THE EVIDENCED BASED 2015 CPR GUIDELINES
Prehospital ECG

ILCOR Treatment Recommendation: We recommend prehospital 12-lead ECG acquisition with hospital notification for adult patients with suspected STEMI (strong recommendation, low-quality evidence).

SHA recommendation: We recommend the acquisition of 12-lead ECG in the EMS system of KSA with collaboration of the reference hospital in the region. This might be easy integrated as we have good wireless walky talky system used during presentation of the patients.

Computer-Assisted ECG STEMI Interpretation

ILCOR Treatment Recommendations: We suggest computer-assisted ECG interpretation can be used as an adjunct to recognize STEMI, given the high specificity of the computer algorithms evaluated (weak recommendation, very-low-quality evidence). We suggest computer-assisted ECG interpretation not be used alone to rule out STEMI, because of the poor sensitivity and thus the considerable risk for false negative results of the computer algorithms evaluated (weak recommendation, very-low-quality evidence).

SHA recommendation: We suggest the use of computer-assisted ECG as an adjunct for the diagnosis of STEMI in the prehospital situation. It should not be used alone as a sole tool of diagnosis.

Nonphysician STEMI ECG Interpretation

ILCOR Treatment Recommendation We suggest that in adult patients with suspected STEMI outside of a hospital, nonphysicians may perform ECG interpretation to recognize STEMI in a system where the False positive and false negative rates are low (weak recommendation, very-low-quality evidence).

SHA recommendation: We suggest that non physician be trained on ECG interpretation for the most critical and fatal rhythm.

Prehospital STEMI Activation of the Catheterization Laboratory
ILCOR Treatment Recommendation: We recommend that when primary PCI is the planned strategy, that prehospital activation of catheterization laboratory for PPCI is preferred (strong recommendation, very-low-quality evidence) over no prehospital activation.

SHA recommendation: we recommend to have a review on the national primary PCI strategy and enroll the prehospital activation of Catheterization laboratory to improve the time to PCI and the outcomes of the patients.

Biomarkers to Rule Out ACS

ILCOR Treatment Recommendations: We recommend against using hs-cTnT and cTnI alone measured at 0 and 2 hours to exclude the diagnosis of ACS* (strong recommendation, very-low-quality evidence). There is no evidence of using hs-cTnI and cTnT alone to exclude the diagnosis of ACS. We suggest that negative hs-cTnI measured at 0 and 2 hours may be used together with low-risk patients (low risk defined by Vancouver rule or TIMI score of 0 or 1) to exclude the diagnosis of ACS (weak recommendation, low-quality evidence). We suggest negative cTnI or cTnT measured at 0 and 3 to 6 hours may be used together with very-low-risk patients (low risk defined by Vancouver rule, TIMI score of 0, low-risk HEART score, low-risk North American CP rule) to exclude the diagnosis of ACS (weak recommendation, low-quality evidence).

SHA recommendation: we recommendation to use more than one parameter and correlate it to the clinical finding when making the diagnosis of ACS.
THERAPEUTIC INTERVENTIONS IN ACS

Prehospital ADP-Receptor Antagonists in STEMI

ILCOR Treatment Recommendation: We suggest that when ADP-receptor antagonists are given to suspected STEMI patients with a planned primary PCI approach, administration can occur in either the prehospital or in-hospital setting, but there is insufficient evidence to change existing practice (very-low-quality evidence, weak recommendation).

SHA recommendation: we recommend to keep the current practice of using ADP-receptor antagonists as there is insufficient evidence to depend on.

Prehospital Anticoagulants Versus None in STEMI

ILCOR Treatment Recommendation: We suggest that when UFH is given in suspected STEMI patients with a planned primary PCI approach, administration can occur in either the prehospital or in-hospital setting, and there is insufficient evidence to change existing practice (weak recommendation, very-low-quality evidence).

SHA recommendation: we recommend to keep the current practice of using UFH as there is insufficient evidence to depend on.

