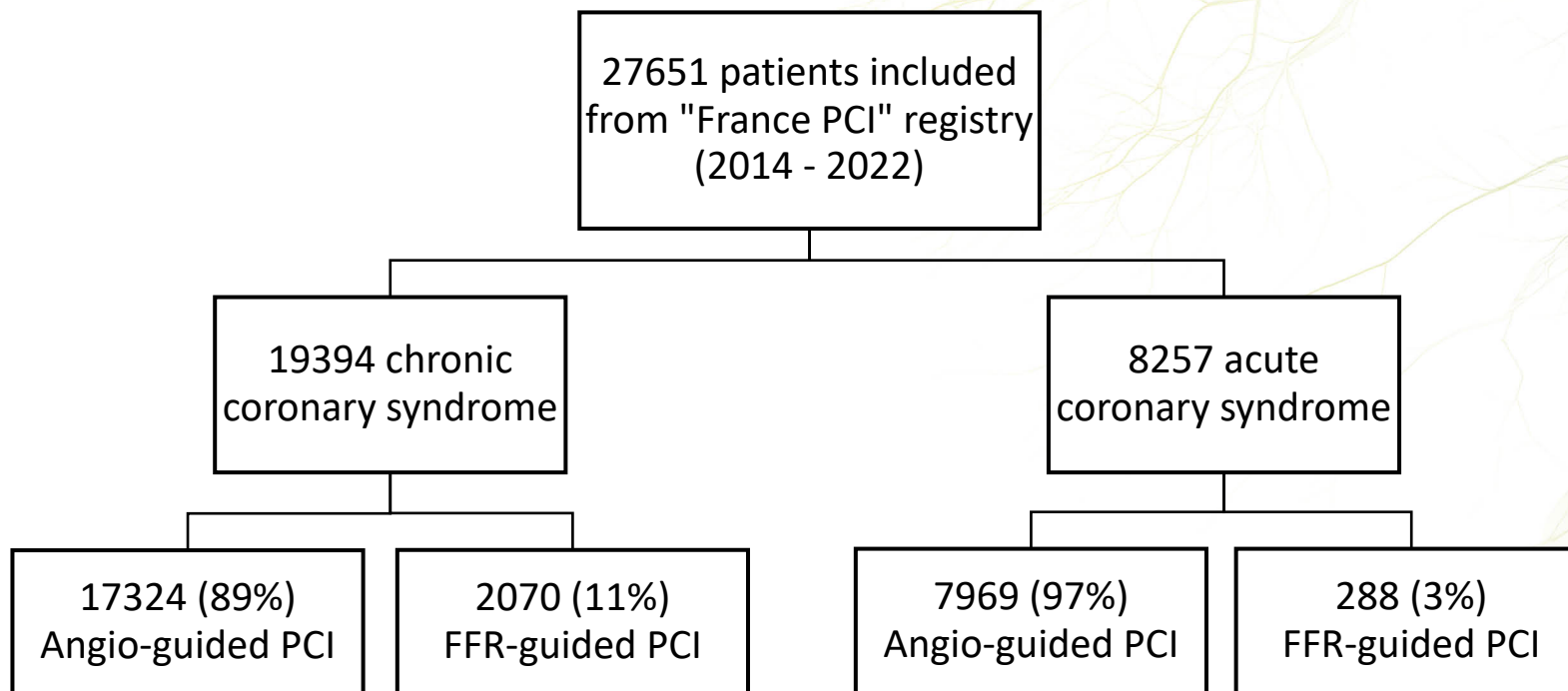
Impact clinique de la FFR



Adjedj et al. CCI 2022

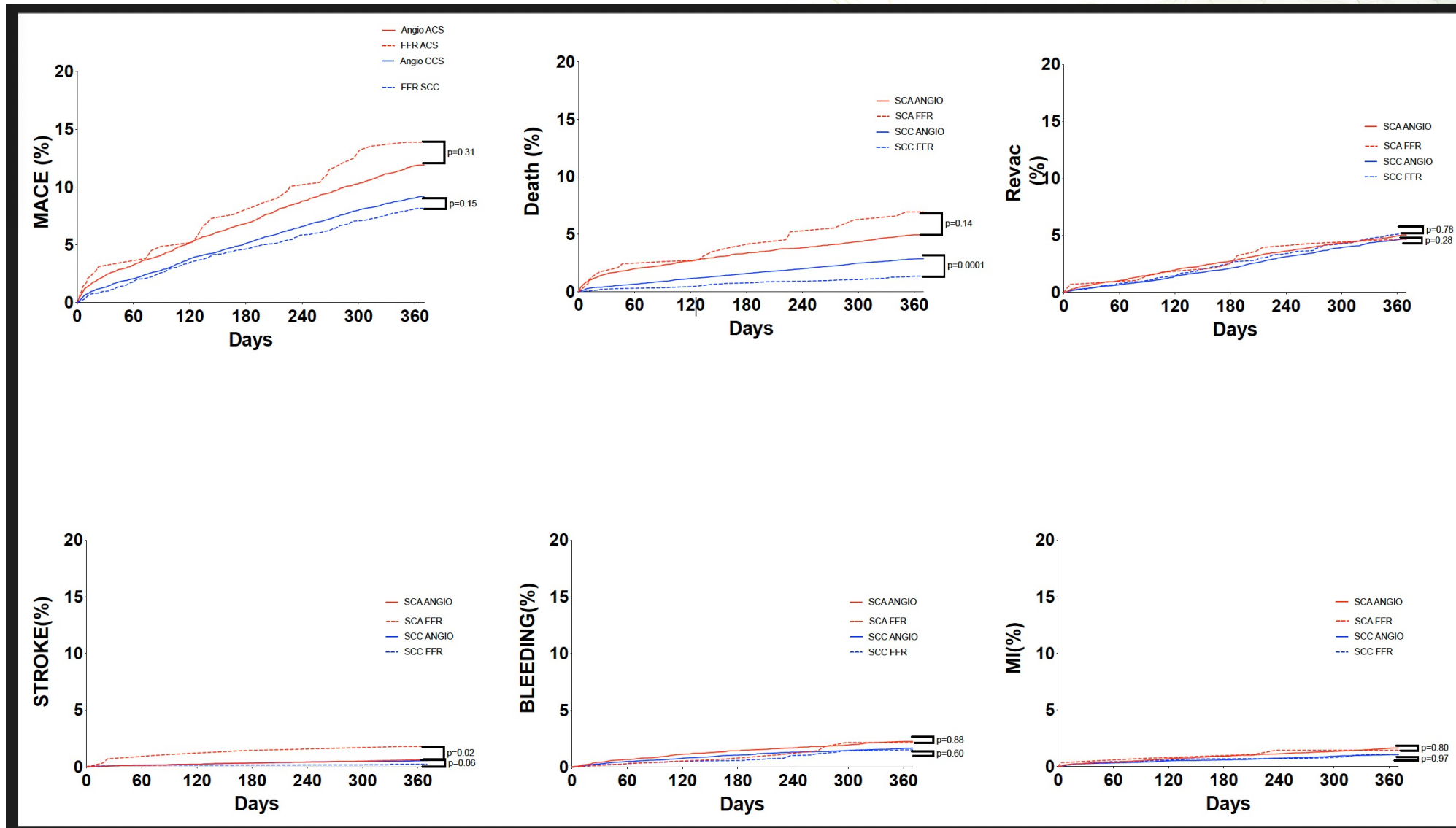


Différence SCA et SCC





Différence SCA et SCC

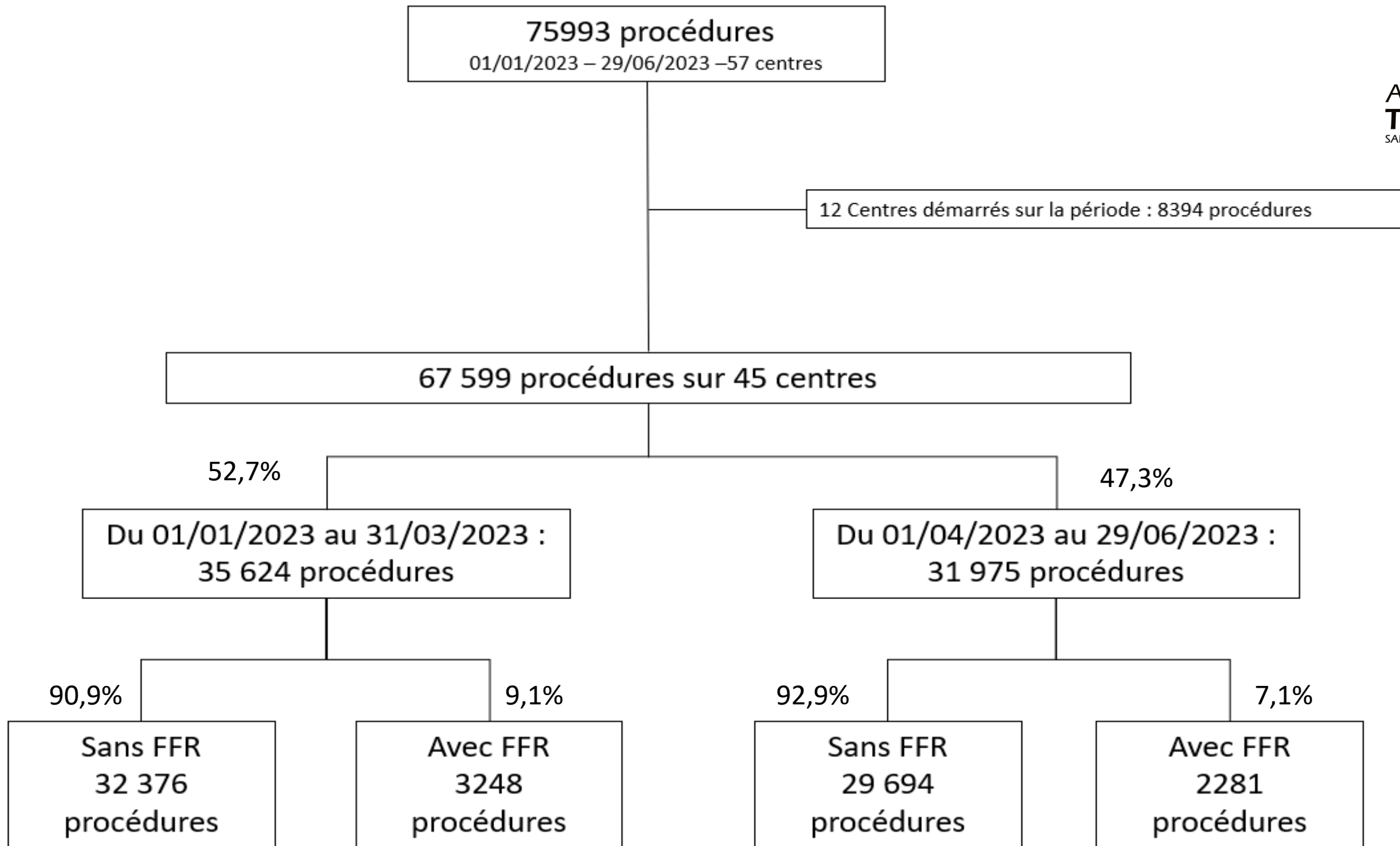




FFR FPCI avant apres déremboursement

Méthodologie

- FPCI
- Extraction de 90 jours avant (janvier-fevrier-mars) et 90 jours apres (avril-mai –juin (arret le 29 juin au lieu du 30)) le déremboursement
- Parut pour le 31 mars effet le 1 avril
- Soit avant ($31+28+31=90$ jours) et apres ($30+31+29=90$ jours)





Résultats sur les angioplasties

	Avant	Après	tendance
Nb_artere_dilatee n= (%/total coro)	16936 (48%)	15617 (49%)	+2,1%
Nb_site_dilate n= (%/total coro)	21895 (61%)	20331 (64%)	+4,7%
Nb_stent_implante n= (%/total coro)	20632 (58%)	18908 (59%)	+1,7%
Nb dilat n= (%/total coro)	14391 (40%)	13148 (41%)	+2,5%
FFR n= (%/total coro)	3248 (9,1%)	2281 (7,1%)	-22%
Nb examen (=total coro)	35625	31975	
Cout medico économique...			



