APPAC
6/7/8 JUIN 2018
Palais des Congrès
BIARRITZ
20e édition

UNIVERSITÉ PARIS DESCARTES

Recommandations 2017 pour l'angioplastie dans les syndromes coronaires aigus avec sus-décalage du segment ST

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PARCC
H E G P

Conflits d'intérêt

Dotations pour la recherche : CERC, PHRC

Consultant ou honoraires : Abiomed, Medtronic, Terumo, Zoll, Stentys, Xeltis

Une présentation sur les recommandations…..

Classes of recommendations

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Classes of recommendations	Definition	Suggested wording to use
Class I	Evidence and/or general agreement that a given treatment or procedure is beneficial, useful, effective.	Is recommended/ is indicated.
Class II	Conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of the given treatment or procedure.	
Class IIa	*Weight of evidence/opinion is in favour of usefulness/efficacy.*	Should be considered.
Class IIb	*Usefulness/efficacy is less well established by evidence/opinion.*	May be considered.
Class III	Evidence or general agreement that the given treatment or procedure is not useful/effective, and in some cases may be harmful.	Is not recommended.

www.escardio.org/guidelines 2017 ESC Guidelines for the Management of AMI-STEMI (European Heart Journal 2017 - doi:10.1093/eurheartj/ehx095) 3

What is new in 2017 Guidelines on AMI-STEMI

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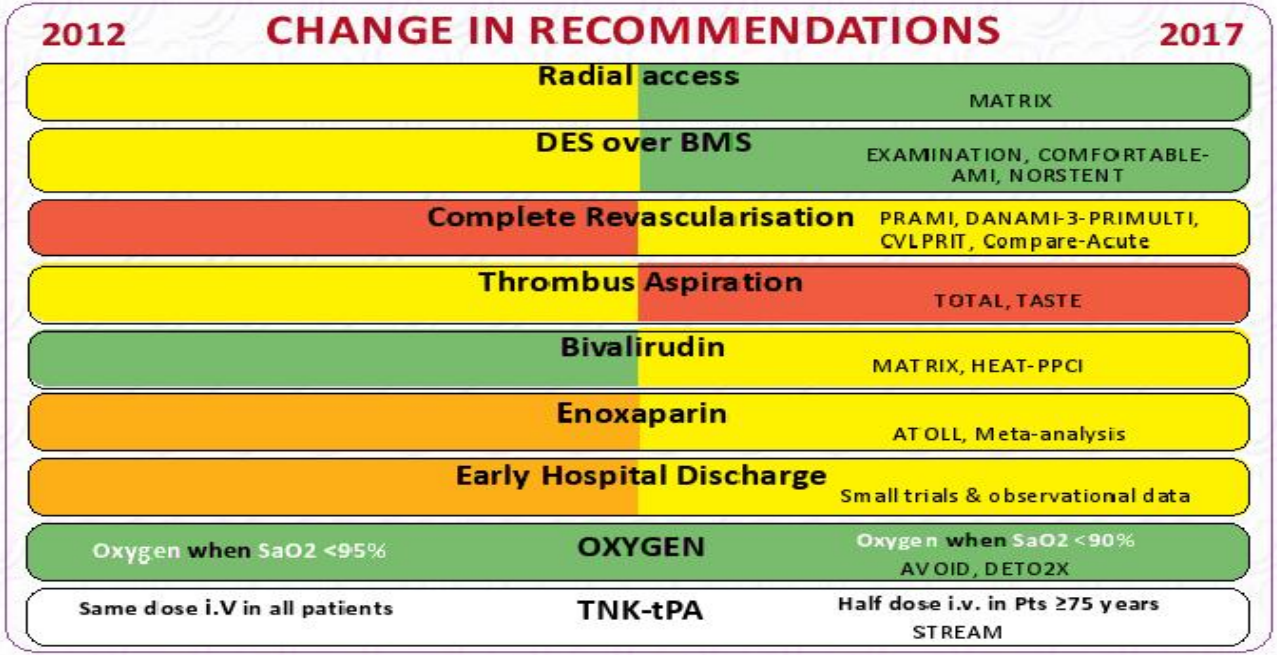

What is new in 2017 Guidelines on AMI-STEMI *(continued)*

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2017 NEW RECOMMENDATIONS

- Additional lipid lowering therapy if LDL >1.8 mmol/L (70 mg/dL) despite on maximum tolerated statins. ***IMPROVE-IT, FOURIER***
- ~~Complete revascularization during index primary PCI in STEMI patients in shock. Expert opinion~~

- Cangrelor if $P2Y_{12}$ inhibitors have not been given. ***CHAMPION***
- Switch to potent $P2Y_{12}$ inhibitors 48 hours after fibrinolysis. Expert opinion
- Extend Ticagrelor up to 36 months in high-risk patients. ***PEGASUS-TIMI 54***
- Use of polypill to increase adherence. ***FOCUS***

- Routine use of deferred stenting. ***DANAMI 3-DEFER***

I

IIa

IIb

III

What is new in 2017 Guidelines on AMI-STEMI *(continued)*

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2017 NEW / REVISED CONCEPTS

MINOCA AND QUALITY INDICATORS:
- New chapters dedicated to these topics.

