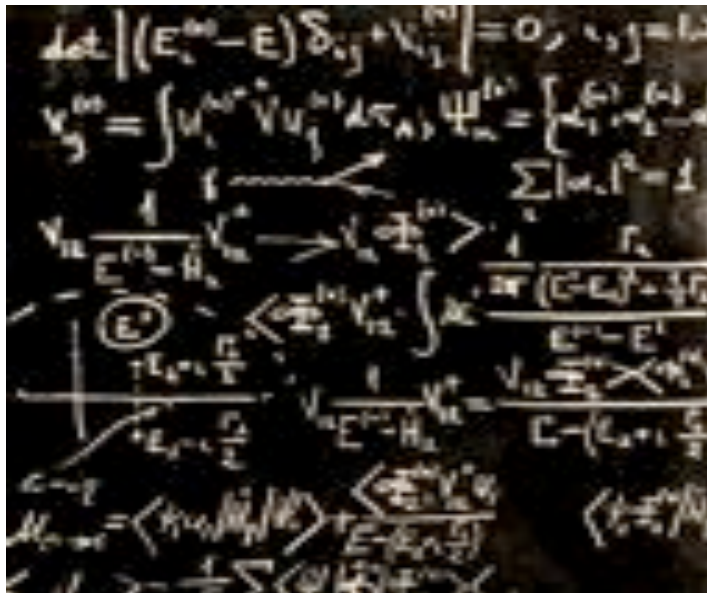


SESIÓN CLÍNICA



Javier Cuesta

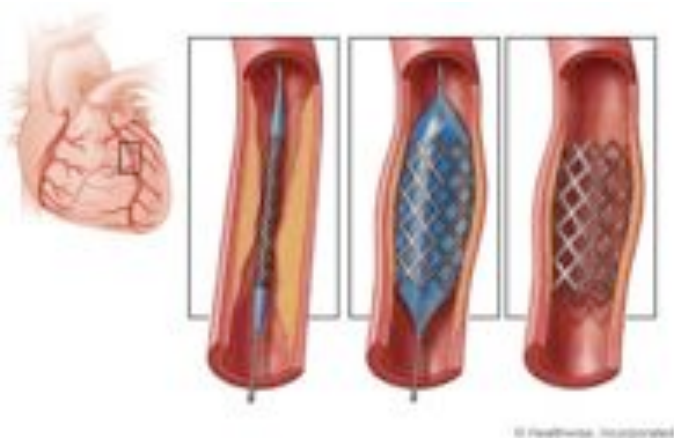
Supervisada por Ricardo Sanz

H.G.U. Gregorio Marañón
Servicio de Cardiología

ESTRATIFICACIÓN DE RIESGO EN PACIENTES CORONARIOS

INTRODUCCIÓN

- La enfermedad coronaria continúa siendo la principal causa de mortalidad en todo el mundo.
- Opciones de revascularización: PCI vs CABG.
- En pacientes con 1 ó 2 vasos no suele haber controversia, siendo el ICP la opción elegida de forma mayoritaria.
- ¿Pacientes con EMV o afectación del TCI?



INTRODUCCIÓN

- Desde los años 60-70, CABG pasó a ser el tratamiento de elección en pacientes con enfermedad coronaria, basada en ensayos clínicos de los años 70 en los que se comparaba CABG vs tto médico (estudio VA y estudio CASS, publicados 1990-94).
- Pacientes con EMV, TCI, diabéticos, lesiones bifurcadas u oclusiones crónicas eran excluidos.
- Registro Europeo (2006): 30% pacientes EMV/TCI fueron tratados con PCI.
- Recientemente, múltiples ensayos clínicos en pacientes con EMV a los que se realiza PCI.
 - Resultados: no hay diferencia mortalidad entre PCI/CABG
 - Sí mayor tasa de necesidad de revascularización

Rogers WJ et al. Ten-year follow up of quality of life in patients randomized to receive medical therapy or CABG. CASS. Circulation 1990

Sharma GV. Identification of unstable angina patients who have favorable outcome with medical or surgical therapy (eight-year follow-up of the Veterans Administration Cooperative Study). Am J Cardiol. 1991;71:454-458.

Kappetein AP. Current PCI and CABG practices for three-vessel and left main coronary artery disease. Eur J Cardiothorac Surg. 2006.

PCI Focused Update

2007 Focused Update of the ACC/AHA/SCAI 2005 Guideline Update for Percutaneous Coronary Intervention

A Report of the American College of Cardiology/American Heart Association
Task Force on Practice Guidelines

2005 PCI Guideline Update Recommendation	2007 PCI Focused Update Recommendation
	Class IIb
In the absence of high-risk features associated with UA/NSTEMI, PCI may be considered in patients with single-vessel or multivessel CAD who are undergoing medical therapy and who have 1 or more lesions to be dilated with a less than optimal likelihood of success. (Level of Evidence: B) PCI may be considered in patients with UA/NSTEMI who are undergoing medical therapy who have 2- or 3-vessel disease, significant proximal LAD CAD, and treated diabetes or abnormal LV function. (Level of Evidence: B)	1. In the absence of high-risk features associated with UA/NSTEMI, PCI may be considered in patients with single-vessel or multivessel CAD who are undergoing medical therapy and who have 1 or more lesions to be dilated with a reduced likelihood of success. (Level of Evidence: B) 2. PCI may be considered in patients with UA/NSTEMI who are undergoing medical therapy who have 2- or 3-vessel disease, significant proximal left anterior descending CAD, and treated diabetes or abnormal LV function, with anatomy suitable for catheter-based therapy. (Level of Evidence: B) 3. In initially stabilized patients, an initially conservative (i.e., a selectively invasive) strategy may be considered as a treatment strategy for UA/NSTEMI patients (without serious comorbidities or contraindications to such procedures) who have an elevated risk for clinical events (see Table 3) including those who are troponin positive. (Level of Evidence: B). The decision to implement an initial conservative (versus initial invasive) strategy in these patients may be made by considering physician and patient preference. (Level of Evidence: C) 4. An invasive strategy may be reasonable in patients with chronic renal insufficiency. (Level of Evidence: C)

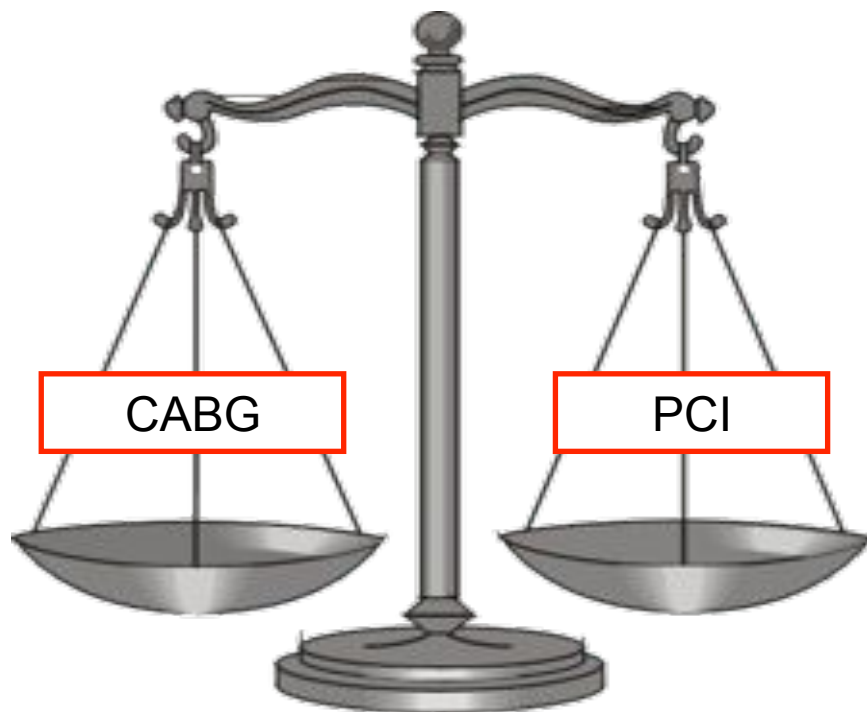


Guidelines on myocardial revascularization

The Task Force on Myocardial Revascularization of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS)

Subset of CAD by anatomy	Favours CABG	Favours PCI	Ref.
IVD or 2VD - non-proximal LAD	IIIb C	I C	—
IVD or 2VD - proximal LAD	I A	IIa B	30, 31, 50, 51
3VD simple lesions, full functional revascularization achievable with PCI, SYNTAX score ≤ 22	I A	IIa B	4, 10–37, 53
3VD complex lesions, incomplete revascularization achievable with PCI, SYNTAX score > 22	I A	III A	4, 30–37, 53
Left main (isolated or IVD, ostium/shaft)	I A	IIa B	4, 54
Left main (isolated or IVD, distal bifurcation)	I A	IIIb B	4, 54
Left main + 2VD or 3VD, SYNTAX score ≤ 32	I A	IIIb B	4, 54
Left main + 2VD or 3VD, SYNTAX score ≥ 33	I A	III B	4, 54

INTRODUCCIÓN



- Debido a estas recomendaciones, es fundamental establecer el riesgo/beneficio de los pacientes que requieran revascularización (PCI/CABG), especialmente en aquellos con EMV o TCI.
- Aportan información adicional al clínico para poder determinar una estrategia terapéutica.
- Ofrecen una información más detallada del riesgo/beneficio al paciente de cara a participar en la actitud terapéutica.

MÉTODOS DE ESTRATIFICACIÓN DE RIESGO

SCORES CLÍNICOS

- EuroSCORE
- Mayo Clinic Risk Score
- ACEF score

SCORES ANGIOGRÁFICOS

- Clasificación AHA/ACC
- SYNTAX score

SCORES COMBINADOS

- STS score
- Clinical SYNTAX score
- Functional SYNTAX score
- EuroSCORE y SYNTAX / Clasificación Global de Riesgo

SCORES CLÍNICOS

- EuroSCORE
- Mayo Clinic Risk Score
- ACEF score

EuroSCORE

European system for cardiac operative risk evaluation (*EuroSCORE*)[☆]

S.A.M. Nashef*, F. Roques, P. Michel, E. Gauducheau, S. Lemeshow, R. Salamon, the *EuroSCORE* study group

EUROPEAN JOURNAL OF
CARDIO-THORACIC
SURGERY

Table 2. The Additive EuroSCORE

		Score
Patient characteristics		
Age	≥ 70 years (each decade thereafter until the age of 80 years)	1
Sex	Female	1
Chronic pulmonary disease	Long-term use of bronchodilators or steroids for respiratory disease	1
Peripheral arteriopathy	*Claudication, carotid stenosis ≥ 50%, previous or planned intervention on the abdominal aorta, limb arteries, or carotids	2
Neurological dysfunction	Severely affected mobility or day-to-day function	2
Previous cardiac surgery	Previous opening of the pericardium	3
Serum creatinine	Pre-operatively > 200 µmol/l	2
Active endocarditis	Antibiotic therapy at time of surgery	3
Critical pre-operative condition	Pre-operative renal dysfunction, renal failure, inotropic support, intra-aortic balloon pump use, ventricular arrhythmia	3
Cardiac-related factors		
Unstable angina	Rest pain requiring IV nitrates	2
Left ventricular function	Moderate (30%–50%)	1
	Poor (< 30%)	3
Recent MI	Within 90 days	2
Pulmonary hypertension	Systolic pulmonary pressure > 60 mm Hg	2
Operation-related factors		
Emergency	Operation performed before the start of next working day	2
Other than isolated CABG	Major cardiac procedure other than or in addition to CABG	2
Surgery on thoracic aorta		3
Post-infarct septal rupture		4

