2015 ESC Guidelines for the Management of Acute Coronary Syndromes in Patients Presenting Without Persistent ST-Segment Elevation

Thierry Gillebert

European Society of Cardiology,

Slides kindly provided by

Marco Roffi, Geneva, CH

Carlo Patrono, Roma, IT

European Heart Journal 2015 doi: 10.1093/eurheartj/ehv320

EUROPEAN SOCIETY OF CARDIOLOGY®

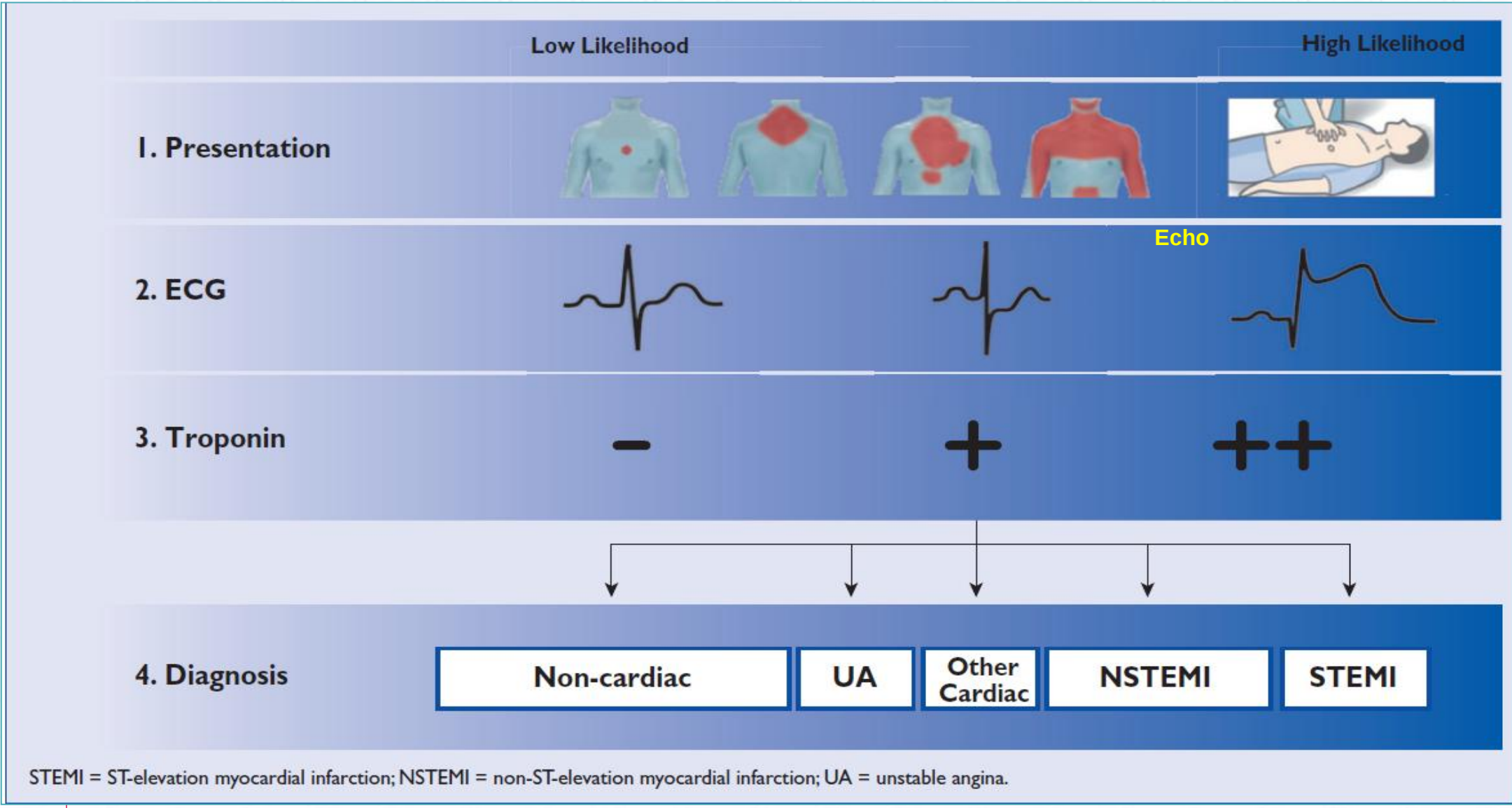
What is new (1)

- **New diagnostic algorithm using high-sensitivity cardiac troponin**
- **Guidance on cardiac rhythm monitoring**
- **Antithrombotic treatment**
  - Timing of $P2Y_{12}$ inhibitor administration in patients scheduled for early invasive strategy (pretreatment)
  - Duration of dual antiplatelet therapy
  - Antiplatelet agents and CABG (Web addenda)
  - Managing oral antiplatelet agents in patients requiring long-term oral anticoagulants (vitamin K antagonists, non-vitamin K antagonist oral anticoagulants)
  - New agents: cangrelor and vorapaxar
- **Management of acute bleeding events** (Web addenda)
  - In patients on antiplatelet agents, vitamin K antagonists, non-vitamin K antagonist oral anticoagulants

What is new (2)