PHYSIOlogy MeAsurments Coronary rEgistry PHYSIOMACE

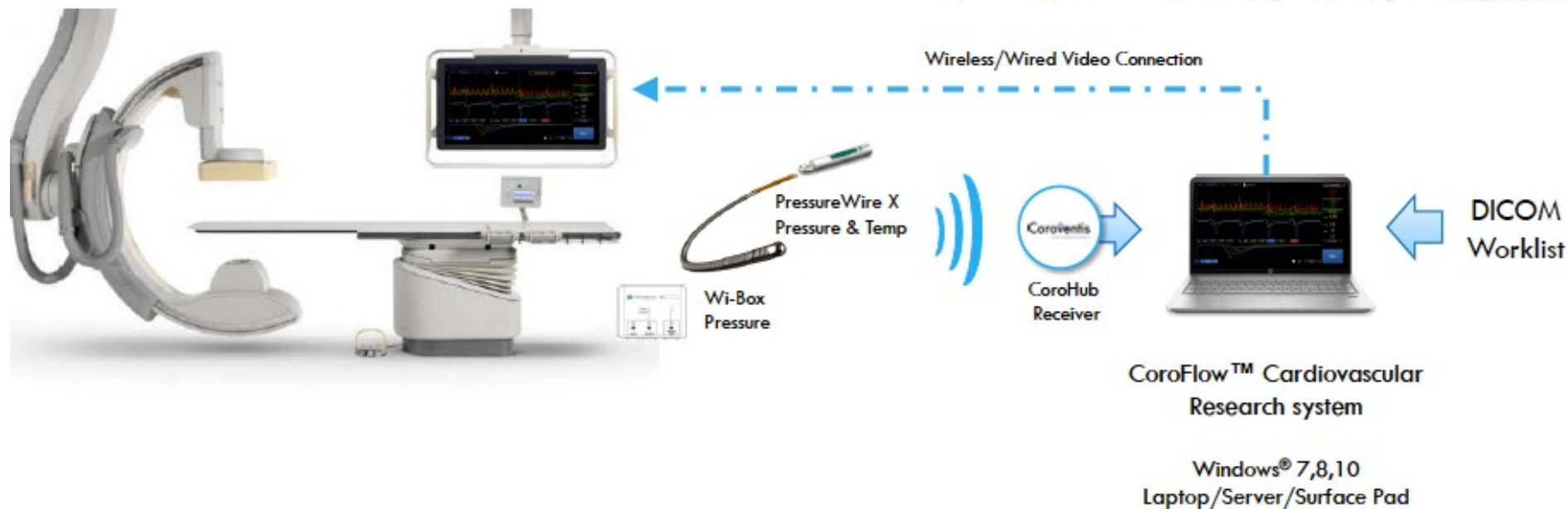


Objectif

- Registre participatif en physiologie coronaire prospectif
- FFR, CFR, IMR, ABF et autres indices...
- Utilisant le logiciel Coroventis®