PACIENTE

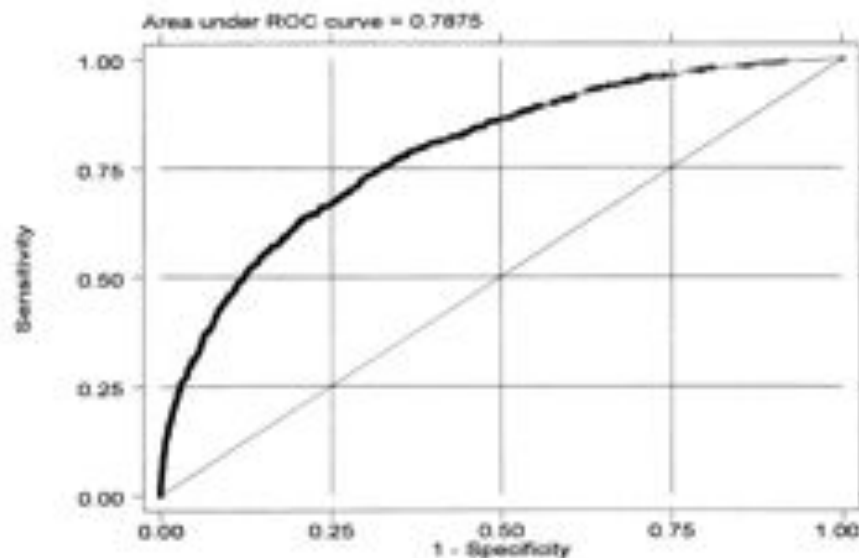
CARDIACA

CIRUGIA

EuroSCORE

95% confidence limits for mortality

EuroSCORE	Patients	Died	Observed	Expected
0-2 (low risk)	4529	36 (0.8%)	(0.56-1.10)	(1.27-1.29)
3-5 (medium risk)	5977	182 (3.0%)	(2.62-3.51)	(2.90-2.94)
<u>6 plus (high risk)</u>	<u>4293</u>	<u>480 (11.2%)</u>	<u>(10.25-12.16)</u>	<u>(10.93-11.54)</u>
Total	14799	698 (4.7%)	(4.37-5.06)	(4.72-4.95)



Pacientes alto riesgo:

EuroSCORE > 11.2%

EuroSCORE

Eur J Cardiothorac Surg. 2003 May 23(3):484-7; discussion 487.

Logistic or additive EuroSCORE for high-risk patients?

Michel P, Rogues E, Nanchef SA. EuroSCORE Project Group

University of Bordeaux, Bordeaux, France

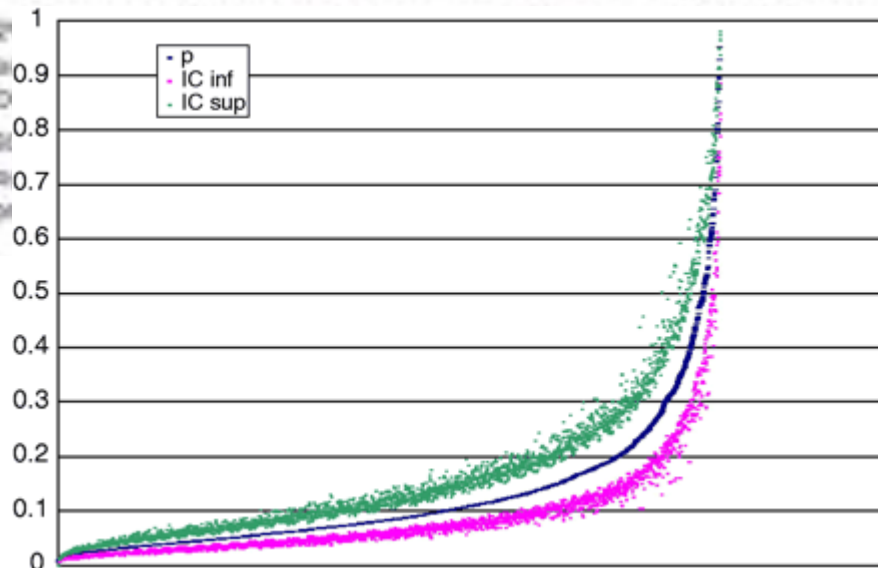
Abstract

OBJECTIVE: To assess whether the use of the full logistic European System for Cardiac Operative Risk Evaluation (EuroSCORE) is superior to the standard additive EuroSCORE in predicting mortality in high-risk cardiac surgical patients.

METHODS: Both the simple additive EuroSCORE and the full logistic EuroSCORE were applied to 14,796 cardiac surgical patients from across Europe, of whom there were 4293 high-risk patients (additive EuroSCORE of 6 or more). The systems were compared for absolute prediction and discrimination (area under the receiver operating characteristic (ROC) curve).

RESULTS: Actual mortality was 4.72% due to high-risk patients where additive EuroSCORE was measured by the area under the ROC curve.

CONCLUSIONS: The additive EuroSCORE is a simple calculation or information technology and development of risk stratification



was 4.21 (4.21-4.26). Most of this difference was due to high-risk patients where additive EuroSCORE was measured by the area under the ROC curve.

cardiac surgery, usable at the bedside without complex calculations or information technology and development of risk stratification

EuroSCORE

Eur J Cardiothorac Surg. 2004 Jan;25(1):51-8.

European system for cardiac operative risk evaluation predicts long-term survival in patients with coronary artery bypass grafting.

Tourassis VK, Anastasiadis CE, Devereux JJ, Sertel DG

Department of Cardiac Surgery, University Hospital of Ioannina, Ioannina, Greece

Abstract

OBJECTIVE: To evaluate the accuracy of predicting long-term mortality in patients with coronary artery bypass grafting (CABG) by using the European system for cardiac operative risk evaluation (EuroSCORE).

METHODS: Medical records of patients with CABG (n=3768) between January 1992 and March 2002 were retrospectively reviewed and their predicted surgical risk was calculated according to the standard (study A) and logistic (study B) EuroSCORE. In study A the patients were divided into six groups: 0-2 (n=612), 3-5 (n=1479), 6-8 (n=1099), 9-11 (n=452), 12-14 (n=193) and >14 (n=17). In study B the patients were divided into seven groups: 0.00-2.00 (n=447), 2.01-5.00 (n=1192), 5.01-10.00 (n=895), 10.01-20.00 (n=586), 20.01-30.00 (n=234), 30.01-60.00 (n=254) and >60.00 (n=58). Long-term survival was obtained by the National Death Index and Kaplan-Meier curves were constructed and compared and adjusted hazard ratios were calculated to determine the discrimination ability of the EuroSCORE.

RESULTS: In study A there were differences in 10.4%, 16.2%, 20.4%, 31.1% and 35.1% (P<0.001). In study B there were differences in 0.5%, 10.1%, 12.1%, 18.4%, 16.2%, EuroSCORE 0.00-2.00 to >60.00; P<0.001 for long-term mortality, while the area under the curve was 0.78.

CONCLUSION: The predicted surgical risk by EuroSCORE predicts operative survival for which

Validation of European System for Cardiac Operative Risk Evaluation (EuroSCORE) in North American cardiac surgery[☆]

Samer A.M. Nashef^{a,1,*}, Francois Roques^{b,1}, Bradley G. Hammill^c, Eric D. Peterson^c, Philippe Michel^{d,1}, Frederick L. Grover^e, Richard K.H. Wyse^{e,f}, T. Bruce Ferguson^g

^aCardiothoracic Surgical Unit, Papworth Hospital, Papworth Everard, Cambridge CB3 8RE, UK

^bCHU Fort-de-France, Martinique, France

^cDuke Clinical Research Institute, Durham, NC, USA

^dCCECOA 12 rue Dubernat, 33404 Talence cedex, France

^eThe Society of Thoracic Surgeons National Database, London, UK

^fDepartment of Cardiac Surgery, Hammersmith Hospital, London, UK

Received 17 September 2001; received in revised form 8 March 2002; accepted 25 March 2002

EuroSCORE

HEART and Education in Heart

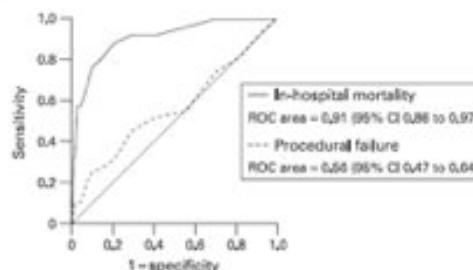
EuroSCORE as predictor of in-hospital mortality after percutaneous coronary intervention

E Romagnoli,¹ F Burzotta,¹ C Trani,¹ M Siviglia,¹ G G L Biondi-Zoccai,² G Niccoli,¹
A M Leone,¹ I Porto,¹ M A Mazzari,¹ R Mongiardo,¹ A G Rebuzzi,¹ G Schiavoni,¹ F Crea¹

Table 2 Correlation between the additive EuroSCORE algorithm and the incidence of in-hospital mortality across several risk classes

Risk group	%	χ^2
EuroSCORE 0-2	0.08%	<0.001*
EuroSCORE 3-5	0.5%	<0.001
EuroSCORE ≥6	6.7%	<0.001
EuroSCORE 6-8	2.2%	0.575
EuroSCORE 9-11	5.5%	0.027
EuroSCORE 12-14	28%	<0.001
EuroSCORE >14	72%	<0.001

*Fisher's exact test.



EuroSCORE II



25th EACTS Annual Meeting
1-5 October 2011
Lisbon Congress Centre
Lisbon, Portugal

ANNUAL
25th
MEETING:
TEAMWORK

 **EACTS**
European Association For Cardio-Thoracic Surgery


**euro
SCORE**
European System for Cardiac Operative Risk Evaluation

*euroSCORE
for doctors*
*euroSCORE
for patients*
calculator
references

• [euroSCORE](#) • [patients](#) • [training portal](#) • [calculator](#) • [guidance](#) • [news](#)

NEW! EuroSCORE II - launched 3/10/11

www.euroscore.org

EuroSCORE II



Important: The previous additive ¹ and logistic ² EuroSCORE models are out of date. A new model has been prepared from fresh data and is launched at the 2011 EACTS meeting in Lisbon. The model is called EuroSCORE II ³ - this online calculator has been updated to use this new model. If you need to calculate the older "additive" or "logistic" EuroSCORE please visit the old calculator by [clicking here](#).

Patient related factors			Cardiac related factors		
Age ¹ (years)	0	0	MYIA	select	0
Gender	select	0	CCS class 4 angina ⁴	no	0
Renal impairment ² (See calculator below for creatinine clearance)	normal (CC >85ml/min)	0	LV function	select	0
Extracardiac arteriopathy ³	no	0	Recent MI ⁵	no	0
Poor mobility ⁴	no	0	Pulmonary hypertension ¹⁰	no	0
Previous cardiac surgery	no	0	Operation related factors		
Chronic lung disease ⁵	no	0	Urgency ¹¹	elective	0
Active endocarditis ⁶	no	0	Weight of the intervention ¹²	isolated CABG	0
Critical preoperative state ⁷	no	0	Surgery on thoracic aorta	no	0
Diabetes on insulin	no	0			
EuroSCORE II	0				
EuroSCORE II					
Calculate Clear					

EuroSCORE II

Patient related factors

Extracardiac arteriopathy ³

no ▼

0

[3] Extracardiac arteriopathy - one or more of the following

- claudication

Poor mobility ⁴

no ▼

0

- previous or planned intervention on the abdominal aorta, iliofemoral arteries or carotids

euroSCORE II renal impairment

Plasma creatinine * (μmol/L, only)
note: 1 mol/L = 88.4 μmol/L

Weight * (kg)

Diabetes on insulin

no ▼

0

Clear

Creatinine clearance (ml/min)

Click in box for result

EuroSCORE II

Cardiac related factors

NYHA

select ▼

0

CCS class 4 angina ⁸

no ▼

0

LV function

select ▼

0

Recent MI ⁹

select ▼

0

Pulmonary hypertension ¹⁰

good (LVEF > 50%)
moderate (LVEF 31%-50%)
poor (LVEF 21%-30%)
very poor (LVEF 20% or less)
moderate (PA systolic > 35 mmHg)
severe (PA systolic > 55 mmHg)