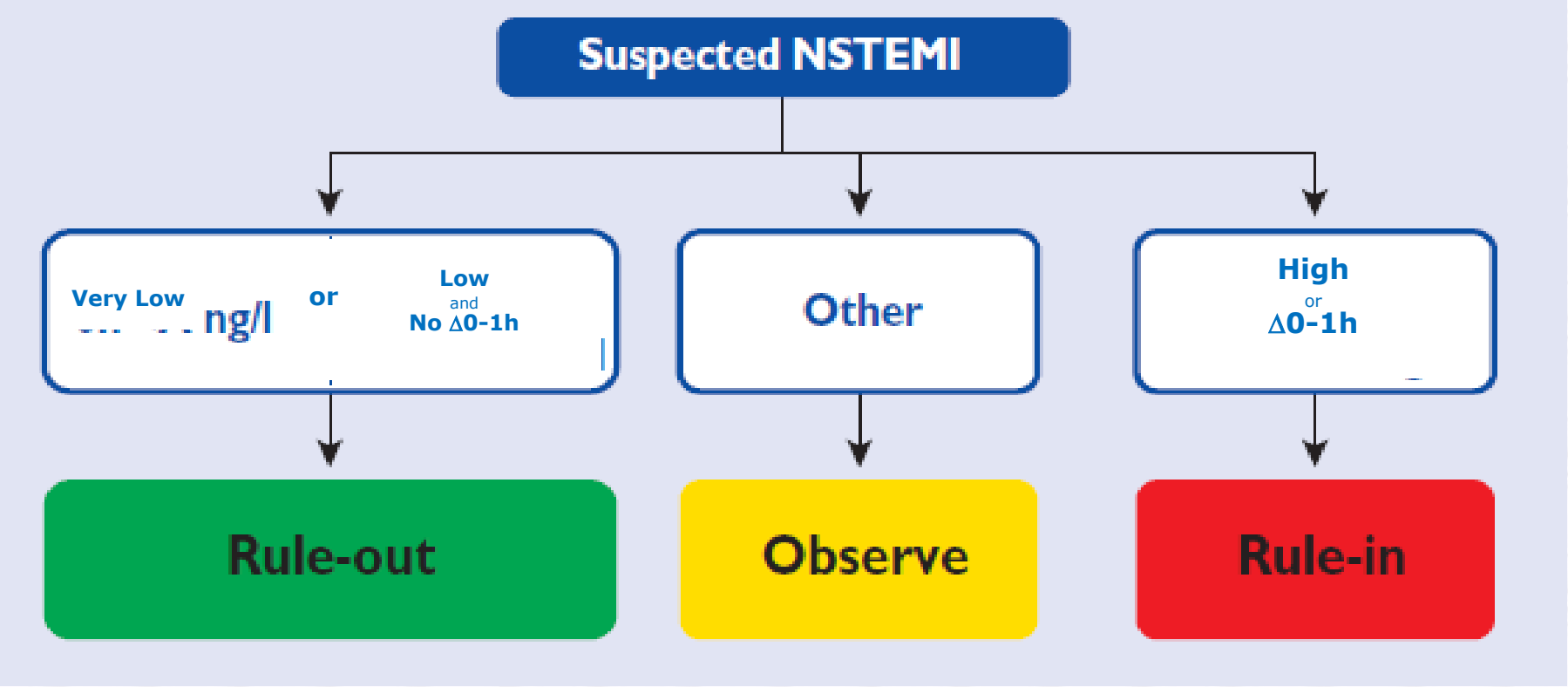
- **Revascularization**
  - Modified classification of the characteristics mandating the indication/timing of invasive strategy
  - Radial approach
  - Technical aspects and challenges of revascularization in NSTE-ACS (PCI and CABG [Web addenda])
- **Section on gender** (Web addenda)
- **Special populations and conditions** (Web addenda)
  - NSTE-ACS and atrial fibrillation
  - NSTE-ACS and chronic analgesic or anti-inflammatory treatment
  - NSTE-ACS and non-cardiac surgery
- **Secondary prevention**
  - Lipid lowering beyond statins
- **« Questions and Answers » companion manuscripts**