STRATEGY SELECTION AND TIME DELAYS:
- Clear definition of first medical contact (FMC).
- Definition of "time 0" to choose reperfusion strategy (i.e. the strategy clock starts at the time of "STEMI diagnosis").
- Selection of PCI over fibrinolysis: when anticipated delay from "STEMI diagnosis" to wire crossing is ≤120 min.
- Maximum delay time from "STEMI diagnosis" to bolus of fibrinolysis agent is set in 10 min.
- "Door-to-Balloon" term eliminated from guidelines.

TIME LIMITS FOR ROUTINE OPENING OF AN IRA:
- 0-12h (Class I); 12-48h (Class IIa); >48h (Class III).

ELECTROCARDIOGRAM AT PRESENTATION:
- Left and right bundle branch block considered equal for recommending urgent angiography if ischaemic symptoms.

TIME TO ANGIOGRAPHY AFTER FIBRINOLYSIS:
- Timeframe is set in 2-24h after successful fibrinolysis.

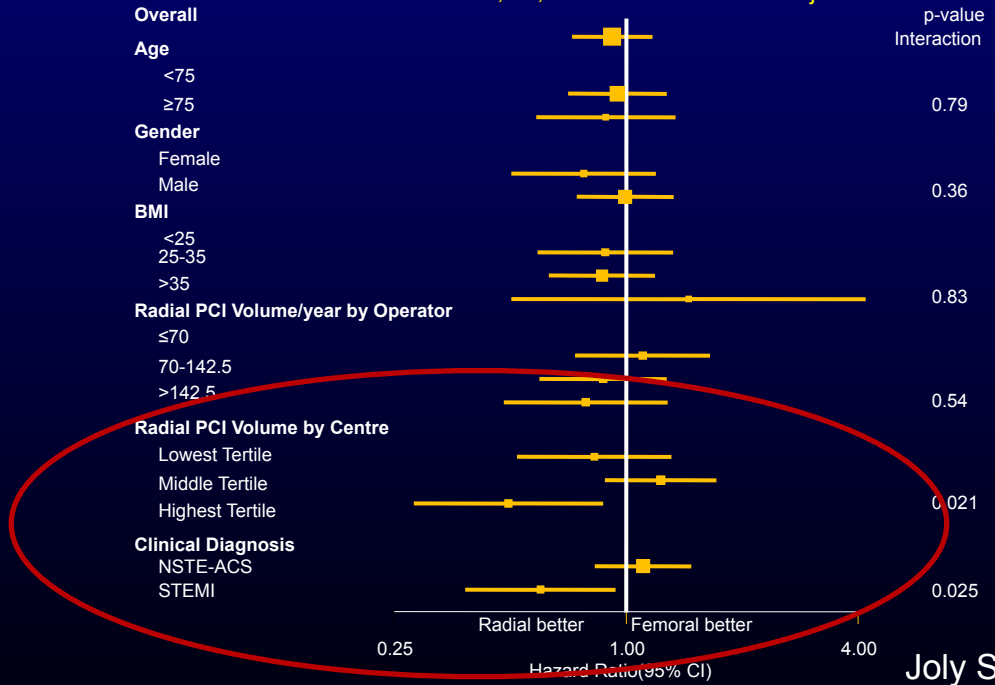
PATIENTS TAKING ANTICOAGULANTS:
- Acute and chronic management presented.

Radiale ou femorale?