EuroSCORE II

Operation related factors

Urgency ¹¹

elective ▼

0

Weight of the intervention ¹²

isolated CABG ▼

0

Surgery on thoracic aorta

isolated CABG

0

single non CABG

2 procedures

3 procedures

Mayo Clinic risk score

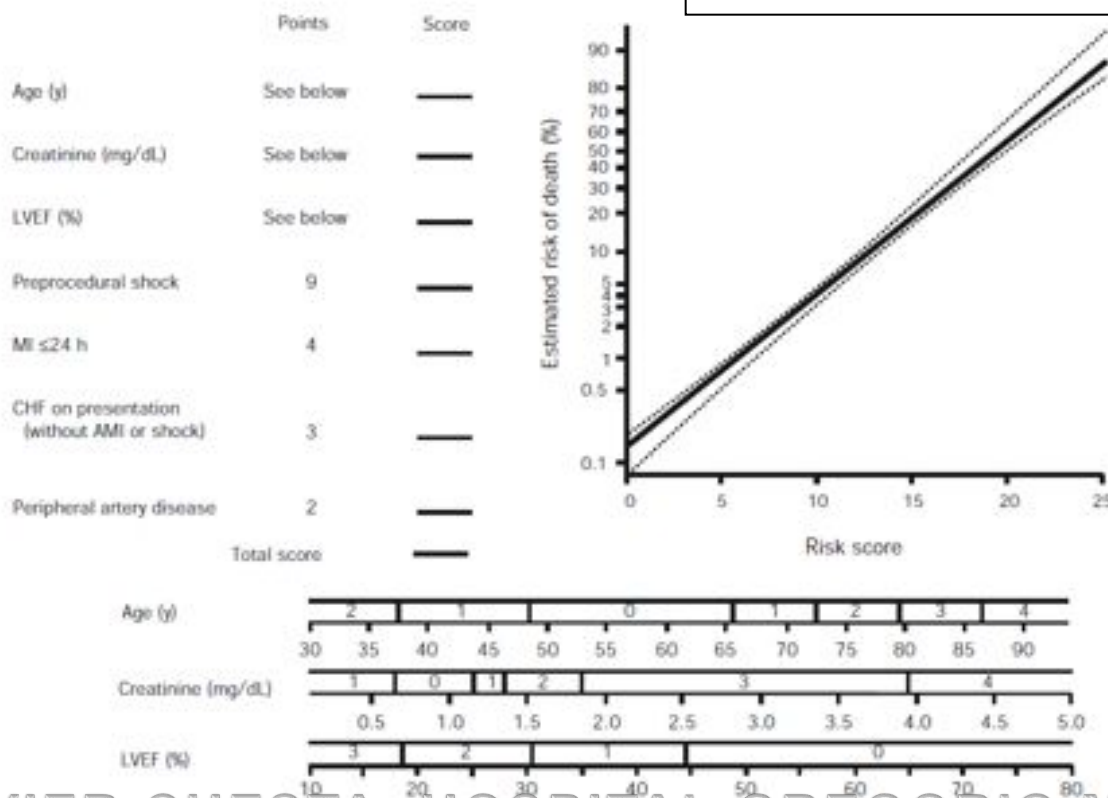
Bedside Estimation of Risk From Percutaneous Coronary Intervention: The New Mayo Clinic Risk Scores

MANDEEP SINGH, MD; CHARANJIT S. RIHAL, MD; RYAN J. LENNON, MS; JOHN S. RUMSFELD, MD, PhD; AND DAVID R. HOLMES, JR, MD

Circulation
JOURNAL OF THE AMERICAN HEART ASSOCIATION

Mayo Clinic Risk Score for Percutaneous Coronary Intervention Predicts In-Hospital Mortality in Patients Undergoing Coronary Artery Bypass Graft Surgery

Mandeep Singh, Bernard J. Gersh, Shuang Li, John S. Rumsfeld, John A. Spertus, Sean M. O'Brien, Rakesh M. Suri and Eric D. Peterson



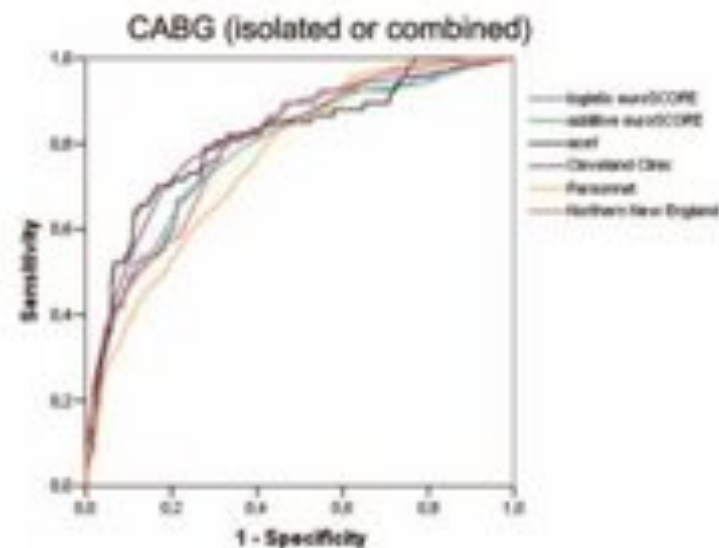
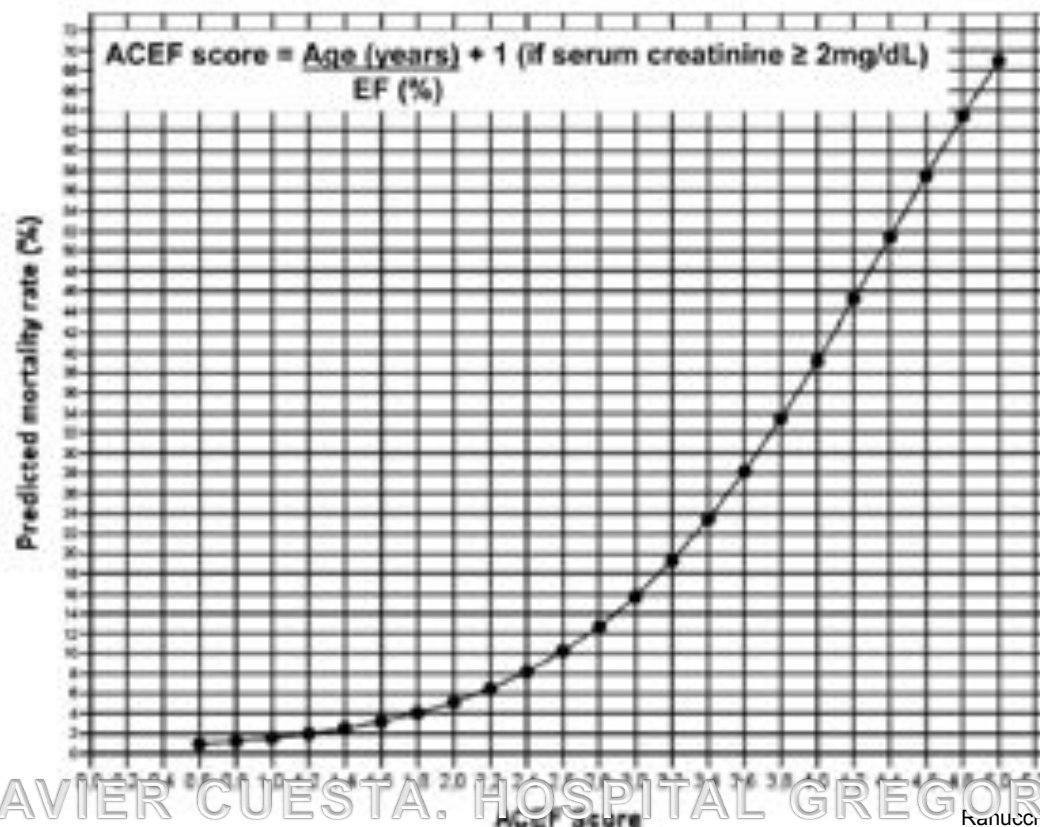
- Mortalidad intrahospitalaria.
- Ha sido validado en población de pacientes PCI y CABG.
- No se incluyeron pacientes con enfermedad de TCI

ACEF score

Risk of Assessing Mortality Risk in Elective Cardiac Operations : Age, Creatinine, Ejection Fraction, and the Law of Parsimony

Marco Ranucci, Serenella Castelvechio, Lorenzo Menicanti, Alessandro Frigiola and Gabriele Pelissero

Circulation
JOURNAL OF THE AMERICAN HEART ASSOCIATION



- Mortalidad intrahospitalaria
- Es similar a otros scores como el EuroSCORE a pesar de su sencillez.
- No se ha estudiado en PCI

SCORES ANGIOGRÁFICOS

- Clasificación ACC/AHA
- SYNTAX score

Clasificación ACC/AHA

Guidelines for percutaneous transluminal coronary angioplasty. A report of the American Heart Association/American College of Cardiology Task Force on Assessment of Diagnostic and Therapeutic Cardiovascular Procedures (Committee on Percutaneous Transluminal Coronary Angioplasty)

TJ Ryan, WB Bauman, JW Kennedy, DJ Kereiakes, SB King, 3d, BD McCallister, SC Smith, Jr and DJ Ulliot

Circulation

Coronary morphologic and clinical determinants of procedural outcome with angioplasty for multivessel coronary disease. Implications for patient selection.

Multivessel Angioplasty Prognosis Study Group

SG Ellis, MG Vandormael, MJ Cowley, G DiSciascio, U Deligonul, EJ Topol and TM Bulle

Type A Lesions (high success, 85%; low risk)

Discrete (<10 mm length)	Little or no calcification
Concentric	Less than totally occlusive
Readily accessible	Not ostial in location
Nonangulated segment, <45°	No major branch involvement
Smooth contour	Absence of thrombus

Type B Lesions (moderate success, 60–85%; moderate risk)

Tubular (10–20 mm length)	Moderate to heavy calcification
Eccentric	Total occlusion <3 months old
Moderate tortuosity of proximal segment	Ostial in location
Moderately angulated segment, >45° <90°	Bifurcation lesions requiring double guide wires
Irregular contour	Some thrombus present

B1: 1 característica

B2: ≥2 características

Type C Lesions (low success, 60%; high risk)

Diffuse (>2 cm length)	Total occlusion >3 months old
Excessive tortuosity of proximal segment	Inability to protect major side branches
Extremely angulated segments >90°	Degenerated vein grafts with friable lesions

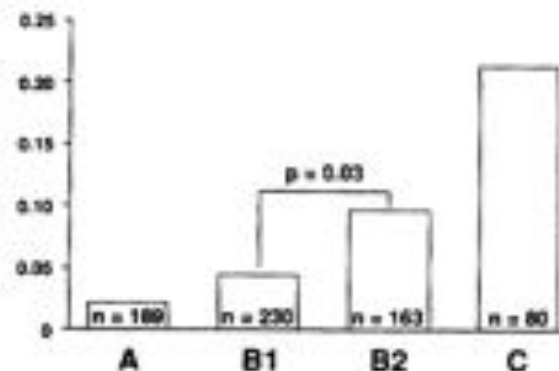


FIGURE 2. Bar graph showing influence of modified ACC/AHA score on stenosis complication rate.