Prehospital Anticoagulants Versus UFH in STEMI

ILCOR Treatment Recommendations: We have insufficient confidence in the treatment effect for prehospital administration of bivalirudin compared with prehospital administration of UFH in prehospital-identified STEMI patients to recommend a change in existing practice (weak recommendation, very-low-quality evidence). We suggest that prehospital enoxaparin may be used as an alternative to prehospital UFH as an adjunct for primary PCI for STEMI (weak recommendation, low-quality evidence).

SHA recommendation: we recommend to keep the current practice of using anticoagulants as there is insufficient evidence to depend on.

Supplementary Oxygen in ACS

ILCOR Treatment Recommendation: We suggest withholding oxygen in comparison with routine oxygen supplementation in normoxic patients* with ACS (weak recommendation, very-low-quality evidence).

SHA recommendation: we suggest to keep the same recommendation of 2010 guidelines which states to hold oxygen therapy if patient saturation is 94% or more.
REPERFUSION DECISIONS IN STEMI

Prehospital Fibrinolysis Versus ED Fibrinolysis

ILCOR Treatment Recommendation When fibrinolysis is the planned treatment strategy, we recommend using prehospital fibrinolysis in comparison with in-hospital fibrinolysis for STEMI in systems where the transport times are commonly greater than 30 minutes and can be accomplished by prehospital personnel using well-established protocols, comprehensive training programs, and quality assurance programs under medical oversight (strong recommendation, moderate-quality evidence).

SHA recommendation: we recommend to confine the administration of fibrinolysis to Emergency Departments or Emergency primary health care centers where medical supervision is possible. We recommend to introduce the practice of prehospital Fibrinolysis under restriction of well established protocol and comprehensive training to the involved personnel with medical supervision.

Prehospital Triage to PCI Center Versus Prehospital Fibrinolysis

ILCOR Treatment Recommendations We suggest that where PCI facilities are available in a geographic region, that direct triage and transport for PCI is preferred (weak recommendation, low-quality evidence). There is moderate evidence that mortality is not reduced and low-quality evidence of harm from fibrinolysis.

We suggest that where PCI facilities are not available in a geographic region, that prehospital fibrinolysis is a reasonable alternative to triage and transport directly to PCI.

SHA recommendation: we recommend to have a wide review of the national protocol of fibrinolysis administration and primary PCI services before arrival to the ED or cardiac centers and / or during the presence of patients in the ED according to the new evidence review.

ED Fibrinolysis and Immediate PCI Versus Immediate PCI Alone

ILCOR Treatment Recommendation We recommend against the routine use of fibrinolytic administration combined with immediate PCI, compared with immediate PCI alone in patients with STEMI (strong recommendation, moderate-quality evidence).

SHA recommendation: we recommend to have a wide review of the national protocol of fibrinolysis administration and primary PCI services before arrival to the ED or cardiac centers and / or during the presence of patients in the ED according to the new evidence review.
Delayed PCI Versus Fibrinolysis Stratified by Time From Symptoms

ILCOR Treatment Recommendations: In patients with STEMI presenting less than 2 hours after symptom onset, when PPCI will result in a delay of greater than 60 minutes, we suggest fibrinolysis in comparison with PPCI (weak recommendation, low-quality evidence).

SHA recommendation: we recommend to have a wide review of the national protocol of fibrinolysis administration and primary PCI services before arrival to the ED or cardiac centers and / or during the presence of patients in the ED according to the new evidence review.

ED Fibrinolysis and Transport Only for Rescue PCI Versus Transport for PCI

ILCOR Treatment Recommendation: For adult patients presenting with STEMI in the ED of a non–PCI-capable hospital, we recommend emergency transfer without fibrinolysis to a PCI center as opposed to immediate in-hospital fibrinolysis and transfer only for rescue PCI (strong recommendation, moderate-quality evidence).

SHA recommendation: we recommend to have a wide review of the national protocol of fibrinolysis administration and primary PCI services before arrival to the ED or cardiac centers and / or during the presence of patients in the ED according to the new evidence review.