RIVAL

Subgroups: Primary Outcome

Death, MI, Stroke or non-CABG major Bleed

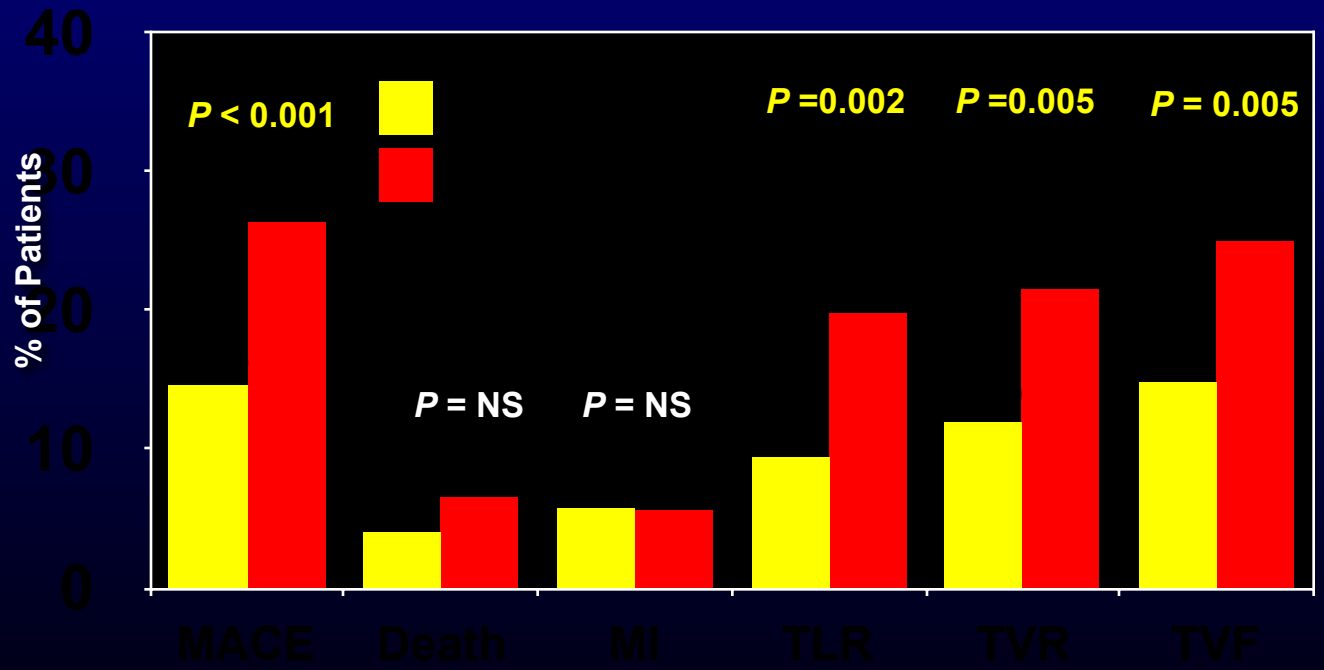


Joly S et al, Lancet 2011

	PRAMI	CvLPRIT	DANAMI 3 PRIMULTI
Timing of non-culprit PCI	During index procedure	During index procedure (60%) During hospital stay (40%)	48 hours after index procedure
FFR guided	No	No	➢ 90%: PCI ➢ 50-90%: FFR
Reached primary end-point	Yes	Yes	Yes
Reduction in cardiac death	Trend (0.07)	No	No
Reduction cardiac death or non-fatal MI	Yes	No	No
Reduction in repeat revascularization	Yes	Yes	Yes

PRAMI, CvLPRIT and DANAMI 3 PRIMULTI :
revasculariser toutes les lesions dans le SCA ST +
En cours: FLOWER MI, place de la FFR dans l'arbre décisionnel

Clinical Outcomes Through 1,440 Days



Spaulding C et al *New Engl J Med* 2006; 355:1093-104
Spaulding C et al JACC Cardiovasc Interv. 2011;4:14-23

Dublin defined events. Analysis performed with censored data, hierarchical analysis for MACE, non-hierarchical for other events

Prehospital and in-hospital management, reperfusion strategies within 24 h of FMC

STEMI diagnosis[a]

capable center

EMS or r

Pref
< 60

P

Primary-PC

Rescue PC

nters)

Immediately

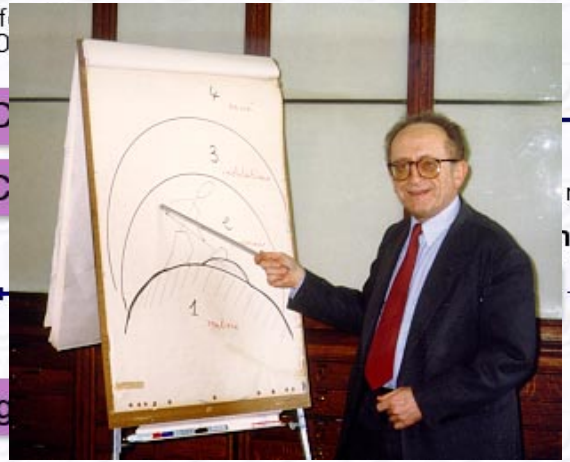
mediat
to PCI

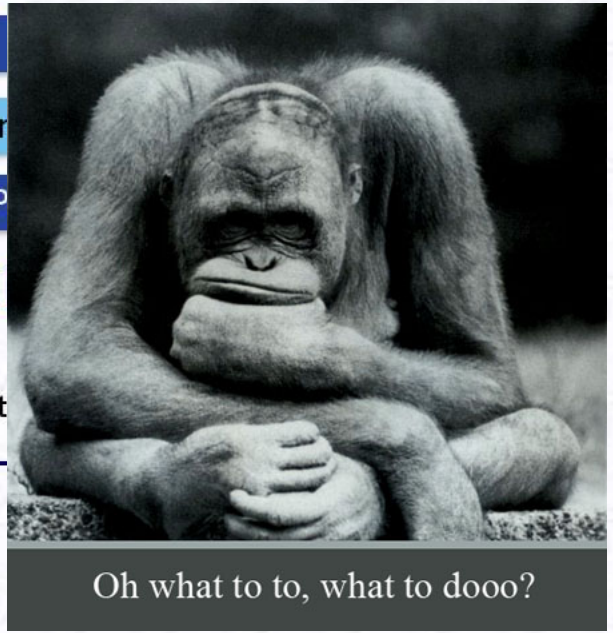
No

Yes

Preferably 3 -24 h

Coronary angiog





Oh what to to, what to dooo?

[a] The time point the diagnosis is confirmed with patient history and ECG ideally within 10 min from the first medical contact (FMC). All delays are related to FMC (first medical contact).

Cath = catheterization laboratory; EMS = emergency medical system; FMC = first medical contact; PCI = percutaneous coronary intervention; STEMI = ST-segment elevation myocardial infarction.