Initial assessment of patients with suspected acute coronary syndromes



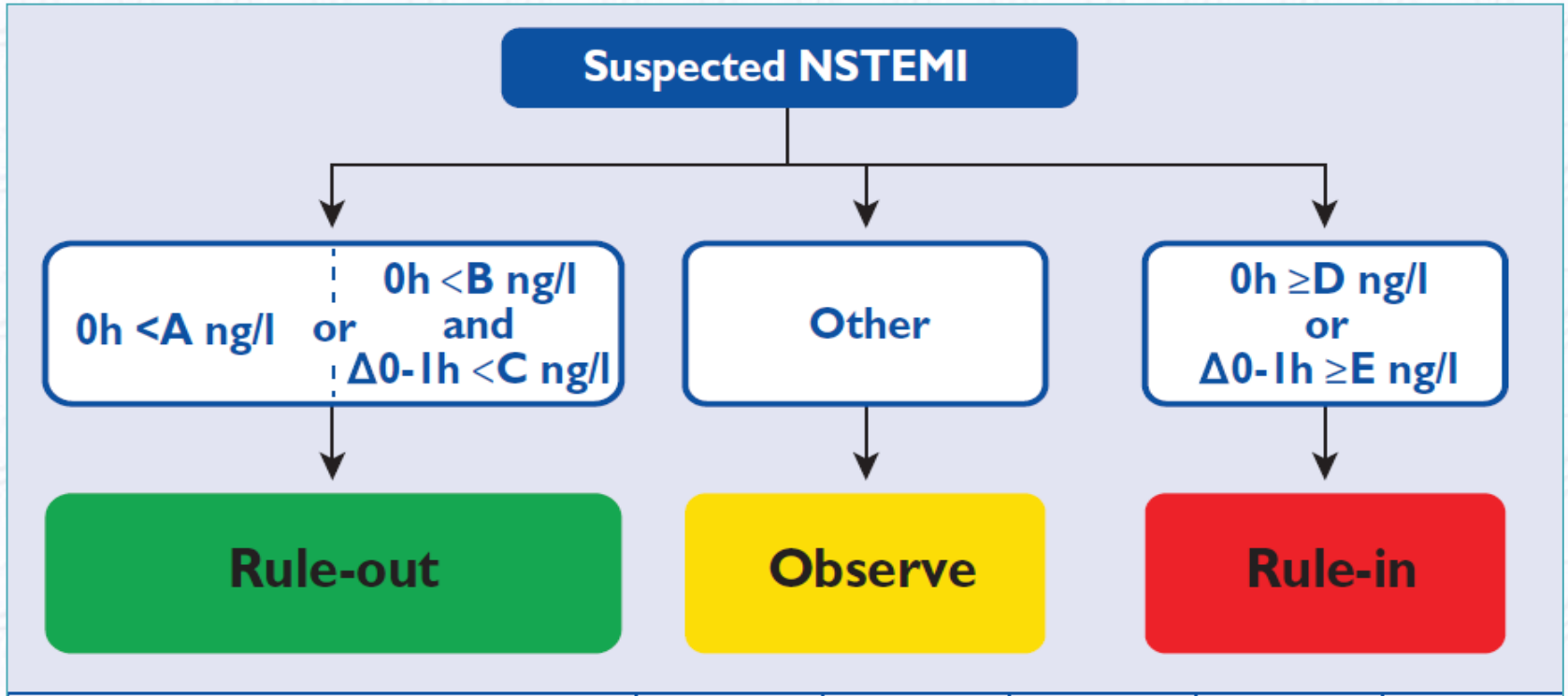
STEMI = ST-elevation myocardial infarction; NSTEMI = non-ST-elevation myocardial infarction; UA = unstable angina.

0 h/1 h Rule-in and rule-out algorithms using high-sensitivity cardiac troponins (hs-cTn) assays in patients presenting with suspected NSTEMI



- Negative predictive value >98% for acute MI
- Positive predictive value 75-80% for acute MI
- Cut-offs for « rule-in » and « rule-out » assay specific

0 h/1 h Rule-in and rule-out algorithms using high-sensitivity cardiac troponins (hs-cTn) assays in patients presenting with suspected NSTEMI



	A	B	C	D	E
hs-cTnT (Elecsys)	5	12	3	52	5
hs-cTnI (Architect)	2	5	2	52	6
hs-cTnI (Dimension Vista)	0.5	5	2	107	19

Cardiac troponins

Recommendations	Class[a]	Level[b]
It is recommended to measure cardiac troponins with sensitive or high-sensitivity assays and obtain the results within 60 min.	I	A
A rapid rule-out protocol at 0 h and 3 h is recommended if high-sensitivity cardiac troponin tests are available.	I	B
A rapid rule-out and rule-in protocol at 0 h and 1 h is recommended if a high-sensitivity cardiac troponin test with a validated 0 h/1 h algorithm is available. Additional testing after 3–6 h is indicated if the first two troponin measurements are not conclusive and the clinical condition is still suggestive of ACS.	I	B

Monitoring of cardiac rhythm

Low risk for cardiac arrhythmia
→ none of the following
- haemodynamically unstable
- major arrhythmias
- LVEF <40%
- failed reperfusion
- additional critical coronary stenoses of major vessels
- complications of PCI

High risk for cardiac arrhythmia
→ one or more of the above

Recommendations	Class[a]	Level[b]
Continuous rhythm monitoring is recommended until the diagnosis of NSTEMI is established or ruled out.	I	C
It is recommended to admit NSTEMI patients to a monitored unit.	I	C
Rhythm monitoring up to 24 h or PCI (whichever comes first) should be considered in NSTEMI patients at low risk for cardiac arrhythmias.[e]	IIa	C
Rhythm monitoring for >24 h should be considered in NSTEMI patients at intermediate to high-risk for cardiac arrhythmias.[f]	IIa	C
In the absence of signs or symptoms of ongoing ischaemia, rhythm monitoring in unstable angina may be considered in selected patients (e.g. suspicion of coronary spasm or associated symptoms suggestive of arrhythmic events).	IIb	C

Selection of NSTE-ACS treatment strategy and timing according to initial risk stratification