Coroventis



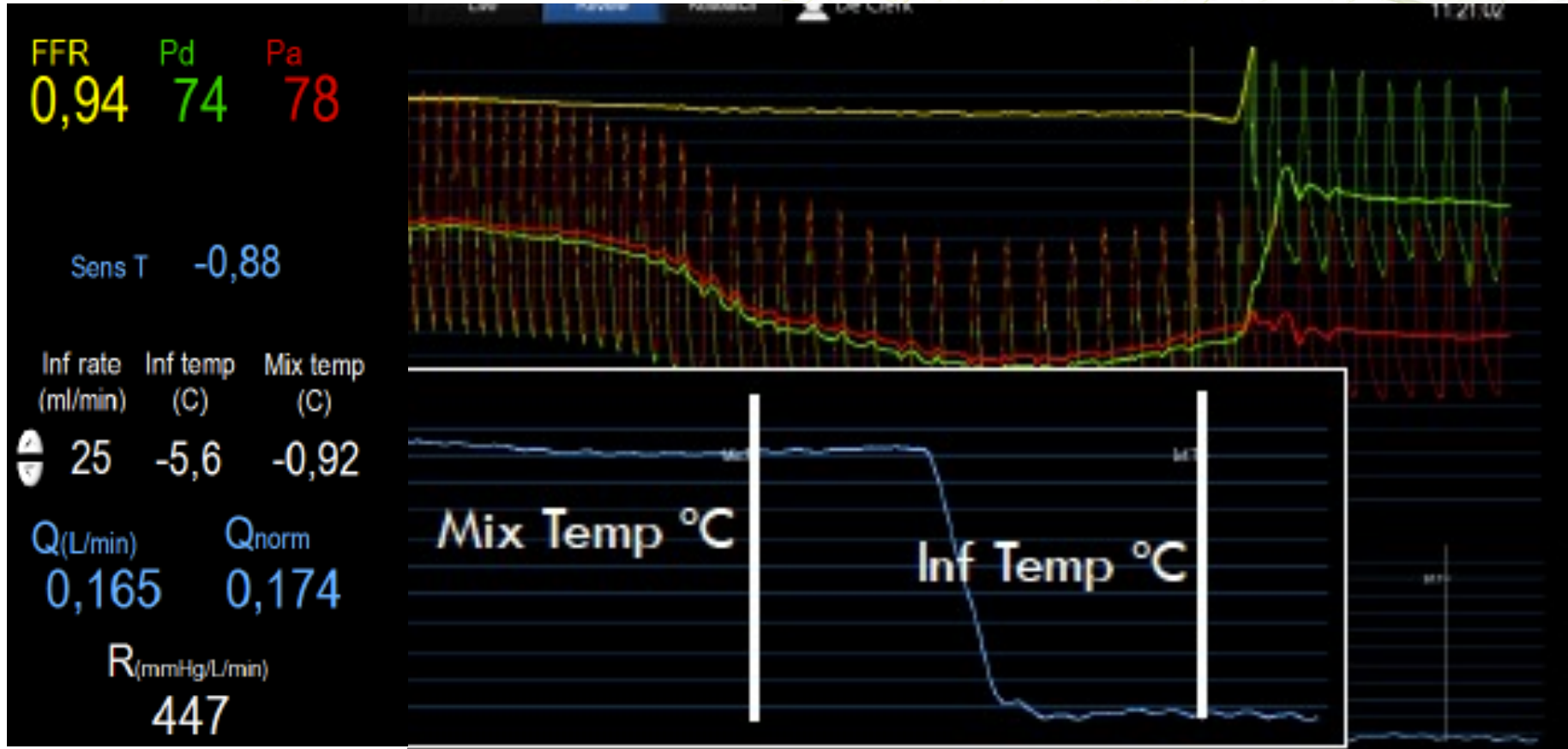
Coroventis
Turning ideas into reality



Coroventis



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- FFR; Pd/Pa; CFR; IMR; thermodilution



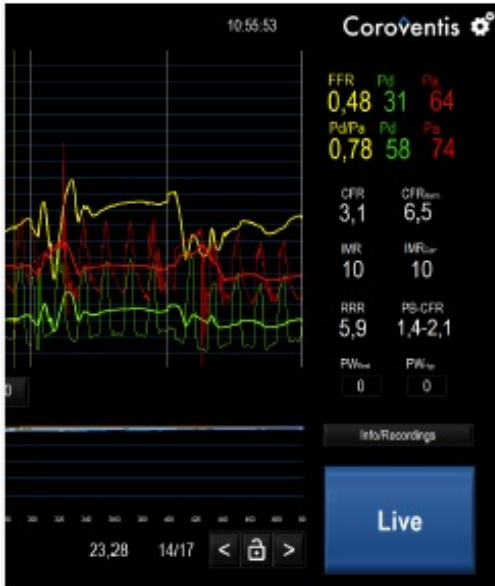
Coroventis



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AUTOMATED KEY DATA EXTRACTION

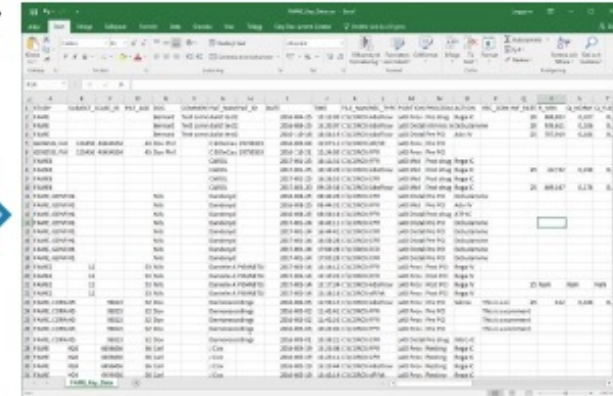
Measurements



Automated Data Indexing

FFR	Pd	Pa		
Pd/Pa	Pd	Pa		
CFR	CFR _{Norm}	PBCFR		
IMR	IMR _{Corr}		FR	FR
BRI	RRR			
TMN1	TMN2	TMN3		
Pre	Post		I3	I3
LAD	RCA	LCX		
Prox	Mid	Dist		
Gender	Age	ID		
...		
...		