European Heart Journal (2012) 33, 2569–2619
doi:10.1093/eurheartj/ehs215

www.escardio.org/guidelines

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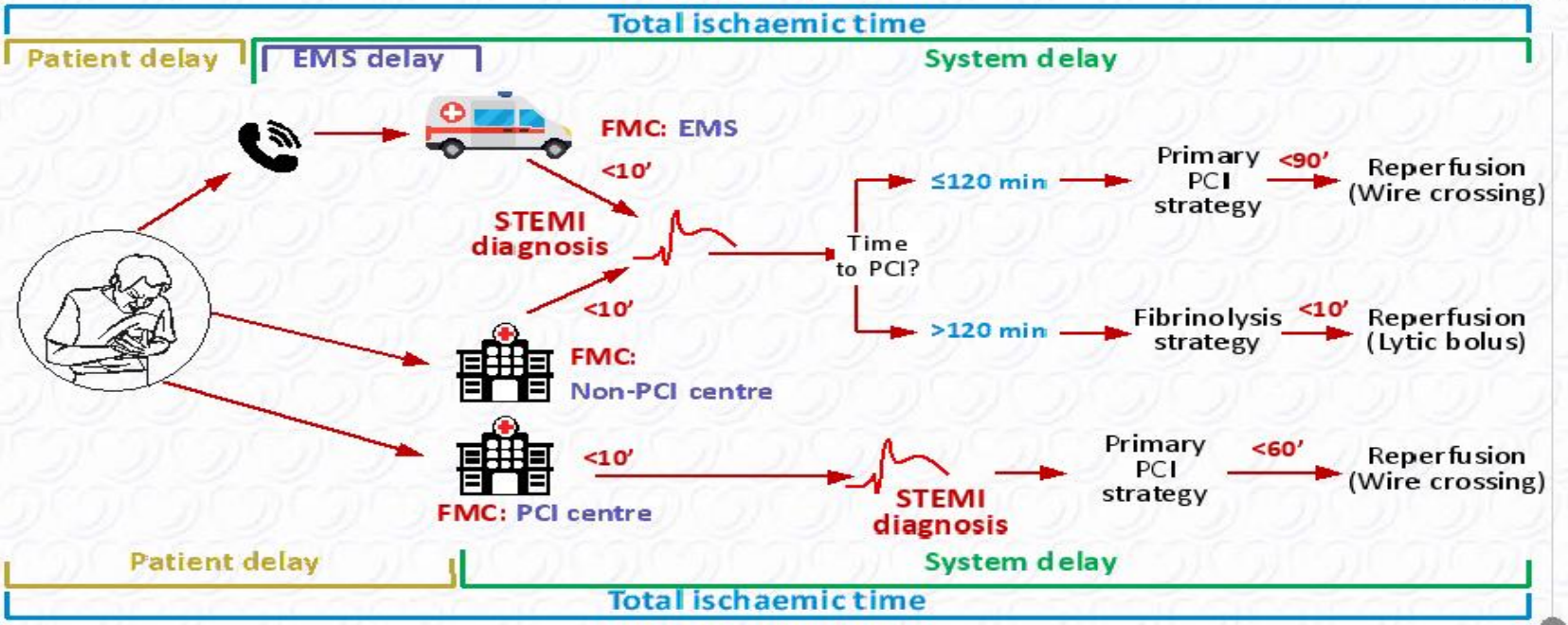