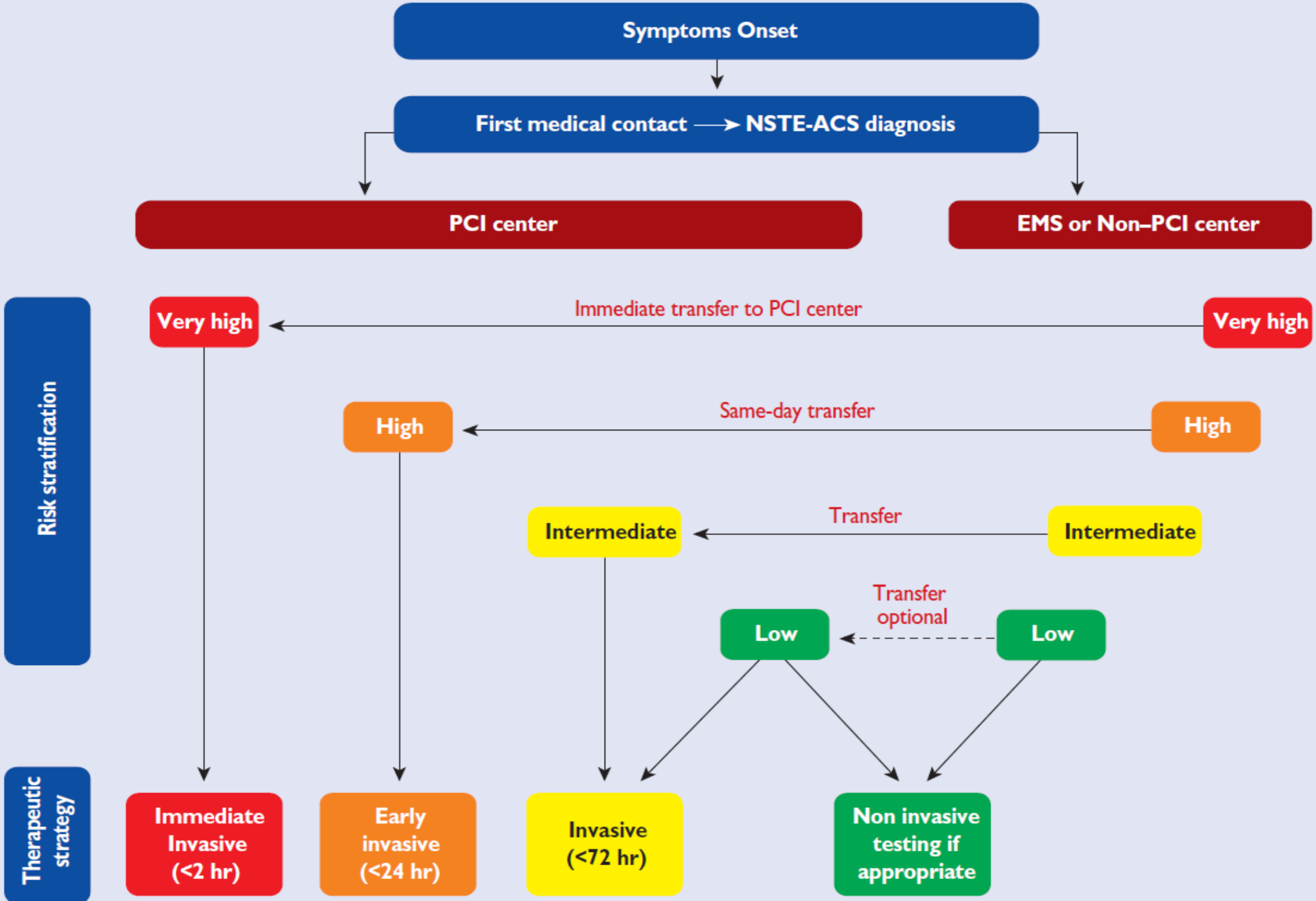
(2011: primary/ secondary high-risk criteria)

Ongoing ischaemia

↓

Immediate action

Very-high-risk criteria
• Haemodynamic instability or cardiogenic shock
• Recurrent or ongoing chest pain refractory to medical treatment
• Life-threatening arrhythmias or cardiac arrest
• Mechanical complications of MI
• Acute heart failure
• Recurrent dynamic ST-T wave changes, particularly with intermittent ST-elevation
High-risk criteria
• Rise or fall in cardiac troponin compatible with MI
• Dynamic ST- or T-wave changes (symptomatic or silent)
• GRACE score >140
Intermediate-risk criteria
• Diabetes mellitus
• Renal insufficiency (eGFR <60 mL/min/1.73 m²)
• LVEF <40% or congestive heart failure
• Early post-infarction angina
• Prior PCI
• Prior CABG
• GRACE risk score >109 and <140
Low-risk criteria
• Any characteristics not mentioned above


Symptoms Onset
First medical contact → NSTE-ACS diagnosis
PCI center
EMS or Non–PCI center
Risk stratification
Very high
Immediate transfer to PCI center
Very high
High
Same-day transfer
High
Intermediate
Transfer
Intermediate
Transfer optional
Low
Low
Therapeutic strategy
Immediate Invasive (<2 hr)
Early invasive (<24 hr)
Invasive (<72 hr)
Non invasive testing if appropriate

Radial approach

Recommendations	Class[a]	Level[b]
In centres experienced with radial access, a radial approach is recommended for coronary angiography and PCI.	I	A