Clasificación



Circulation

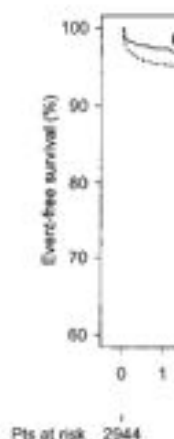
Prognostic Value of the Modified ACC/AHA Classification for Long-Term Angiographic and Clinical Outcome

Adnan Kastrati, MD; Julinda Mehilli, MD; Helmut G. Kastrati, MD

Comparison of Mayo Clinic Risk Score and American College of Cardiology/American Heart Association Lesion Classification in the Prediction of Adverse Cardiovascular Outcome Following Percutaneous Coronary Interventions

Mandeep Singh, MD,* Charanjit S. Rihal, MD,* Ryan J. Lennon, MS,† Kirk N. Garratt, MD,* David R. Holmes, Jr, MD* Rochester, Minnesota

David R. Holmes, Jr, MD*



Risk Measure	Sample c-Statistic	95% CI From Bootstrapping	From Singh
MACE prediction			
(1) Mayo score	0.78	0.74, 0.81	.81
(2) Mayo score grouping	0.77	0.73, 0.80	.80
(3) ACC/AHA lesion counts	0.67	0.64, 0.72	.72
(4) Worst ACC/AHA lesion	0.66	0.63, 0.70	.70
(5) Difference: (1) - (3)	0.11	0.05, 0.15	.15
(6) Difference: (2) - (3)	0.09	0.04, 0.14	.14
Angiographic failure prediction			
(1) Mayo score	0.53	0.50, 0.55	.55
(2) ACC/AHA lesion class	0.58	0.56, 0.60	.60
(3) Difference: (1) - (2)	-0.05	-0.08, -0.03	-0.03

CI = confidence interval. Other abbreviations as in Table 4.

- No es \
- Buen p
- Otras escalas son mejores para predecir complicaciones cardiovasculares

Kastrati et al. Prognostic value of the modified ACC/AHA classification for long-term angiographic and clinical outcome. Circulation 1999

Singh et al. Comparison of MCRS and ACC/AHA lesion classification in the prediction of adverse cardiovascular outcome following PCI. JACC 2004

SYNTAX score

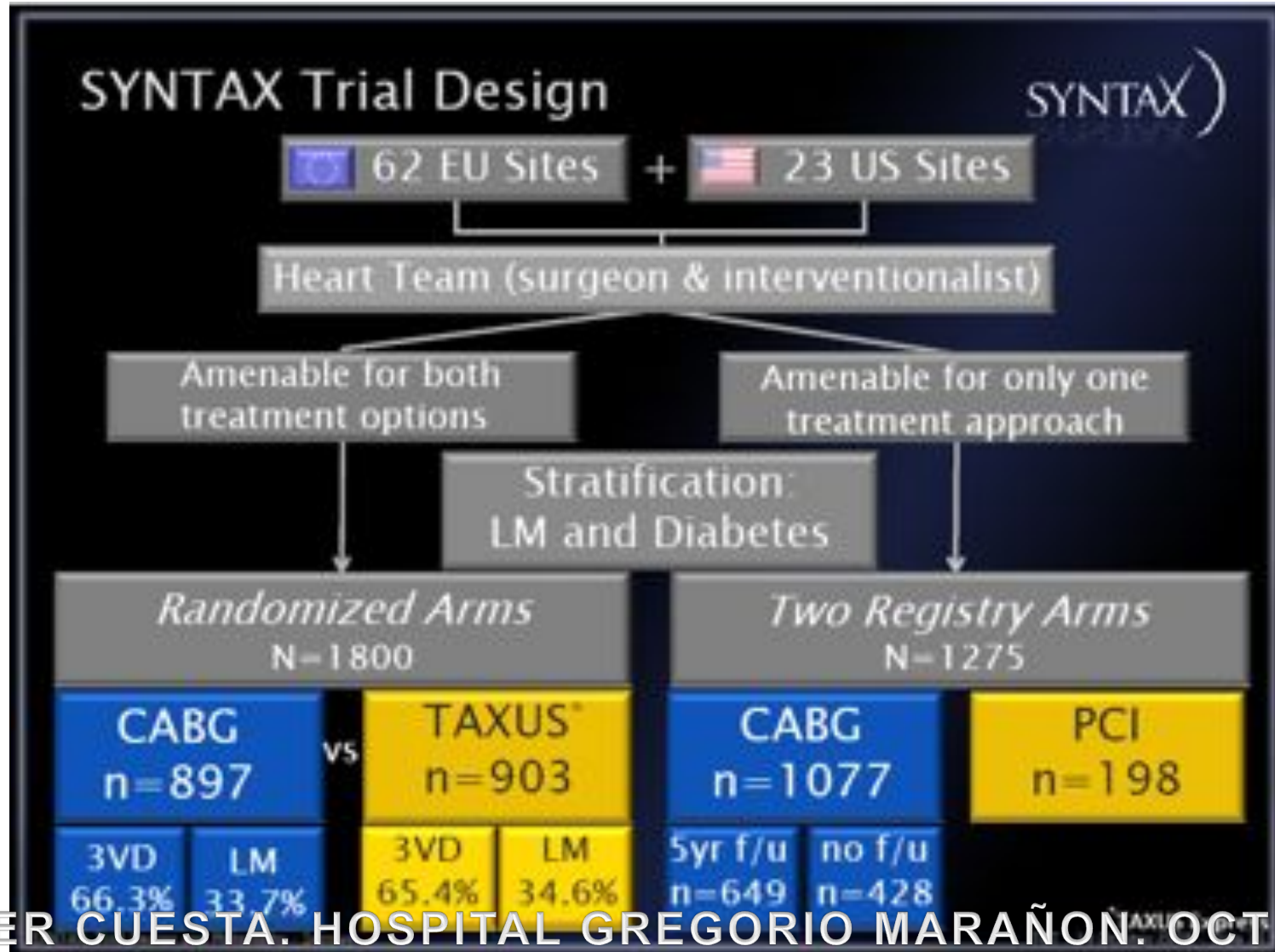
EuroIntervention

The SYNTAX Score: an angiographic tool grading the complexity of coronary artery disease

Georgios Sianos¹, MD, PhD; Marie-Angèle Morel², BSc; Arie Pieter Kappetein³, MD, PhD; Marie-Claude Morice⁴, MD; Antonio Colombo⁵, MD; Keith Dawkins⁶, MD; Marcel van den Brand⁷, MD, PhD; Nic Van Dyck⁸, RN; Mary E Russell⁹, MD; Friedrich W. Mohr¹⁰, MD; Patrick W Serruys^{1*}, MD, PhD

- SYNTAX: SYnergy between PCI with TAXUS and Cardiac Surgery
- Incluye pacientes con EMV y TCI
- Cuantificación de la complejidad de la enfermedad coronaria
- Consenso entre cardiólogos intervencionistas y cirujanos

SYNTAX score



SYNTAX score

SYNTAX Primary Endpoint *Randomized trial*

SYNTAX

The primary clinical endpoint is the 12-month Major Cardiovascular or Cerebrovascular event rate (MACCE)*

- MACCE is defined as:
 - All cause death
 - Cerebrovascular accident (CVA/Stroke)
 - Documented myocardial infarction
 - Any repeat revascularization (PCI and/or CABG)
- All events were CEC adjudicated

SYNTAX score



www.syntaxscore.com

Calculator updated to version 2.1



Version 2.1 of the SYNTAX Score calculator contains the latest three-year SYNTAX trial results. In addition, some changes were made in scoring total occlusions and the definition of diffusely diseased and narrowed sections. The SYNTAX Score website now uses this version.

Unlike the online calculator, the standalone calculator is not automatically updated. Be sure to check our website regularly to ensure you are using the latest calculator version. The current version can be downloaded here:

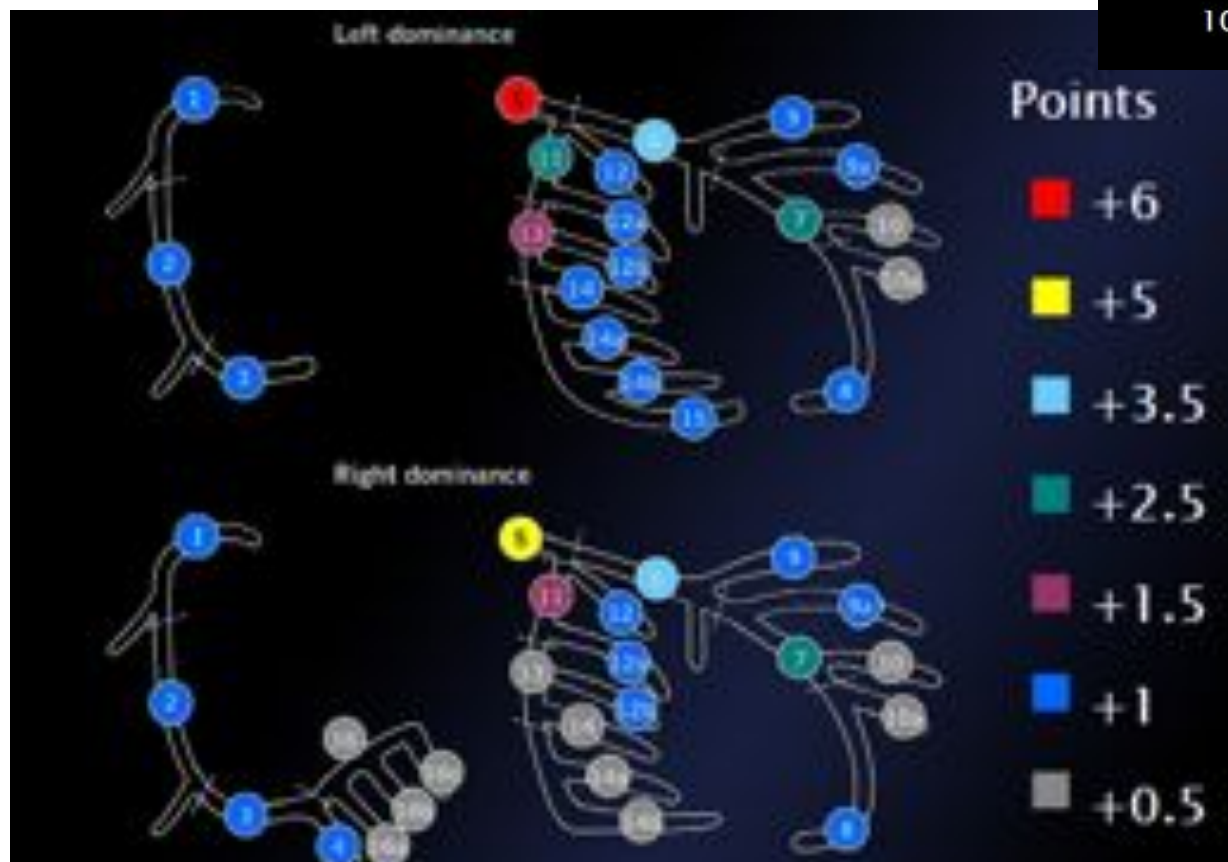
[SYNTAX Score Calculator 2.1](#)

For a detailed changelog select read more below.