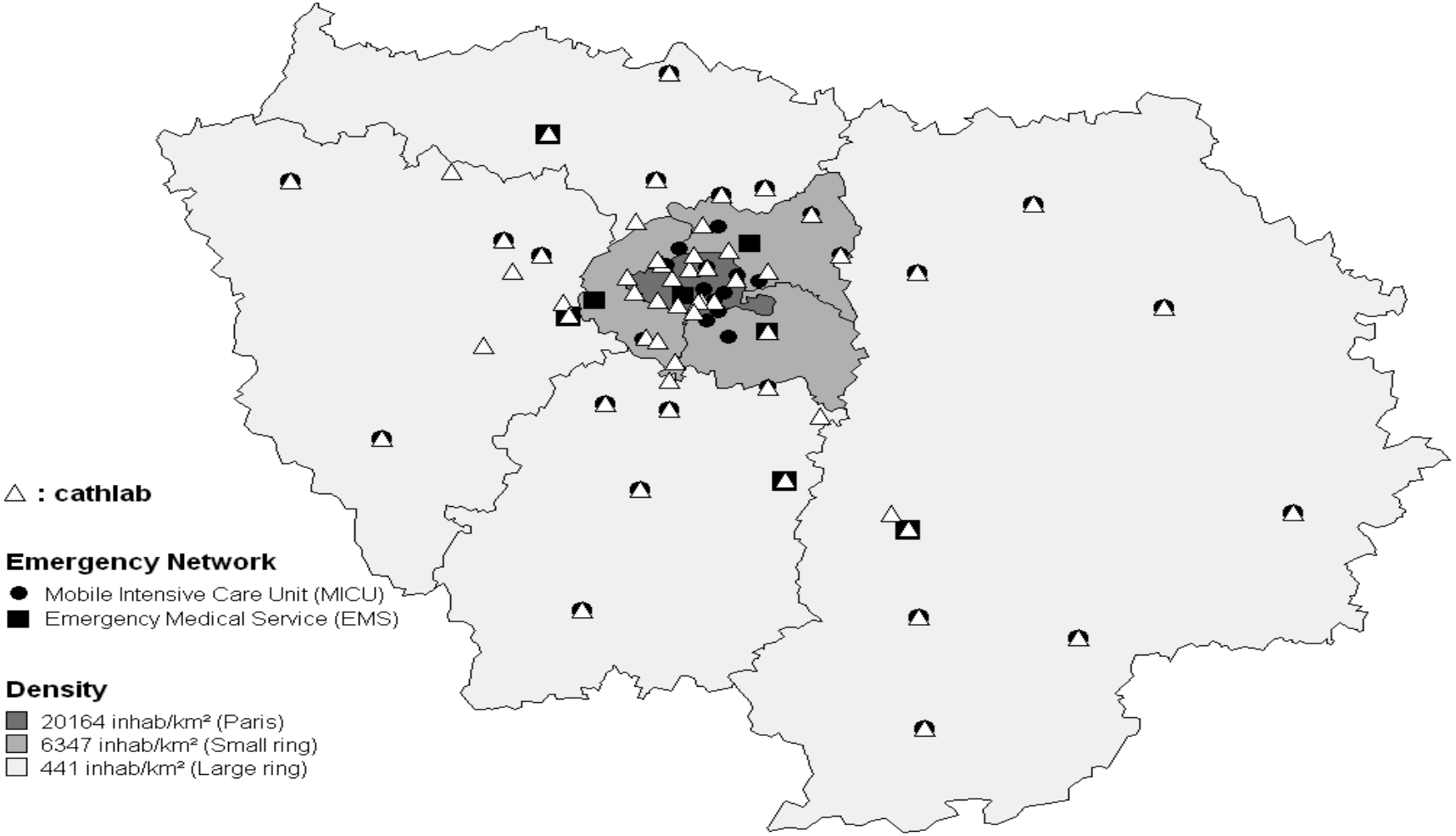
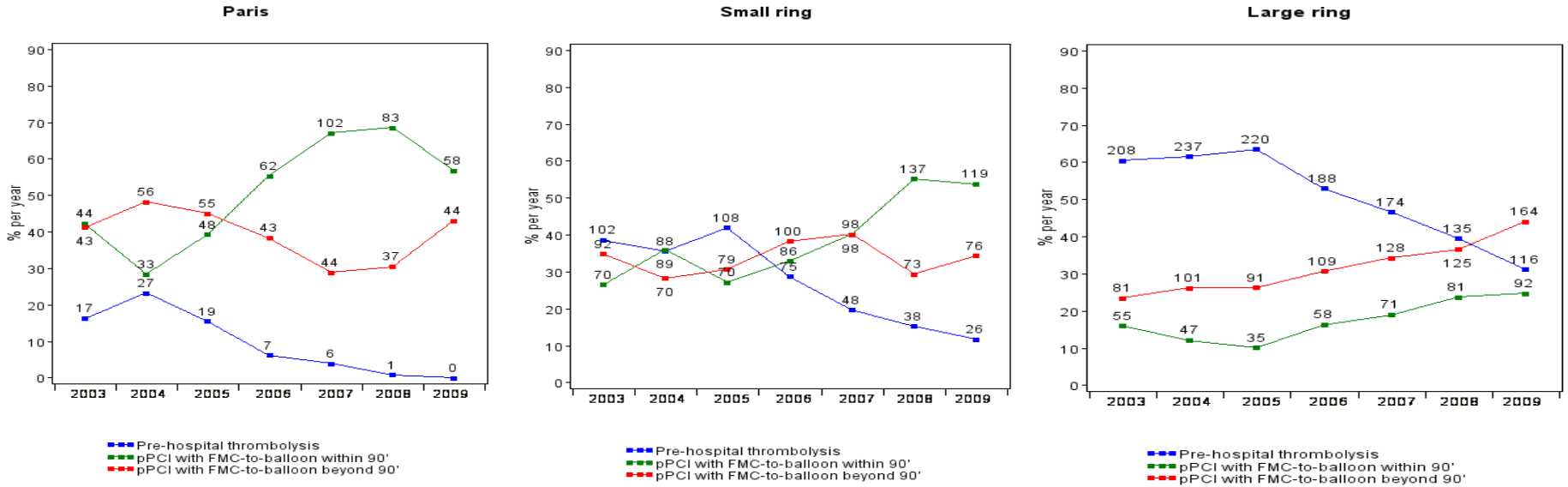
Modes of patient presentation, components of ischaemic time and flowchart for reperfusion strategy selection