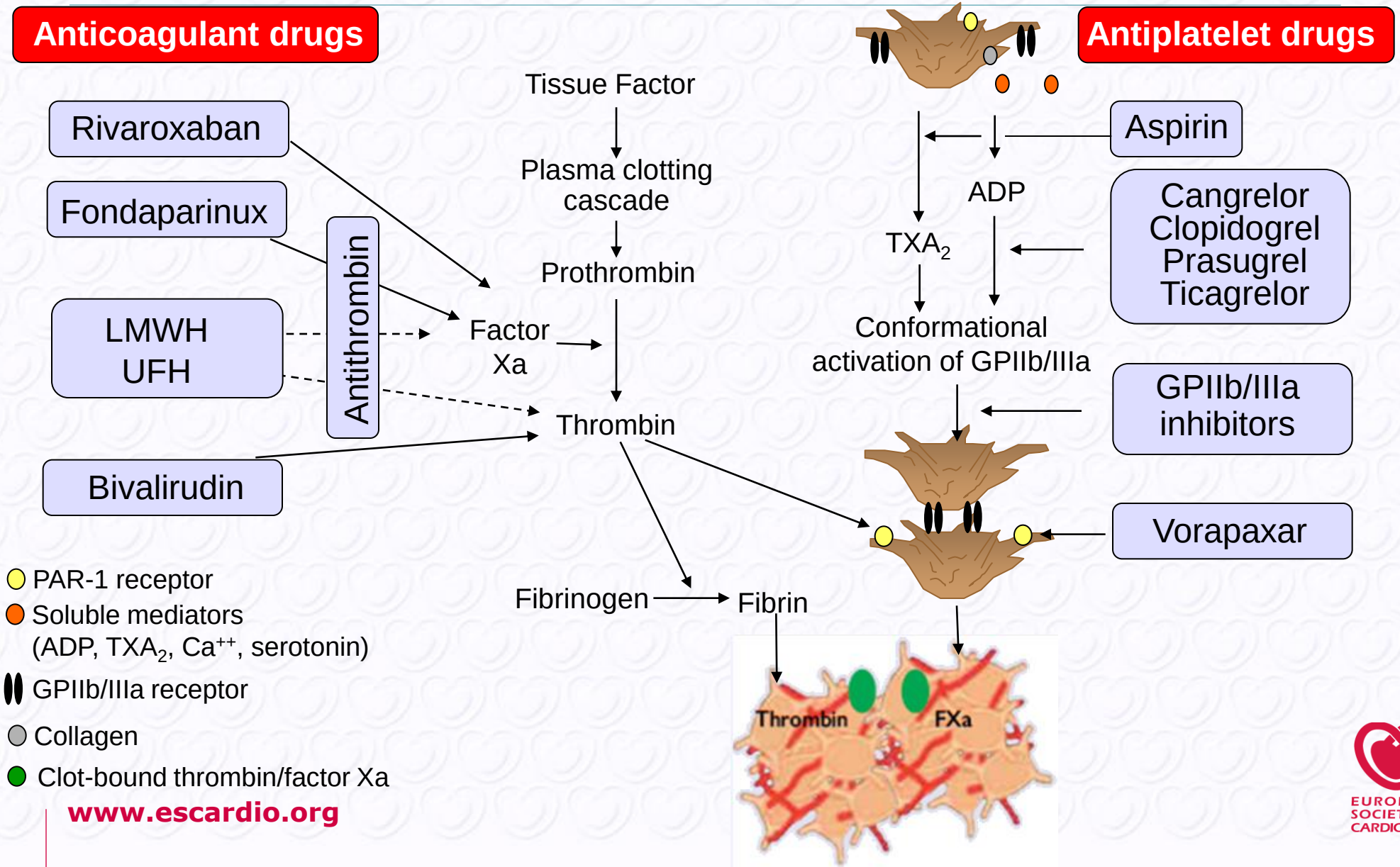
- **It is recommended that centres treating ACS patients implement a transition from transfemoral to transradial access.**
- **Proficiency in the femoral approach should be maintained (e.g. for IABP insertion and structural as well as peripheral procedures)**

Drug-eluting stents

Recommendations	Class[a]	Level[b]	
In patients undergoing PCI, new-generation DESs are recommended.	I	A	
In patients in whom a short DAPT duration (30 days) is planned because of an increased bleeding risk, a new-generation DES may be considered over a BMS.	IIb	B	ZEUS*

*Valgimigli M et al. J Am Coll Cardiol 2015;65: 805–15

Targets for antithrombotic drugs



Timing of $P2Y_{12}$ Inhibitor Initiation

- As the optimal timing of ticagrelor or clopidogrel administration in NSTE-ACS patients scheduled for an invasive strategy has not been adequately investigated, no recommendation for or against pretreatment with these agents can be formulated. Based on the ACCOAST results, pretreatment with prasugrel is not recommended.

Recommendations for platelet inhibition in NSTE-ACS		
Recommendations	**Class[a]**	**Level[b]**
Oral antiplatelet therapy		
Aspirin is recommended for all patients without contra-indications at an initial oral loading dose[c] of 150–300 mg (in aspirin-naïve patients) and a maintenance dose of 75–100 mg daily long-term regardless of treatment strategy.	I	A
A $P2Y_{12}$ inhibitor is recommended, in addition to aspirin, for 12 months unless there are contraindications such as excessive risk of bleeds.	I	A
• Ticagrelor (180 mg loading dose, 90 mg twice daily) is recommended, in the absence of contraindications[d], for all patients at moderate- to high-risk of ischaemic events (e.g. elevated cardiac troponins), regardless of initial treatment strategy and including those pretreated with clopidogrel (which should be discontinued when ticagrelor is started).	I	B
• Prasugrel (60 mg loading dose, 10 mg daily dose) is recommended in patients who are proceeding to PCI if no contraindication.[d]	I	B
• Clopidogrel (300–600 mg loading dose, 75 mg daily dose) is recommended for patients who cannot receive ticagrelor or prasugrel or who require oral anticoagulation.	I	B
$P2Y_{12}$ inhibitor administration for a shorter duration of 3–6 months after DES implantation may be considered in patients deemed at high bleeding risk.	IIb	A
It is not recommended to administer prasugrel in patients in whom coronary anatomy is not known.	III	B
Intravenous antiplatelet therapy		
GPIIb/IIIa inhibitors during PCI should be considered for bailout situations or thrombotic complications.	IIa	C
Cangrelor may be considered in $P2Y_{12}$ inhibitor-naïve patients undergoing PCI.	IIb	A
It is not recommended to administer GPIIb/IIIa inhibitors in patients in whom coronary anatomy is not known.	III	A