ED Fibrinolysis and Routine Early Angiography Versus Transport for PCI

ILCOR Treatment Recommendation: We suggest fibrinolytic therapy with routine transfer for angiography as an alternative to immediate transfer to PCI for patients presenting with STEMI in the ED of a non–PCI-capable hospital (weak recommendation, very-low-quality evidence).

SHA recommendation: we recommend to have a wide review of the national protocol of fibrinolysis administration and primary PCI services before arrival to the ED or cardiac centers and / or during the presence of patients in the ED according to the new evidence review.

ED Fibrinolysis and Then Routine Early Angiography Versus Only Rescue PCI
**ILCOR Treatment Recommendation:** After fibrinolysis of STEMI patients in the ED (when primary PCI is not available on-site), we suggest transport for early routine angiography in the first 3 to 6 hours (or up to 24 hours) rather than only transport for ischemia-guided angiography (weak recommendation, moderate-quality evidence).

**SHA recommendation:** we recommend to have a wide review of the national protocol of fibrinolysis administration and primary PCI services before arrival to the ED or cardiac centers and / or during the presence of patients in the ED according to the new evidence review. This recommendation might be suitable for practice in saudia Arabia.
HOSPITAL REPERFUSION DECISIONS AFTER ROSC

PCI After ROSC With ST Elevation

ILCOR Treatment Recommendation: We recommend emergency* cardiac catheterization laboratory evaluation in comparison with cardiac catheterization later in the hospital stay or no catheterization in selected adult patients with ROSC after OHCA of suspected cardiac origin with ST elevation on ECG (strong recommendation, low-quality evidence).

SHA recommendation: we recommend to have a wide review of the national protocol of fibrinolysis administration and primary PCI services before arrival to the ED or cardiac centers and / or during the presence of patients in the ED according to the new evidence review.

*Time Frame for Treatment
The time frame for emergency catheterization has been variably defined in the evidence reviewed. In general, patients were managed to minimize door-to-reperfusion times in a manner similar to the general STEMI patient population. The complexity and heterogeneity of this patient group may delay their resuscitation and management.

**Patient Selection
The evidence base was nonrandomized case-control studies that were subject to a high level of selection bias. The decision to undertake emergency cardiac catheterization was frequently made at the discretion of the treating physician, and the patient’s likelihood of survival is likely to have influenced the decision to undertake the intervention. A variety of factors were more likely to be associated with cardiac catheterization: male gender, younger age, ventricular fibrillation as the presenting cardiac arrest rhythm; witnessed arrest; and bystander CPR, being supported with vasopressors or left ventricular assist devices. Those patient characteristics that were less likely to be associated with angiography were diabetes mellitus, renal failure, and heart failure.

PCI After ROSC Without ST Elevation

ILCOR Treatment Recommendation: We suggest emergency* cardiac catheterization laboratory evaluation in comparison with cardiac catheterization later in the hospital stay or no catheterization in select† adult patients who are comatose with ROSC after OHCA of suspected cardiac origin without ST elevation on ECG (weak recommendation, very-low-quality evidence).
SHA recommendation: we recommend to have a wide review of the national protocol of fibrinolysis administration and primary PCI services before arrival to the ED or cardiac centers and/or during the presence of patients in the ED according to the new evidence review.

*Time Frame for Treatment
In the evidence reviewed, the time frame was variably defined, but patients were managed to minimize door-to-reperfusion times in a manner similar to the general STEMI patient population. The complexity and heterogeneity of this patient group may delay their resuscitation and management.

**Patient Selection
The evidence base was nonrandomized case-control studies that were subject to a high level of selection bias. Unlike the review pertaining to ST elevation, all of the studies without ST elevation enrolled comatose patients exclusively. The decision to undertake emergency catheterization was frequently made at the discretion of the treating physician. A variety of factors such as patient age, duration of CPR, hemodynamic instability, presenting cardiac rhythm, neurologic status upon hospital arrival, and perceived likelihood of cardiac etiology influenced the decision to undertake the intervention.