[Read more: Calculator updated to version 2.1](#)

SYNTAX

COMPONENTES SYNTAX



SYNTAX

OCLUSIONES TOTALES

• Age >3months or unknown +1

• Blunt occlusion



+1

Bridging occlusion



+1

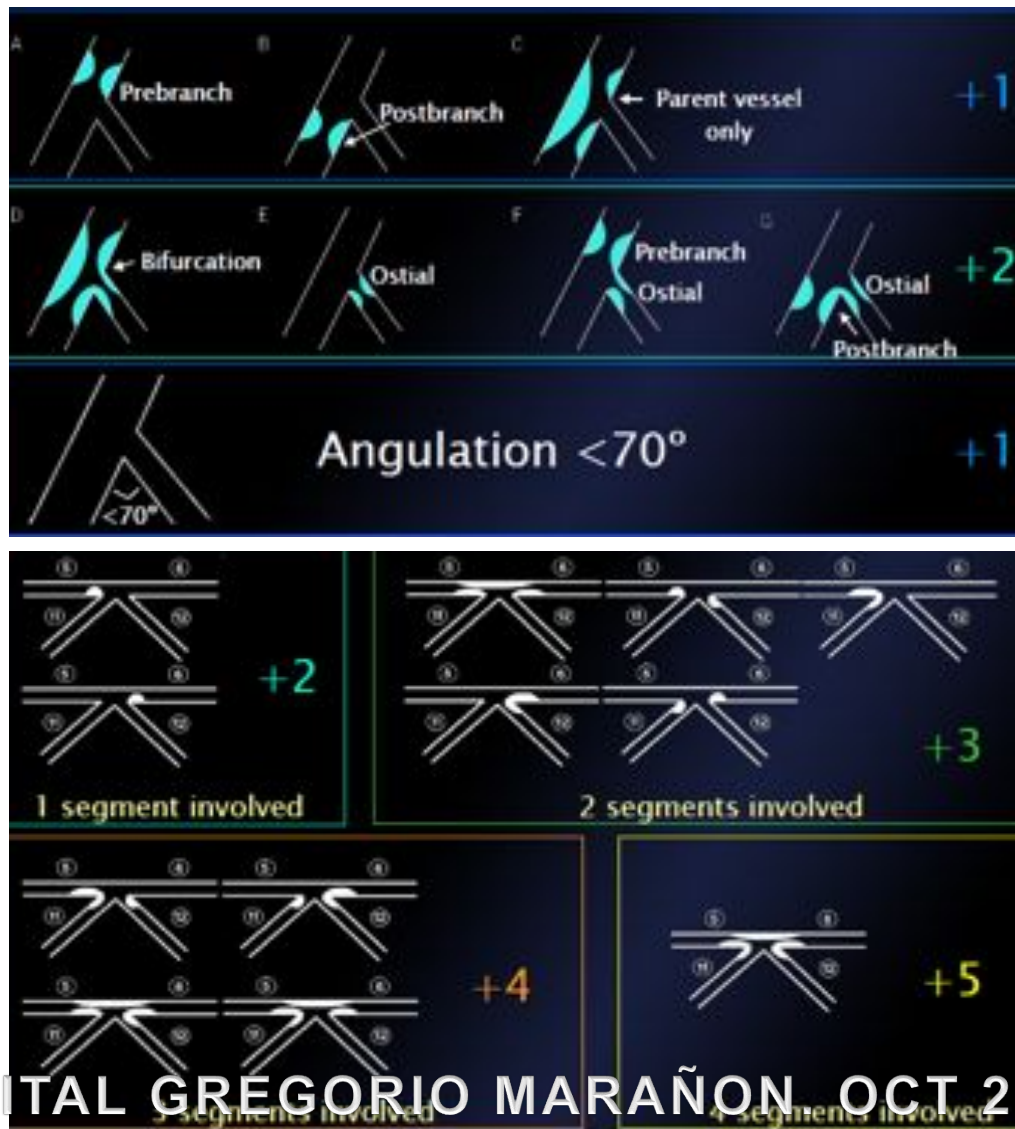
• 1st segment visible beyond occlusion

+1 per non-visible segment



SYNTAX

BI - TRIFURCACIONES



SYNTAX

OTRAS CARACTERÍSTICAS ADVERSAS

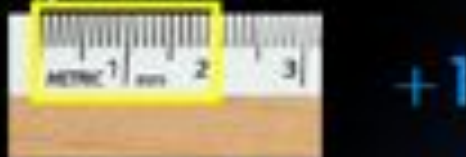
Aorto ostial lesion



Severe tortuosity



Lesion Length >20mm



Heavy calcification



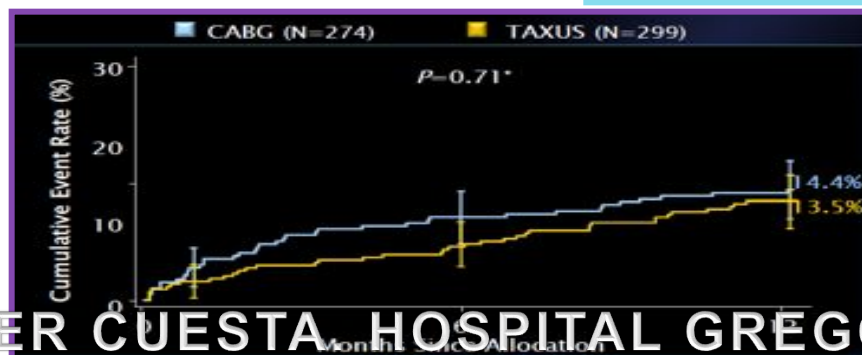
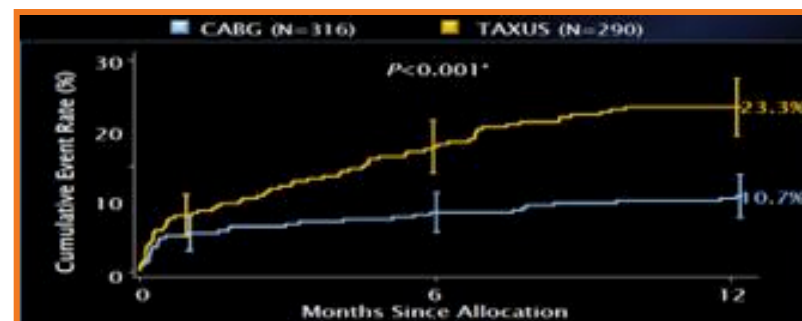
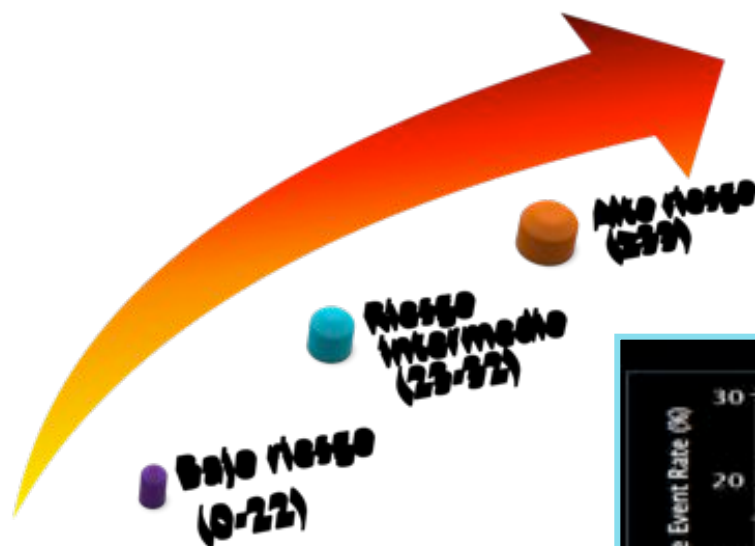
Thrombus



"Diffuse disease" /
small vessels



SYNTAX – 1 año



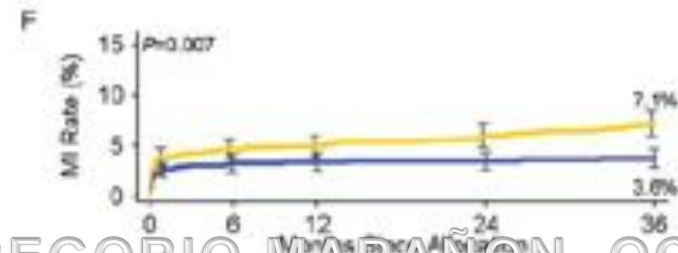
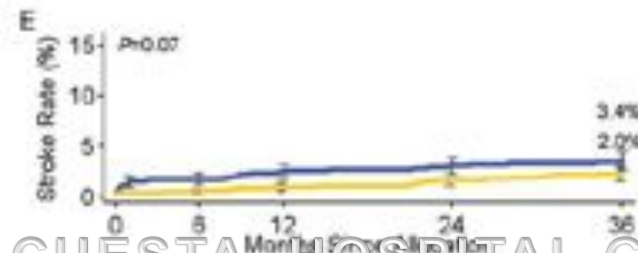
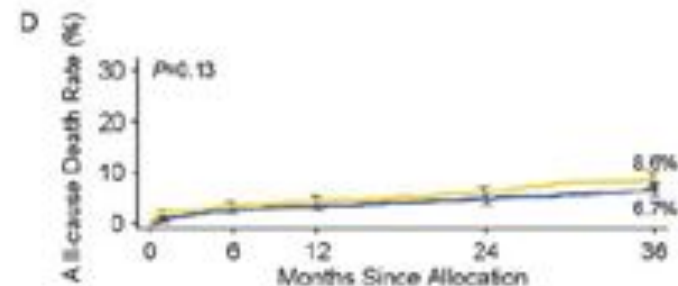
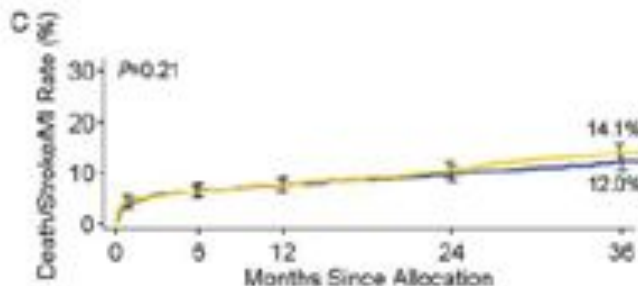
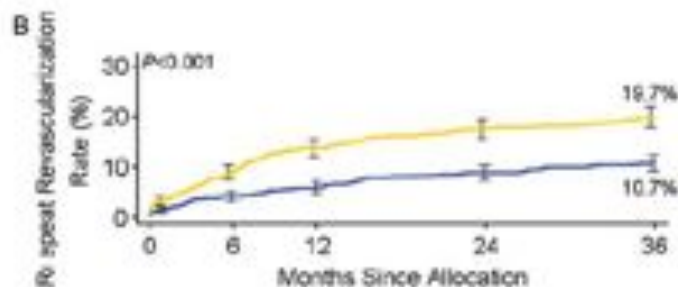
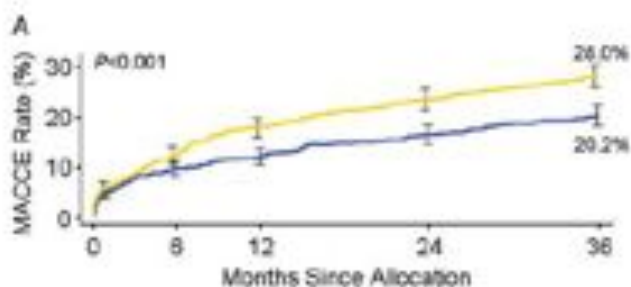
SYNTAX – 3 años



Comparison of coronary bypass surgery with drug-eluting stenting for the treatment of left main and/or three-vessel disease: 3-year follow-up of the SYNTAX trial

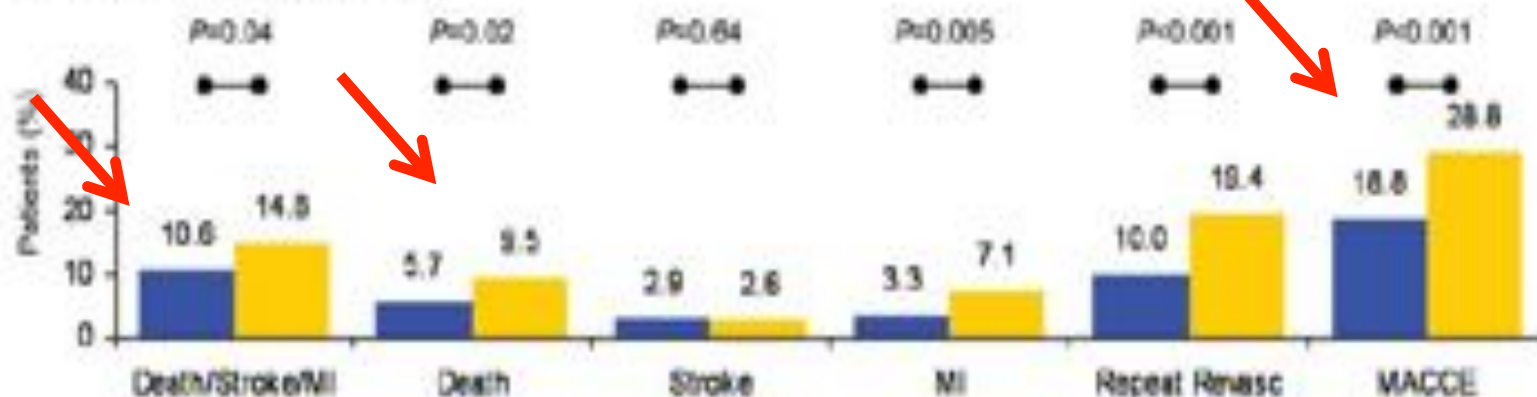
Arie Pieter Kappetein^{1*}, Ted E. Feldman², Michael J. Mack³, Marie-Claude Morice⁴,
 David R. Holmes⁵, Elisabeth Stähle⁶, Keith D. Dawkins⁷, Friedrich W. Mohr⁸,
 Patrick W. Serruys¹, and Antonio Colombo⁹