Recommendations for platelet inhibition in NSTE-ACS (continued)		
Recommendations	**Class[a]**	**Level[b]**
Long-term $P2Y_{12}$ inhibition		
$P2Y_{12}$ inhibitor administration in addition to aspirin beyond 1 year may be considered after careful assessment of the ischaemic and bleeding risks of the patient.	**IIb**	**A**
General recommendations		
A proton pump inhibitor in combination with DAPT is recommended in patients at higher than average risk of gastrointestinal bleeds (i.e. with a history of gastrointestinal ulcer/haemorrhage, anticoagulant therapy, chronic NSAID/corticosteroid use or two or more among age ≥65 years, dyspepsia, gastro-oesophageal reflux disease, *Helicobacter pylori* infection, and chronic alcohol use).	**I**	**B**
In patients on $P2Y_{12}$ inhibitors who need to undergo non-emergency major non-cardiac surgery[e], postponing surgery for at least 5 days after cessation of ticagrelor or clopidogrel, and for 7 days for prasugrel, should be considered if clinically feasible and unless the patient is at high risk of ischaemic events,.	**IIa**	**C**
In case of a non-cardiac surgical procedure that cannot be postponed or a bleeding complication, discontinuation of the $P2Y_{12}$ inhibitor may be considered after a minimum of 1 and 3 months from PCI with BMS and new-generation DES, respectively.	**IIb**	**C**

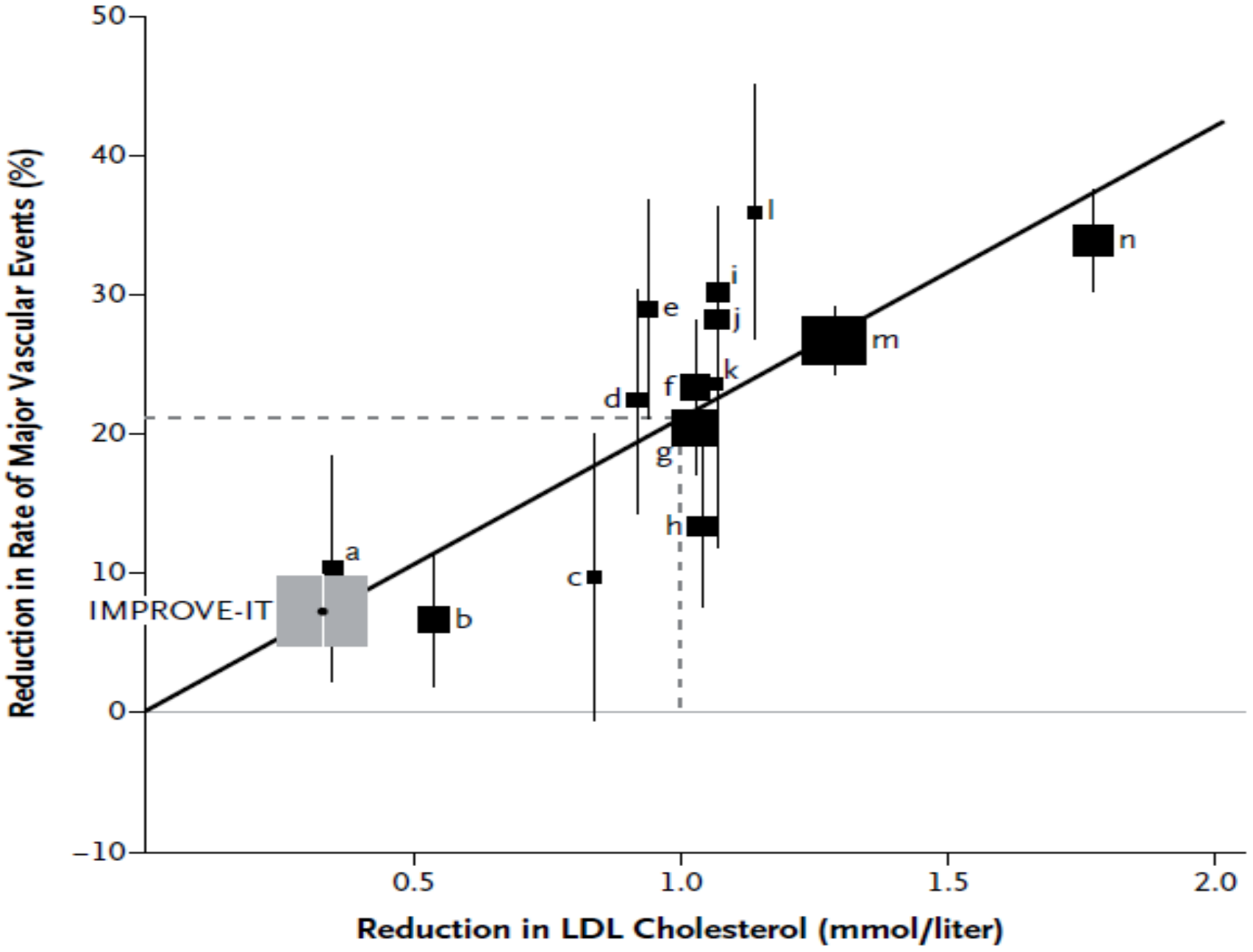
Recommendations for anticoagulation in NSTE-ACS		
Recommendations	**Class[a]**	**Level[b]**
Parenteral anticoagulation is recommended at the time of diagnosis according to both ischaemic and bleeding risks.	**I**	**B**
Fondaparinux (2.5 mg s.c. daily) is recommended as having the most favourable efficacy–safety profile regardless of the management strategy.	**I**	**B**
Bivalirudin (0.75 mg/kg i.v. bolus, followed by 1.75 mg/kg/hour for up to 4 hours after the procedure) is recommended as alternative to UFH plus GPIIb/IIIa inhibitors during PCI.	**I**	**A**
UFH 70–100 IU/kg i.v. (50–70 IU/kg if concomitant with GPIIb/IIIa inhibitors) is recommended in patients undergoing PCI who did not receive any anticoagulant.	**I**	**B**
In patients on fondaparinux (2.5 mg s.c. daily.) undergoing PCI, a single i.v. bolus of UFH (70–85 IU/kg, or 50–60 IU/kg in the case of concomitant use of GPIIb/IIIa inhibitors) is recommended during the procedure.	**I**	**B**
Enoxaparin (1 mg/kg s.c. twice daily) or UFH are recommended when fondaparinux is not available.	**I**	**B**
Enoxaparin should be considered as anticoagulant for PCI in patients pretreated with s.c. enoxaparin.	**IIa**	**B**
Additional ACT-guided i.v. boluses of UFH may be considered following initial UFH treatment.	**IIb**	**B**
Discontinuation of anticoagulation should be considered after PCI, unless otherwise indicated.	**IIa**	**C**
Crossover between UFH and LMWH is not recommended.	**III**	**B**
In NSTEMI patients with no prior stroke/TIA and at high ischaemic risk as well as low bleeding risk receiving aspirin and clopidogrel, low-dose rivaroxaban (2.5 mg twice daily for approximately one year) may be considered after discontinuation of parenteral anticoagulation.	**IIb**	**B**