△ : cathlab
Emergency Network
Mobile Intensive Care Unit (MICU)
Emergency Medical Service (EMS)
Density
20164 inhab/km² (Paris)
6347 inhab/km² (Small ring)
441 inhab/km² (Large ring)

Registre e-MUST: Evolution des strategies de reperfusion en Ile de France



Karam N et al, Int J Cardiol 2014

Reperfusion therapy *(continued)*

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« STEMI LIKE »

Recommendations	Class	Level
In the absence of ST-segment elevation, a *primary PCI strategy* is indicated in patients with suspected ongoing ischaemic symptoms suggestive of myocardial infarction and at least one of the following criteria present: – haemodynamic instability or cardiogenic shock, – recurrent or ongoing chest pain refractory to medical treatment, – life-threatening arrhythmias or cardiac arrest, – mechanical complications of myocardial infarction, – acute heart failure, – recurrent dynamic ST-segment or T-wave changes, particularly with intermittent ST-segment elevation.	I	C

Periprocedural and postprocedural antithrombotic therapyc in patients undergoing primary percutaneous coronary intervention

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Recommendations	Class	Level
Antiplatelet therapy		
A potent $P2Y_{12}$ inhibitor (prasugrel or ticagrelor), or clopidogrel if these are not available or are contra-indicated, is recommended before (or at latest at the time of) PCI and maintained over 12 months unless there are contra-indications such as excessive risk of bleeding.	I	A
Aspirin (oral or i.v, if unable to swallow) is recommended as soon as possible for all patients without contra-indications.	I	B
GP IIb/IIIa inhibitors should be considered for bailout if there is evidence of no-reflow or a thrombotic complication.	IIa	C
Cangrelor may be considered in patients who have not received $P2Y_{12}$ receptor inhibitors.	IIb	A

Periprocedural and postprocedural antithrombotic therapy in patients undergoing primary percutaneous coronary intervention

ESC European Society of Cardiology

Recommendations	Class	Level
Anticoagulant therapy		
Anticoagulation is recommended for all patients in addition to antiplatelet therapy during primary PCI.	I	C
Routine use of UFH is recommended.	I	C
In patients with heparin-induced thrombocytopenia, bivalirudin is recommended as the anticoagulant agent during primary PCI.	I	C
Routine use of enoxaparin i.v. should be considered.	IIa	A
Routine use of bivalirudin should be considered.	IIa	A
Fondaparinux is not recommended for primary PCI.	III	B

Logistical issues for hospital stay

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Recommendations	Class	Level
It is indicated that all hospitals participating in the care of STEMI patients have a CCU/ICCU equipped to provide all aspects of care for STEMI patients, including treatment of ischaemia, severe heart failure, arrhythmias, and common comorbidities.	I	C
Transfer back to a referring non-PCI hospital		
Same-day transfer should be considered appropriate in selected patients after successful primary PCI, i.e. those without ongoing myocardial ischaemia, arrhythmia, or haemodynamic instability, not requiring vasoactive or mechanical support, and not needing further early revascularization.	IIa	C

Management of cardiogenic shock in ST-elevation myocardial infarction

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Recommendations	Class	Level
Immediate PCI is indicated for patients with cardiogenic shock if coronary anatomy is suitable. If coronary anatomy is not suitable for PCI, or PCI has failed, emergency CABG is recommended.	I	B
Invasive blood pressure monitoring with an arterial line is recommended.	I	C
Immediate Doppler echocardiography is indicated to assess ventricular and valvular functions, loading conditions, and to detect mechanical complications.	I	C
It is indicated that mechanical complications are treated as early as possible after discussion by the Heart Team.	I	C
Oxygen/mechanical respiratory support is indicated according to blood gases.	I	C

Management of cardiogenic shock in ST-elevation myocardial infarction *(continued)*

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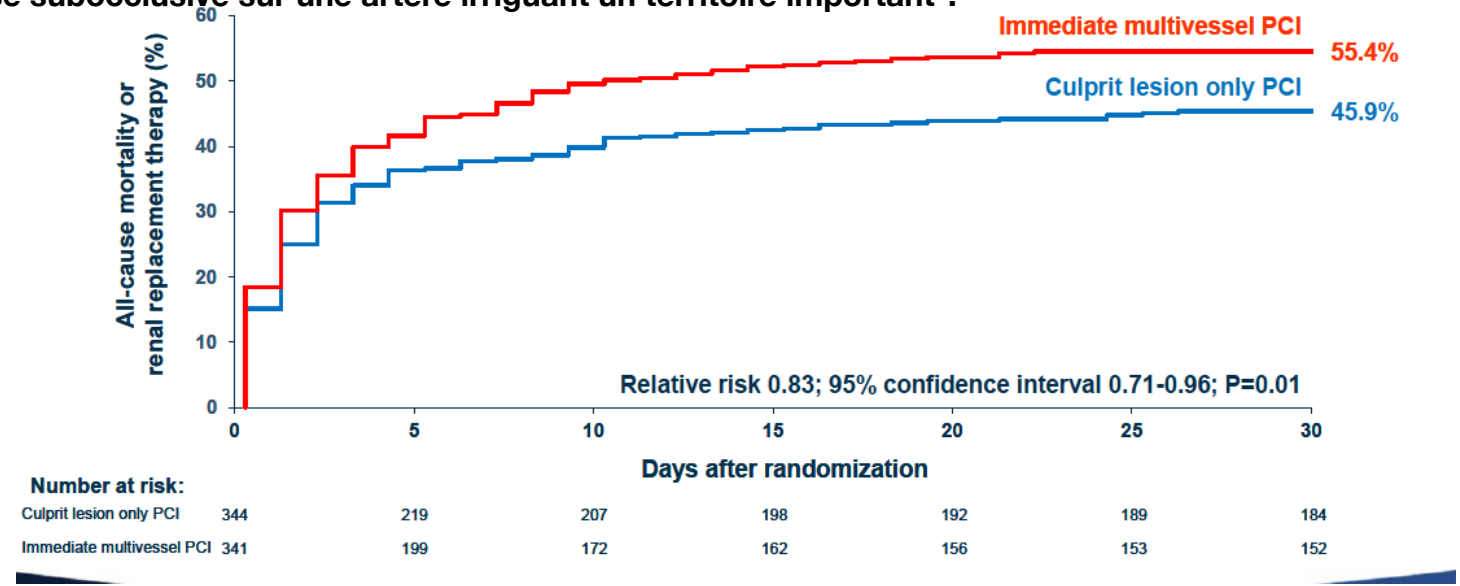
Recommendations	Class	Level
Fibrinolysis should be considered in patients presenting with cardiogenic shock if a primary PCI strategy is not available within 120 min from STEMI diagnosis and mechanical complications have been ruled out.	IIa	C
~~Complete revascularization during the index procedure should be considered in patients presenting with cardiogenic shock.~~	IIa	C
Intra-aortic balloon pumping should be considered in patients with haemodynamic instability/cardiogenic shock due to mechanical complications.	IIa	C
Haemodynamic assessment with pulmonary artery catheter may be considered for confirming diagnosis or guiding therapy.	IIb	B