PCI
 CABG



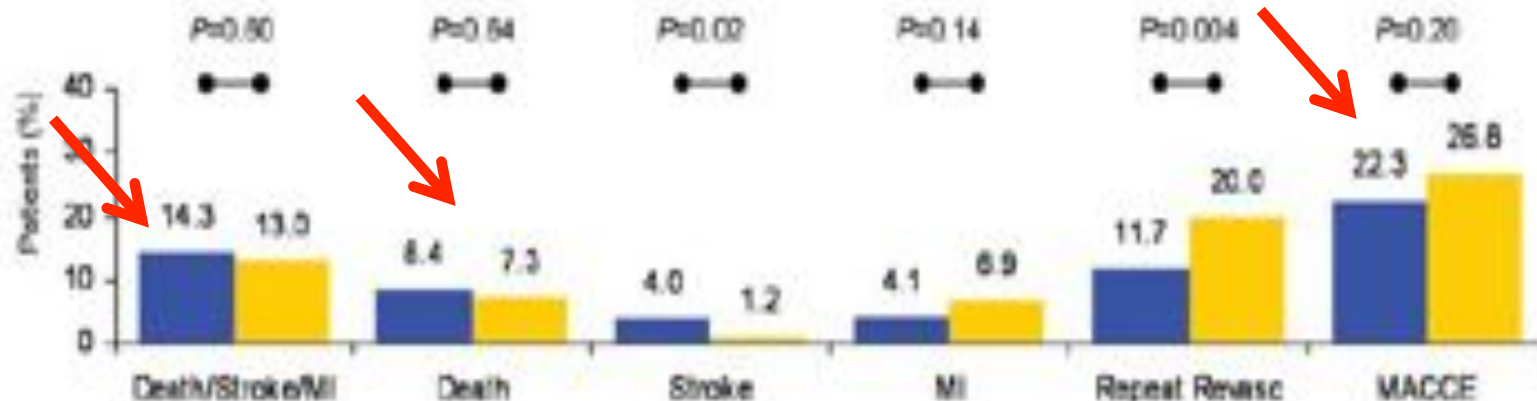
SYNTAX – 3 años

A 3-vessel Disease (n=1095)

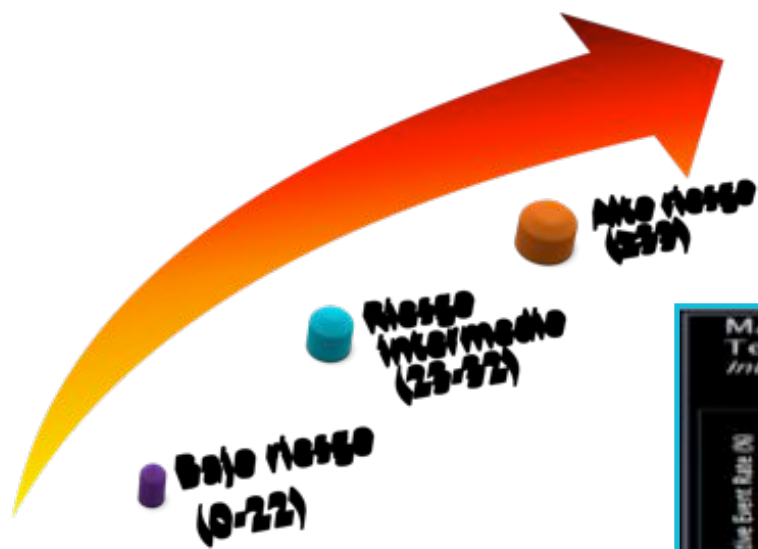


PCI
 CABG

B Left Main Disease (n=705)

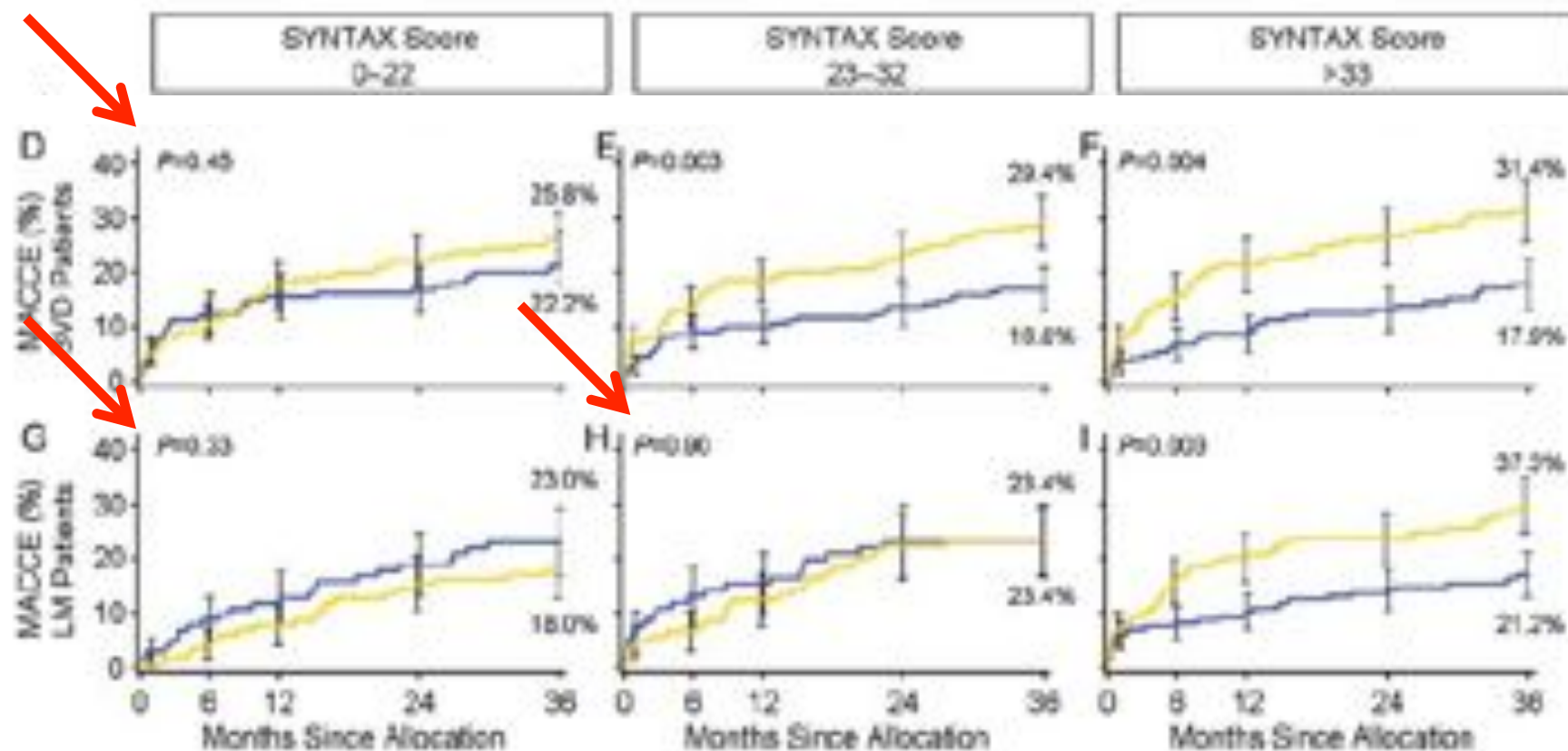


SYNTAX – 3 años



SYNTAX – 3 años

PCI
CABG



SCORES COMBINADOS

- STS score
- Clinical SYNTAX score
- Functional SYNTAX score
- EuroSCORE y SYNTAX (CGR)

STS score

Predicting operative risk for coronary artery surgery in the United Kingdom: a comparison of various risk prediction algorithms

B Bridgewater, H Neve, N Moat, T Hooper, M Jones

HEART
and Education in Heart

Institutional report - Cardiopulmonary bypass
The performance of the EuroSCORE and the Society of Thoracic Surgeons mortality risk score: the gender factor

Niv Ad*, Scott D. Barnett, Alan M. Speir

INTERACTIVE
CARDIOVASCULAR AND
THORACIC SURGERY

• 40 variables

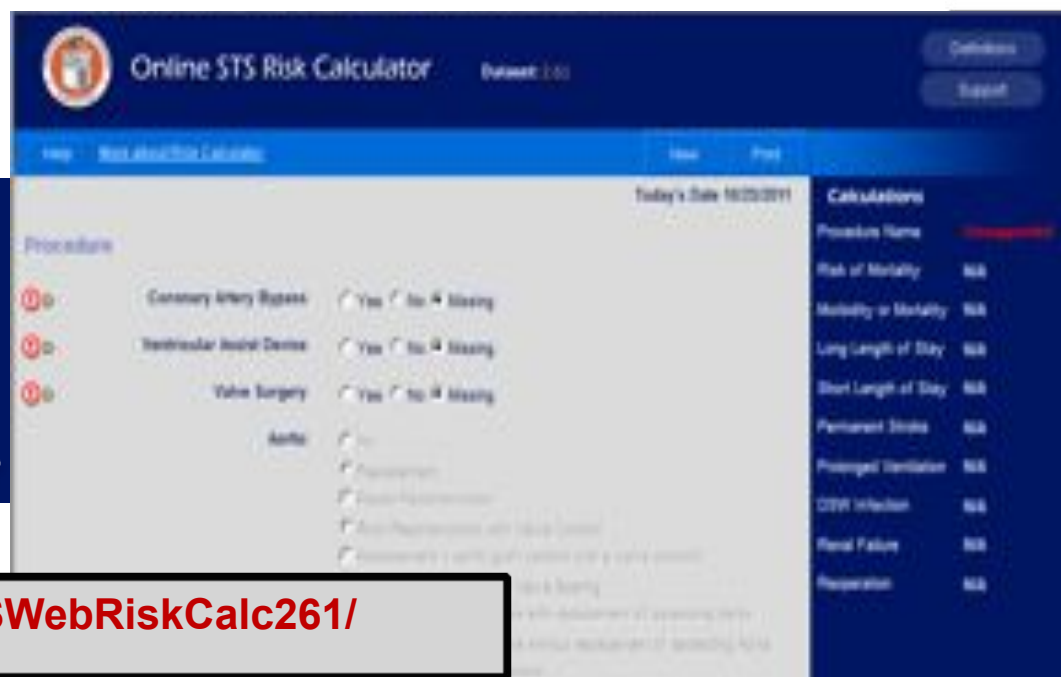
-2 a

• Pr

• No



Online STS Risk Calculator



Calculations	
Procedure Name	Coronary Artery Bypass
Risk of Mortality	9.6
Mortality or Mortality	9.6
Long Length of Stay	9.6
Short Length of Stay	9.6
Permanent Stroke	9.6
Prolonged Ventilation	9.6
CDVT Infection	9.6
Renal Failure	9.6
Respiration	9.6

<http://209.220.160.181/STSWebRiskCalc261/>

Clinical SYNTAX score

Circulation
 Cardiovascular Interventions
JOURNAL OF THE AMERICAN HEART ASSOCIATION

A New Tool for the Risk Stratification of Patients With Complex Coronary Artery Disease : The Clinical SYNTAX Score