Recommendations for long-term management post NSTE-ACS		
Recommendations (for the recommendations on antithrombotic treatment see sections 5.2.9 and 5.3.3).[d]	**Class[a]**	**Level[b]**
It is recommended to advise all patients on life style changes (including smoking cessation, regular physical activity and a healthy diet).	I	A
It is recommended to start high-intensity statin therapy as early as possible, unless contraindicated, and maintain it long-term.	I	A
An ACE inhibitor is recommended in patients with LVEF ≤40%, or heart failure, hypertension or diabetes, unless contraindicated. An ARB provides an alternative, particularly if ACE inhibitors are not tolerated.	I	A
Beta-blocker therapy is recommended in patients with LVEF ≤40%, unless contra-indicated.	I	A

Recommendations for long-term management post NSTE-ACS (continued)

Recommendations (for the recommendations on antithrombotic treatment see sections 5.2.9 and 5.3.3).[d]	**Class[a]**	**Level[b]**
Mineralocorticoid receptor antagonists, preferably eplerenone, are recommended in patients with LVEF ≤35% and either heart failure or diabetes after NSTE-ACS but no significant renal dysfunction or hyperkalaemia.[c]	**I**	**A**
A diastolic blood pressure goal of <90 mmHg is recommended (<85 mmHg in diabetic patients).	**I**	**A**
Participation in a well-structured cardiac rehabilitation program to modify lifestyle habits and increase adherence to treatment should be considered.	**IIa**	**A**
In patients with LDL-cholesterol ≥70 mg/dL (≥1.8 mmol/L) despite a maximally tolerated statin dose, further reduction in LDL-cholesterol with a non-statin agent[e] should be considered.	**IIa**	**B**
A systolic blood pressure goal of <140 mmHg should be considered.	**IIa**	**B**

[e] At the time of finalizing these guidelines this recommendation applies only to ezetimibe



Cannon et al, NEJM 2015;372:2387-97

Gaps in Evidence

- The burden of late cardiovascular events despite optimal pharmacological treatment, including effective $P2Y_{12}$ inhibitors and statins, calls for reappraisal of the pathophysiology of these adverse outcomes and innovative preventive strategies.

- 40 cases each
- No reference
- Link to the dedicated sections of the GL

Help to implement GL in daily practice

European Heart Journal
doi:10.1093/eurheartj/ehv409

European Heart Journal
doi:10.1093/eurheartj/ehv407

European Heart Journal
doi:10.1093/eurheartj/ehv408

www.escardio.org

European Heart Journal
doi:10.1093/eurheartj/ehv409

Questions and answers on diagnosis and risk assessment: a companion document of the 2015 ESC Guidelines for the Management of Acute Coronary Syndromes in Patients Presenting Without Persistent ST-Segment Elevation†

Questions and answers on antithrombotic therapy: a companion document of the 2015 ESC Guidelines for the Management of Acute Coronary Syndromes in Patients Presenting Without Persistent ST-Segment Elevation†

Questions and answers on coronary revascularization: a companion document of the 2015 ESC Guidelines for the Management of Acute Coronary Syndromes in Patients Presenting Without Persistent ST-Segment Elevation†