All Cause Mortality and Renal Replacement

Revascularisation uniquement artère coupable dans choc cardiogénique sauf si

- **Lésion coupable n'est pas clairement définie ?**
- **- Sténose subocclusive sur une artère irriguant un territoire important ?**



CULPRIT-SHOCK trial, NEJM 2017

Management of cardiogenic shock in ST-elevation myocardial infarction *(continued)*

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Recommendations	Class	Level
Ultrafiltration may be considered for patients with refractory congestion, who failed to respond to diuretic-based strategies.	IIb	B
Inotropic/vasopressor agents may be considered for haemodynamic stabilization.	IIb	C
Short-term mechanical support may be considered in patients in refractory shock.	IIb	C
Routine intra-aortic balloon pumping is not indicated.	III	B

Et pourtant la contrepulsion est encore utilisée dans 25-40% des cas !

Cardiac arrest

Recommendations	Class	Level
A primary PCI strategy is recommended in patients with resuscitated cardiac arrest and an ECG consistent with STEMI.	I	B
Targeted temperature management is indicated early after resuscitation of cardiac arrest patients who remain unresponsive.	I	B
It is indicated that healthcare systems implement strategies to facilitate transfer of all patients in whom a myocardial infarction is suspected directly to the hospital offering 24/7 PCI-mediated reperfusion therapy via one specialized EMS.	I	C

Cardiac arrest

ESC European Society of Cardiology

Recommendations	Class	Level
It is indicated that all medical and paramedical personnel caring for suspected myocardial infarction have access to defibrillation equipment and are trained in basic cardiac life support.	I	C
Urgent angiography (and PCI if indicated) should be considered in patients with resuscitated cardiac arrest without diagnostic ST-segment elevation but with a high suspicion of ongoing myocardial ischaemia.	IIa	C
Prehospital cooling using a rapid infusion of large volumes of cold i.v. fluid immediately after return of spontaneous circulation is not recommended.	III	B

Prevention and management of SCD associated with ACS: in-hospital phase. Indications for revascularization		
Recommendations	**Class[a]**	**Level[b]**
Urgent reperfusion is recommended in patients with STEMI.	I	A
Coronary revascularization is recommended in patients with NSTEMI or unstable angina according to the ESC NSTEMI Guidelines.	I	C
A coronary angiogram followed, if necessary, by coronary angioplasty within 2 hours of hospital admission is recommended in patients with high-risk NSTEMI, which also includes life-threatening VA.	I	C
Prompt and complete coronary revascularization is recommended to treat myocardial ischaemia that may be present in patients with recurrent VT or VF.	I	C
Prompt opening of the infarct vessels is recommended to reverse new-onset ischaemic AV conduction disturbances. This is especially true for AV block due to inferior infarction, even in the case of late (>12 hours) presentation.	I	C
Direct admission to the catheterization laboratory is recommended in comatose survivors of OHCA with electrocardiographic criteria for ST-segment elevation myocardial infarction on the post-resuscitation ECG.	I	B
An 'intensive care unit stop' should be considered in comatose survivors of OHCA without electrocardiographic criteria for ST-segment elevation on the post-resuscitation ECG: - to exclude non-coronary causes; - in the absence of an obvious non-coronary cause, a coronary angiogram should be considered as soon as possible (<2 hours), particularly in haemodynamically unstable patients.	IIa	B
Implantation of LVAD or ECLS should be considered in haemodynamically unstable patients with recurrent VT or VF despite optimal therapy.	IIa	B
Cardiac assist support and revascularization in specialized centres may be considered in patients with refractory cardiac arrest.	IIb	C

2015 ESC Guidelines for the management of patients with ventricular arrhythmias and the prevention of sudden cardiac death

The Task Force for the Management of Patients with Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death of the European Society of Cardiology (ESC)

Endorsed by: Association for European Paediatric and Congenital Cardiology (AEPC)