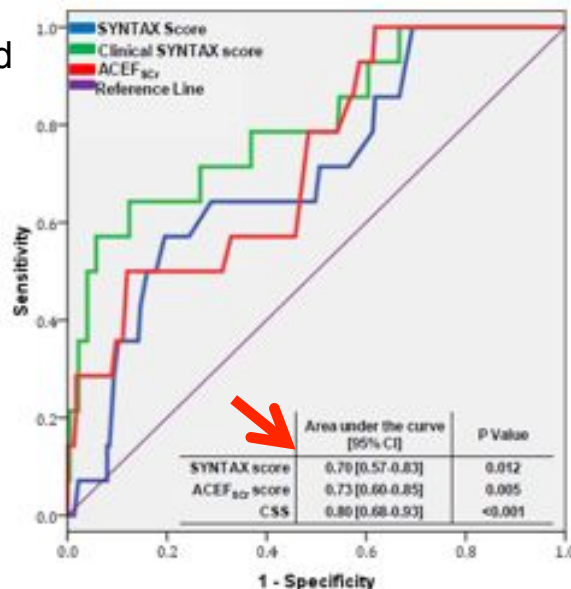
Scot Garg, Giovanna Sarno, Hector M. Garcia-Garcia, Chrysafios Girasis, Joanna Wykrzykowska, Keith D. Dawkins, Patrick W. Serruys and on behalf of the ARTS-II Investigators

Table 6. The Clinical SYNTAX Score

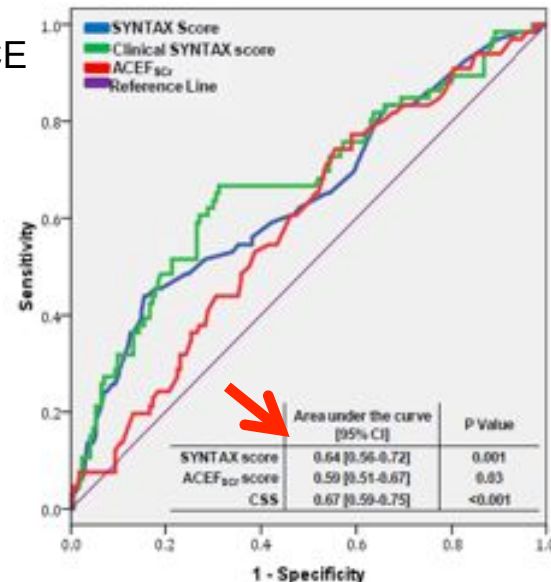
$$\text{Clinical SYNTAX Score} = \text{SYNTAX Score} \times \left(\frac{\text{Age}}{\text{LV ejection fraction (\%)}} + 1 \text{ point for each 10-ml creatinine clearance}^* < 60 \text{ ml/min/1.73 mm}^2 \right)$$

CSS low ≤ 15.6
CSS med $15.6 - 27.5$
CSS high ≥ 27.5

Mortalidad



MACCE



Functional SYNTAX score

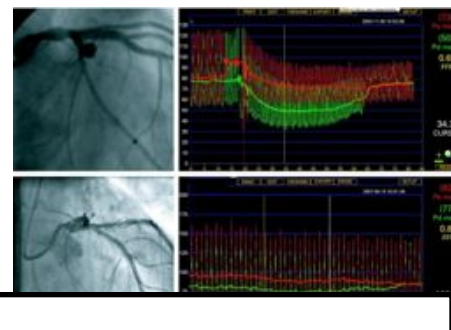
CLINICAL RESEARCH Interventional Cardiology

Functional SYNTAX Score for Risk Assessment in Multivessel Coronary Artery Disease

Chang-Wook Nam, MD, PhD,*† Fabio Mangiacapra, MD,‡ Robert Entjes, MD,§ In-Sung Chung, MD, PhD,† Jan-Willem Sels, MD,§ Pim A. L. Tonino, MD, PhD,§ Bernard De Bruyne, MD, PhD,§ Nico H. J. Pijls, MD, PhD,§ William F. Fearon, MD,* on behalf of the FAME Study Investigators
Stanford, California; Daegu, Korea; Aalst, Belgium; and Eindhoven, the Netherlands

JACC
JOURNAL of the AMERICAN COLLEGE of CARDIOLOGY

FFR<0,8

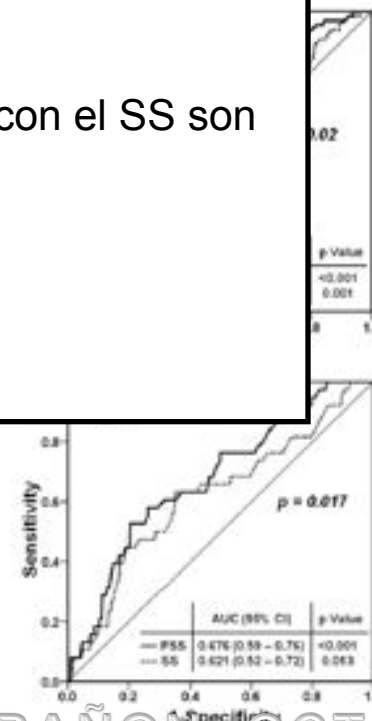
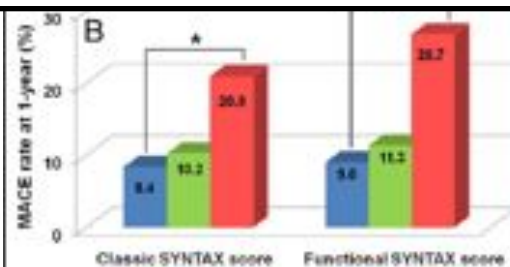
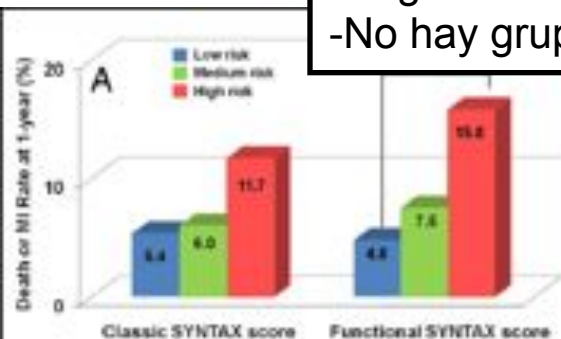


CONCLUSIONES

- Mejor reproducibilidad
- Mejor valor pronóstico
- Mayor proporción pacientes EMV de bajo riesgo (con el SS son considerados de medio/alto riesgo)

LIMITACIONES

- Seguimiento corto: 1 año.
- No hay grupo control CABG



EuroSCORE-SYNTAX / Clasificación Global de Riesgo

Interventional Cardiology

EuroSCORE refines the predictive ability of SYNTAX score in patients undergoing left main percutaneous coronary intervention

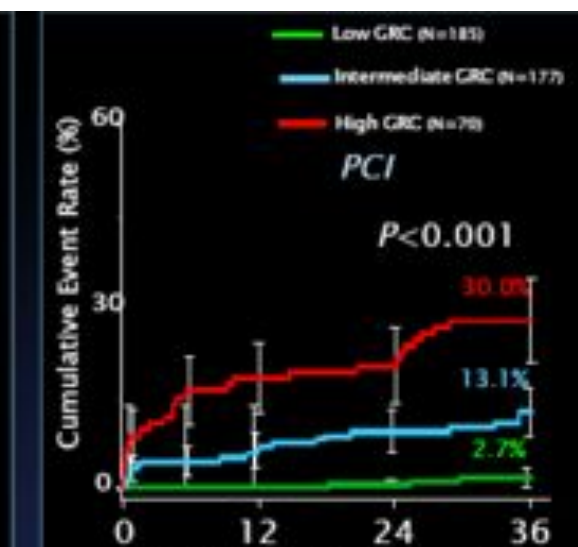
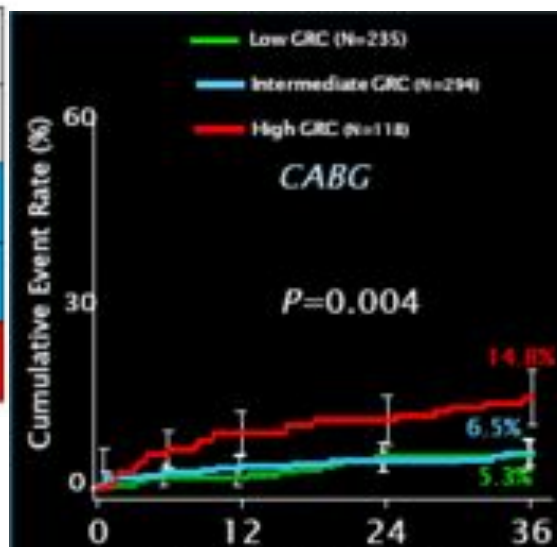
Davide Capodanno, MD,^{a,b} Marco Miano, MD,^a Glauco Cincotta, MD,^a Anna Caggè, MD,^a Cettina Ruperto, MD,^a Rita Bucalo, MD,^a Alessandra Sanfilippo, MD,^a Piera Capranzano, MD,^a and Corrado Tamburino, MD, PhD, FESC, FSCAI^{a,b} *Catania, Italy*

AHJ
American Heart Journal

Euro SCORE	SX Score		
	≤22	23-32	≥33
0-2	low	low	mid
3-5	low	low	mid
≥6	mid	mid	high

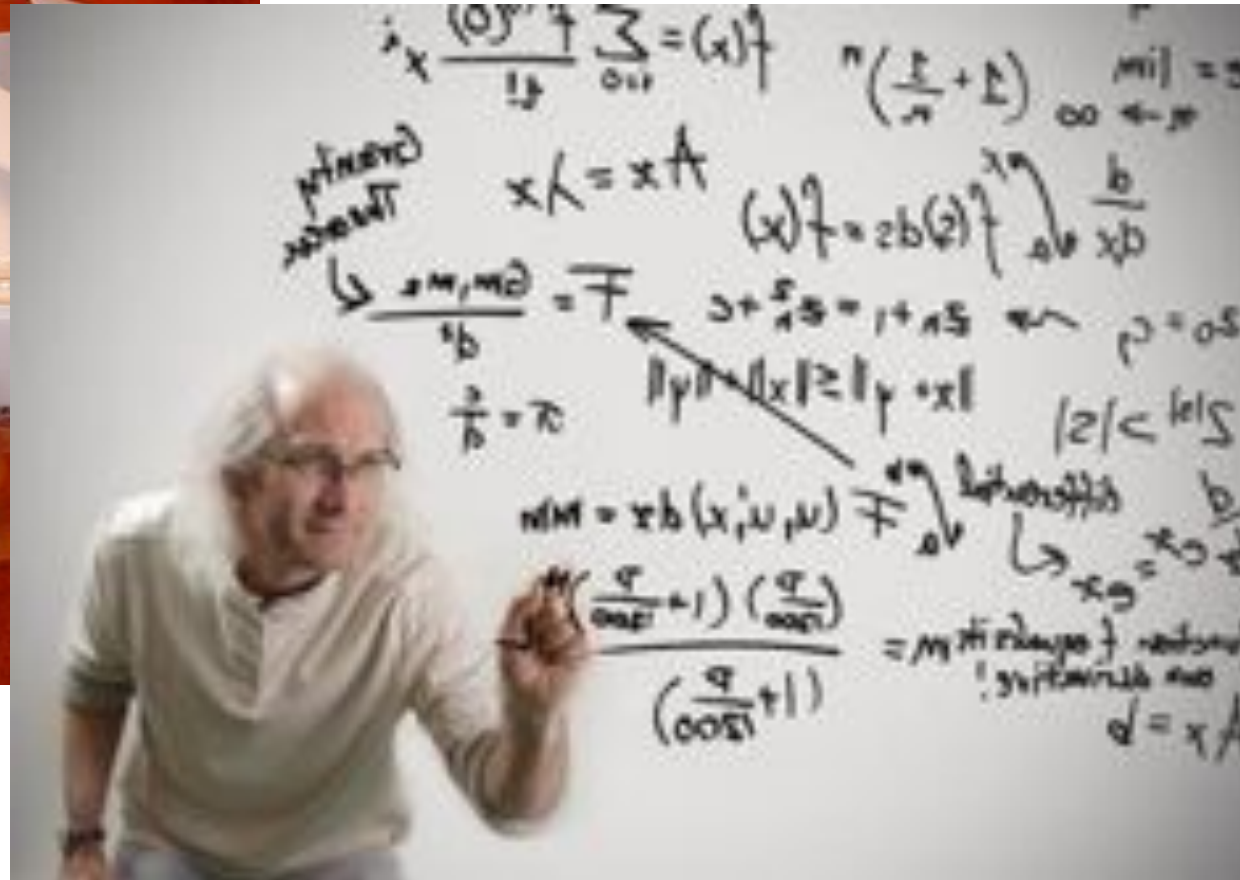
Table III. Discriminatory measures of GRC, EuroSCORE, SYNTAX score and other contemporary risk models

Risk measure	Inhospital mortality AUROC	2-y mortality AUROC
GRC	0.831	0.756
SYNTAX score ¹⁰	0.751	0.747
Northern New England ⁶	0.795	0.738
Additive EuroSCORE ²	0.782	0.708
Michigan Consortium ⁷	0.780	0.704
New York State ⁵	0.721	0.678
Mayo Clinic ⁹	0.814	0.723
Beaumont Hospital ⁸	0.629	0.586



Mejoría de la capacidad pronóstica y la discriminación de los pacientes

¿Con cuál nos quedamos?