Study Level Data Filtering/Anonymization
Export to Excel/Matlab



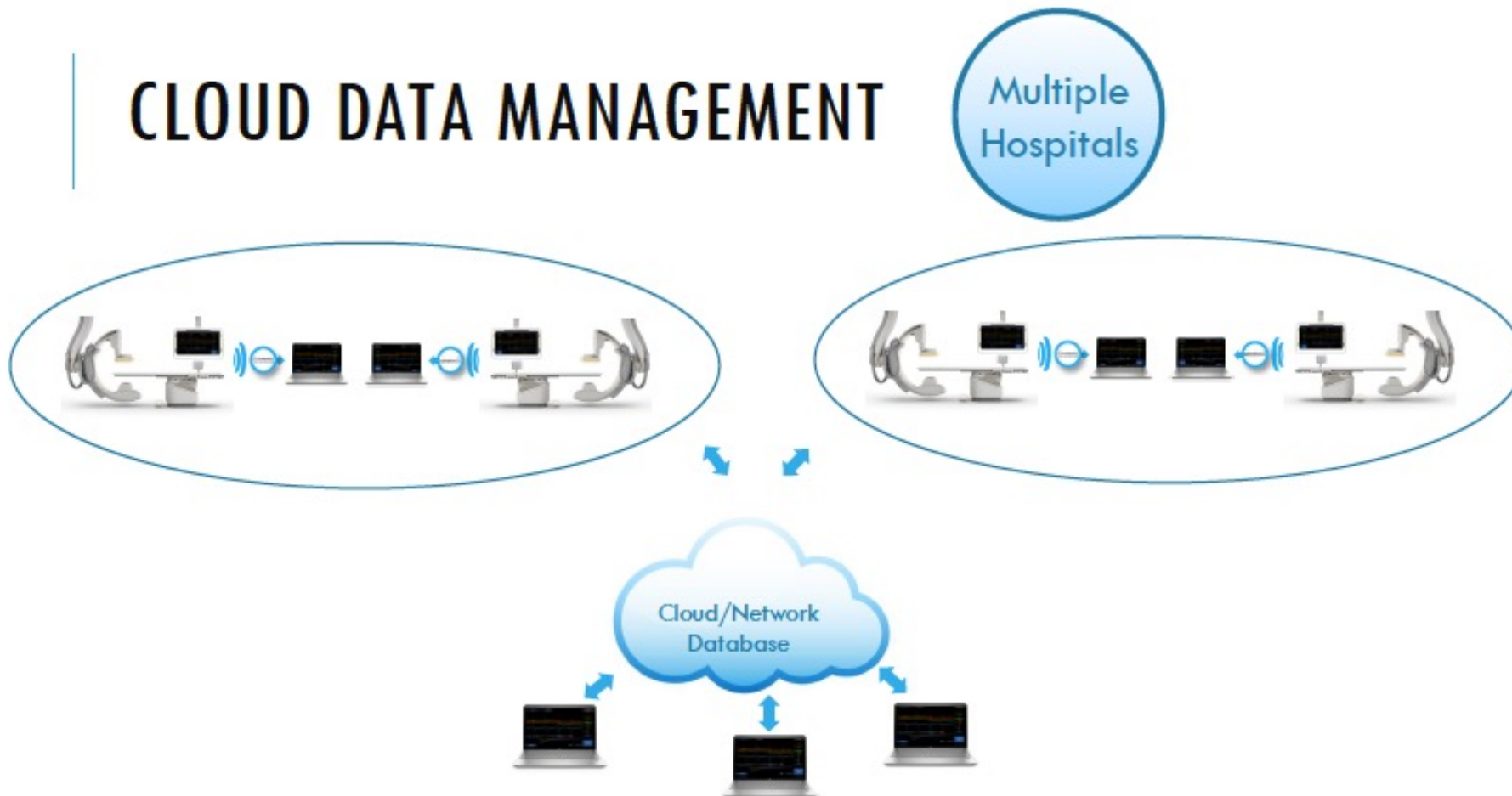
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Turning ideas into reality



Coroventis

CLOUD DATA MANAGEMENT

Multiple
Hospitals





Database:

- Tracés analysé par une ARC
 - Online eCFR
 - Recrutement de 5 ans
 - Follow up de 5 ans avec le SNDS
- Institut Arnault Tzanck 549
 - Clinique Sainte Hilaire Rouen 477
 - CHUV 131
 - CHU Besancon 104
 - CH Chartres 18

Inclusion n > 1000 patients



Conclusion

- Registre permet d'aller là où les RCT sont limités
- Registre → reflet de la vraie vie
- Facilité de réaliser des projets grâce à FPCI (déremboursement)



Merci @ vous



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Cardio&vous