Authors/Task Force Members: Silvia Giuliana Priori* (Chairperson) (Italy), Carina Blomström-Lundqvist* (Co-chairperson) (Sweden), Andrea Mazzanti† (Italy) Nico Bloma(The Netherlands) Martin Borggrefe (Germany), John Camm (UK), Perry Mark Elliott (UK), Donna Fitzsimons (UK), Robert Hatala (Slovakia), Gerhard Hindricks (Germany), Paulus Kirchhof (UK/Germany), Keld Kjeldsen (Denmark), Karl-Heinz Kuck (Germany), Antonio Hernández Madrid (Spain), Nikolaos Nikolaou (Greece), Tone M. Norekvål (Norway), Christian Spaulding (France), and Dirk J. Van Veldhuisen (The Netherlands)

EMERGE Study

Survivors of OHCA without ST segment elevation

Pre-hospital randomization

Immediate coronary angiogram at admission

Delayed coronary angiogram at 48-72 hours

Superiority (Immediate > Delayed)
Primary end-point: 180-day survival with CPC 1 or 2
970 patients

clinicaltrials.gov NCT 02875458
Funds: French Ministry of Health

Diagnostic criteria for myocardial infarction with non-obstructive coronary arteries

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The diagnosis of MINOCA is made immediately upon coronary angiography in a patient presenting with features consistent with an AMI, as detailed by the following criteria:
(1) Universal AMI criteria.
(2) Non-obstructive coronary arteries on angiography, defined as no coronary artery stenosis ≥50% in any potential IRA.
(3) No clinically overt specific cause for the acute presentation.

Diagnostic test flow chart in MINOCA *(continued)*

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SUSPECTED DIAGNOSIS AND FURTHER DIAGNOSTIC TESTS

	Non-invasive	Invasive
Myocarditis	**TTE Echo** (Pericardial effusion) **CMR** (Myocarditis, pericarditis)	**Endomyocardial biopsy** (myocarditis)
Coronary (epicardial/ microvascular)	**TTE Echo** (Regional wall motion abnormalities, embolic source) **CMR** (small infarction) **TOE/Bubble Contrast Echo** (Patent foramen ovale, atrial septal defect)	**IVUS/OCT** (Plaque disruption/dissection) **Ergonovine/Ach test** (Spasm) **Pressure/Doppler wire** (Microvascular dysfunction)

What is new in 2017 Guidelines on AMI-STEMI

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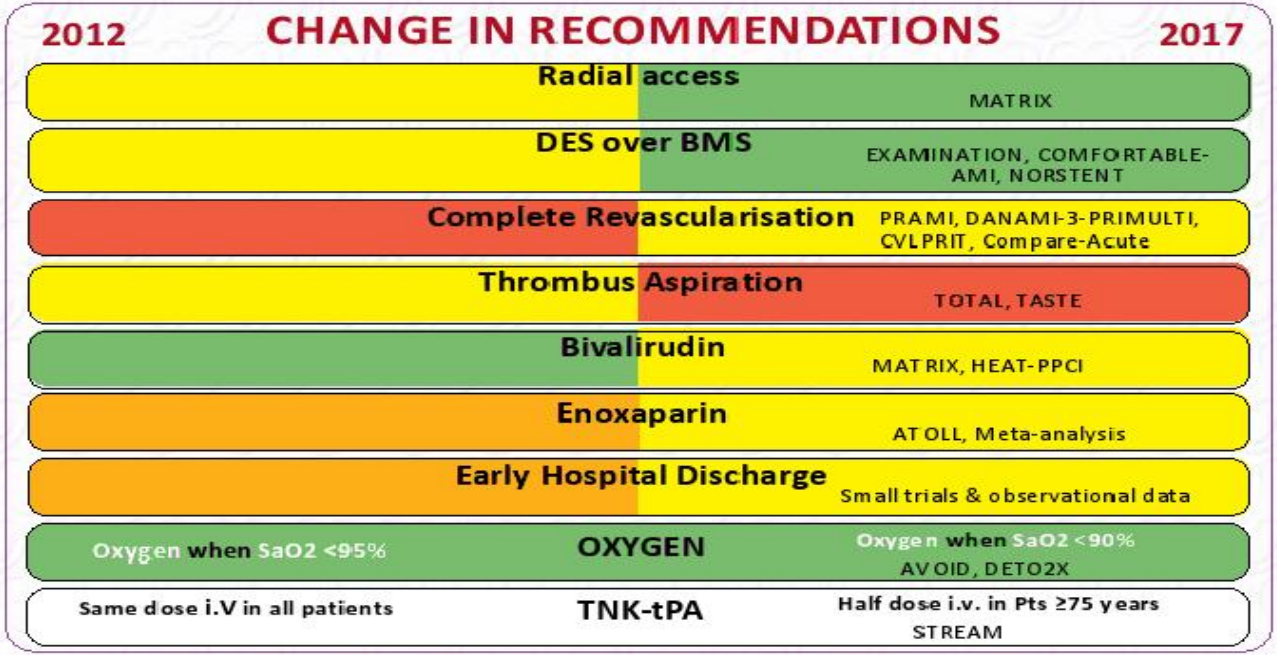

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I
IIa
IIb
III

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