Guidelines on myocardial revascularization

The Task Force on Myocardial Revascularization of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS)

Table 3 Recommended risk stratification scores to be used in candidates for percutaneous coronary intervention or coronary artery bypass grafting

Score	Calculation	Number of variables used to calculate risk		Validated outcomes	Class ^a /level ^b		Ref. ^c
		Clinical	Angiographic		PCI	CABG	
EuroSCORE	www.euroscore.org/calc.html	17	0	Short- and long-term mortality	IIb B	I B	2, 3, 6
SYNTAX score	www.syntaxscore.com	0	II (per lesion)	Quantify coronary artery disease complexity	IIa B	III B	4
Mayo Clinic Risk Score	(7, 8)	7	0	MACE and procedural death	IIb C	III C	—
NCDR CathPCI	(5)	8	0	In-hospital mortality	IIb B	—	5
Parsonnet score	(9)	16	0	30-day mortality	—	III B	9
STS score ^d	http://209.220.160.181/STSWebRiskCalc261/	40	2	Operative mortality, stroke, renal failure, prolonged ventilation, deep sternal infection, re-operation, morbidity, length of stay <6 or >14 days	—	I B	10
ACEF score ^e	$[(\text{Age}/\text{ejection fraction (\%)} + 1) \times \text{logit probab.}] + 1$ (if probab. >20% (1))	—	—	Mortality in elective CABG	—	IIb C	—

Visión global

Global Risk Classification and Clinical SYNTAX (Synergy between Percutaneous Coronary Intervention with TAXUS and Cardiac Surgery) Score in Patients Undergoing Percutaneous or Surgical Left Main Revascularization

Davide Capodanno, MD,*† Anna Caggigi, MD,* Marco Miano, MD,*
 Glauco Cincotta, MD,* Fabio Distasio, MD,* Giuseppe Giacchi, MD,*
 Piera Capranzano, MD,*† Gianpaolo Ussia, MD,* Maria Elena Di Salvo, MD,*
 Alessio La Manna, MD,* Corrado Tamburino, MD, PhD*†

JACC
 JOURNAL of the AMERICAN COLLEGE of CARDIOLOGY

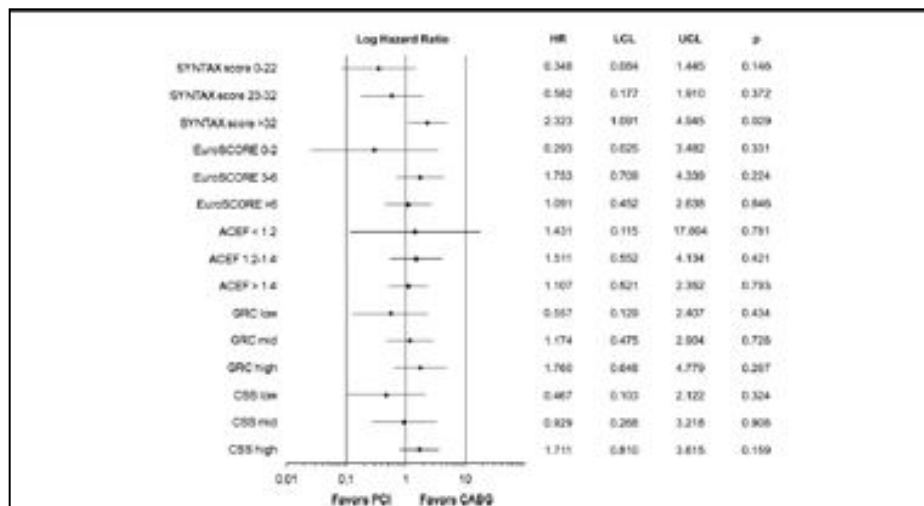


Figure 3. Usefulness of Different Risk Models on Decision-Making

Forest plot of propensity score adjusted risk of >3-year cardiac mortality across risk strata of SYNTAX score, EuroSCORE, ACEF score, GRC, and CSS. HR = hazard ratio; LCL = lower confidence limit; UCL = upper confidence limit; other abbreviations as in Figure 1.

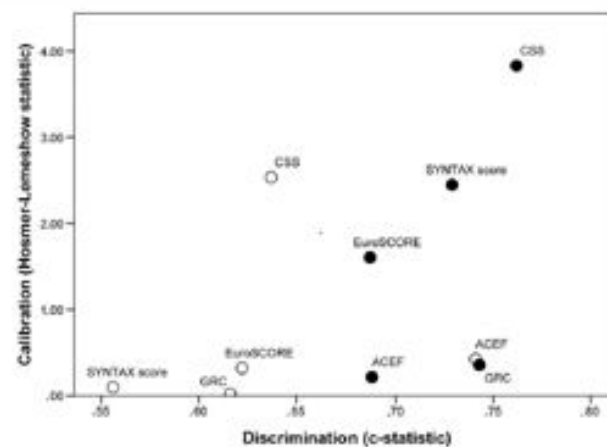


Figure 4. Calibration and Discrimination Abilities of Different Risk Models

Prediction accuracy of SYNTAX score, EuroSCORE, ACEF score, GRC, and CSS in patients treated with PCI (solid circles) or CABG (empty circles). The position of the score in the graph depends on the balance between the score calibration (assessed by the Hosmer-Lemeshow statistic) and the discrimination (assessed by the area under the receiver-operator characteristic curve). The prognostic accuracy of each score increases from top to bottom and from left to right. Abbreviations as in Figure 1.

CASO CLÍNICO

SCORES CLÍNICOS

EuroSCORE II

1.91 %

EuroSCORE aditivo: 5 ; logístico: 4.45%

SYNTAX score

41

Clinical SYNTAX score

55.16

CGR

Riesgo intermedio

CASO CLÍNICO

- Cuádruple by-pass coronario
 - AMI a DA media.
 - Safena a bisectriz.
 - Safena a descendente posterior.
 - Safena a ramas posterolaterales.
- Complicaciones: FA que revierte con amiodarona iv.
- Alta hospitalaria 8 días después de la cirugía.

CONCLUSIONES

- La evaluación del riesgo de los pacientes coronarios es de vital importancia para permitir una adecuada toma de decisiones que sea justificable ante los pacientes, los demás médicos y quienes se encargan de la regulación.
- Existen muchos scores útiles pero en la práctica clínica habitual están infrautilizados.
- Una valoración conjunta realizada por el cardiólogo y el cirujano cardiaco en los pacientes complejos es fundamental, con la importancia de considerar que ambos están en el mismo equipo y no en equipos distintos (es fundamental la existencia de “Heart Team” o SMQ)

CONCLUSIONES

- Los pacientes en los que se han identificado resultados comparables con la PCI y con la CABG deben participar plenamente en el proceso de decisiones.
- Es importante utilizar scores que evalúen tanto características clínicas como angiográficas de los pacientes (ya sea de manera individual o en scores combinados).
- Valorar, en nuestro caso particular, presentar en las SMQ a los pacientes más complejos con al menos 2 scores (EuroSCORE II y SYNTAX).

BIBLIOGRAFÍA

- Serruys P. Intervencionismo coronario percutáneo para todos los pacientes con enfermedad coronaria compleja. Rev Esp Cardiol. 2009;62(7)
- Garg S et al. Clinical and angiographic risk assessment in patients with LM stem lesions. JACC 2010.
- Rogers WJ Ten-year follow up of quality of life in patients randomized to receive medical therapy or CABG. CASS. Circulation 1990
- Sharma GV. Identification of unstable angina patients who have favorable outcome with medical or surgical therapy (eight-year follow-up of the Veterans Administration Cooperative Study). Am J Cardiol. 1994;74:454-458.
- Kappetein AP. Current PCI and CABG practices for three-vessel and left main coronary artery disease. Eur J Cardiothorac Surg. 2006.
- Guidelines on myocardial revascularization. European Heart J 2010.
- ACCF/SCAI/STS/AATS/AHA/ASNC 2009 Appropriateness criteria for coronary revascularization. Circulation 2009.
- 2007 Focus update of the ACC/AHA/SCAI 2005 Guideline update for percutaneous coronary intervention. Circulation 2008.
- Nashef et al. European system for cardiac operative risk evaluation. Eur J Cardiothorac Surg 1999.
- Michel P et al. Logistic or additive EuroSCORE for high-risk patients? Eur J Cardiothorac Surg 2003
- Toupoulis IK et al. EuroSCORE predicts long-term survival in patients with CABG. Eur J Cardiothorac Surg 2004
- Nashef et al. Validation of EuroSCORE in North American cardiac surgery. Eur J Cardiothorac Surg 2002
- Singh et al. Bedside estimation of risk from PCI: The new Mayo Clinic risk scores. Circulation 2007
- Sign et al. Mayo Clinic risk score for PCI predicts in-hospital mortality in patients undergoing CABG. Circulation 2008
- Ranucci et al. Risk of assessing mortality risk in elective cardiac operations. Circulation 2009
- Holmes et al. National Heart, Lung, and Blood Institute PTCA Registry as a standard for comparison of new devices. Circulation 1991
- Ryan et al. Guidelines for percutaneous transluminal coronary angioplasty. Circulation 1993
- Kastrati et al. Prognostic value of the modified ACC/AHA classification for long-term angiographic and clinical outcome. Circulation 1999
- Singh et al. Comparison of MCRS and ACC/AHA lesion classification in the prediction of adverse cardiovascular outcome following PCI. JACC 2004
- Sianos et al. The SYNTAX score: an angiographic tool grading the complexity of coronary artery disease. EuroInterv 2005
- Kappetein et al. Comparison of CABG with drug-eluting stenting for the treatment of LM/3V disease: 3-year follow up of the SYNTAX trial. Eur Heart J 2011
- Bridgewater et al. Predicting operative risk for coronary artery surgery in the UK. Heart 1998.
- Niv et al. The performance of the EuroSCORE and the society of thoracic surgeons mortality risk score: the gender factor. Interactive cardiovascular and Thoracic surgery. 2006
- Garg et al. A new tool for the risk stratification of patients with complex coronary artery disease: the clinical SYNTAX score. Circ Cardiovasc Interv 2010
- Chang-Wook et al. Functional SYNTAX score for risk assessment in multivessel coronary artery disease. JACC 2011
- Capodanno et al. EuroSCORE refines the ability of SYNTAX score in patients undergoing left main PCI. American Heart J 2010
- Capodanno et al. GRC and CSS in patients undergoing percutaneous or surgical left main revascularization. JACC 2011

MUCHAS GRACIAS