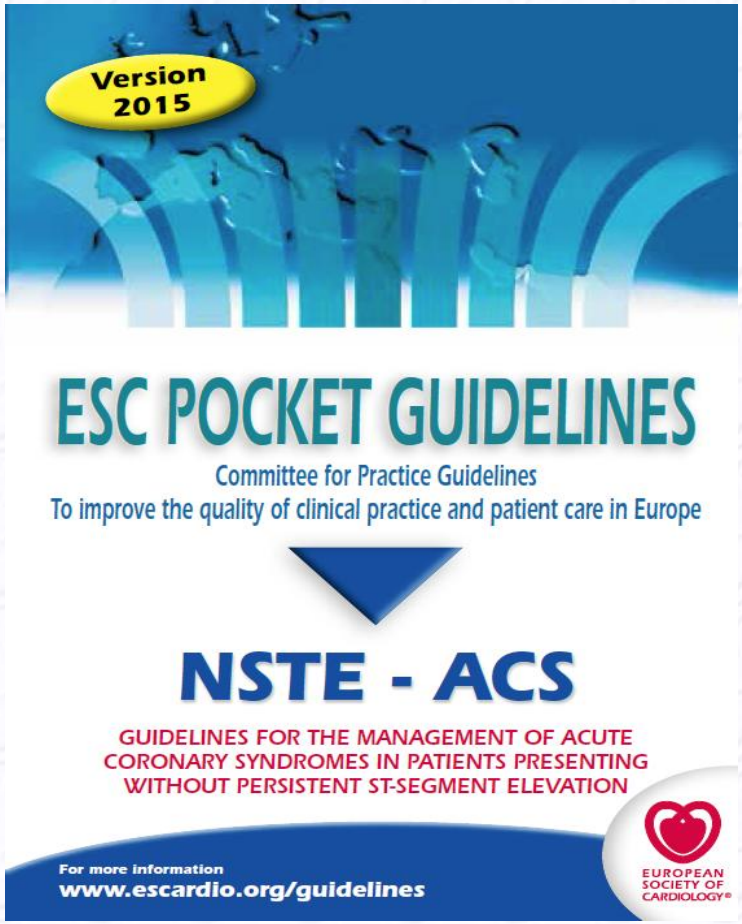
2015 ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation

Task Force for the Management of Acute Coronary Syndromes in Patients Presenting without Persistent ST-Segment Elevation of the European Society of Cardiology (ESC)

Authors/Task Force Members: Marco Roffi* (Chairperson) (Switzerland), Carlo Patrono* (Co-Chairperson) (Italy), Jean-Philippe Collet† (France), Christian Mueller† (Switzerland), Marco Valgimigli† (The Netherlands), Felicita Andreotti (Italy), Jeroen J. Bax (The Netherlands), Michael A. Borger (Germany), Carlos Brotons (Spain), Derek P. Chew (Australia), Baris Gencer (Switzerland), Gerd Hasenfuss (Germany), Keld Kjeldsen (Denmark), Patrizio Lancellotti (Belgium), Ulf Landmesser (Germany), Julinda Mehilli (Germany), Debabrata Mukherjee (USA), Robert F. Storey (UK), and Stephan Windecker (Switzerland)

ESC Committee for Practice Guidelines,
Review Coordinators, Reviewers, ESC staff, EHJ

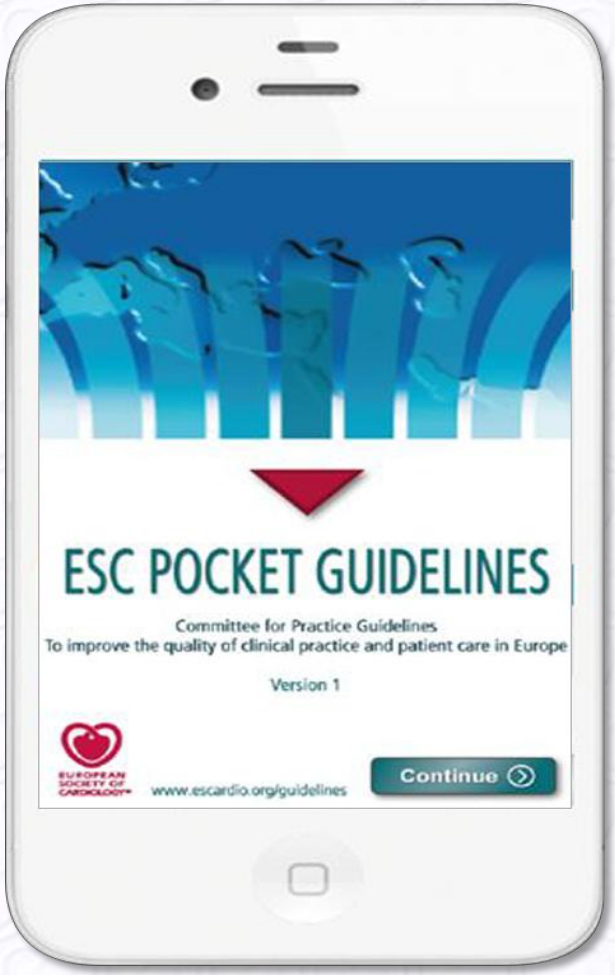
EUROPEAN SOCIETY OF CARDIOLOGY®



European Heart Journal 2015
doi: 10.1093/eurheartj/ehv320

EUROPEAN SOCIETY OF CARDIOLOGY®

ESC Pocket Guidelines application available!



Free for all users world wide

ANDROID APP ON Google play

Available on the App Store

amazon

www.escardio.org

European Heart Journal (2015) doi:10.1093/eurheartj/ehv319

EUROPEAN SOCIETY OF CARDIOLOGY®