

Barriers to Timely Reperfusion in STEMI

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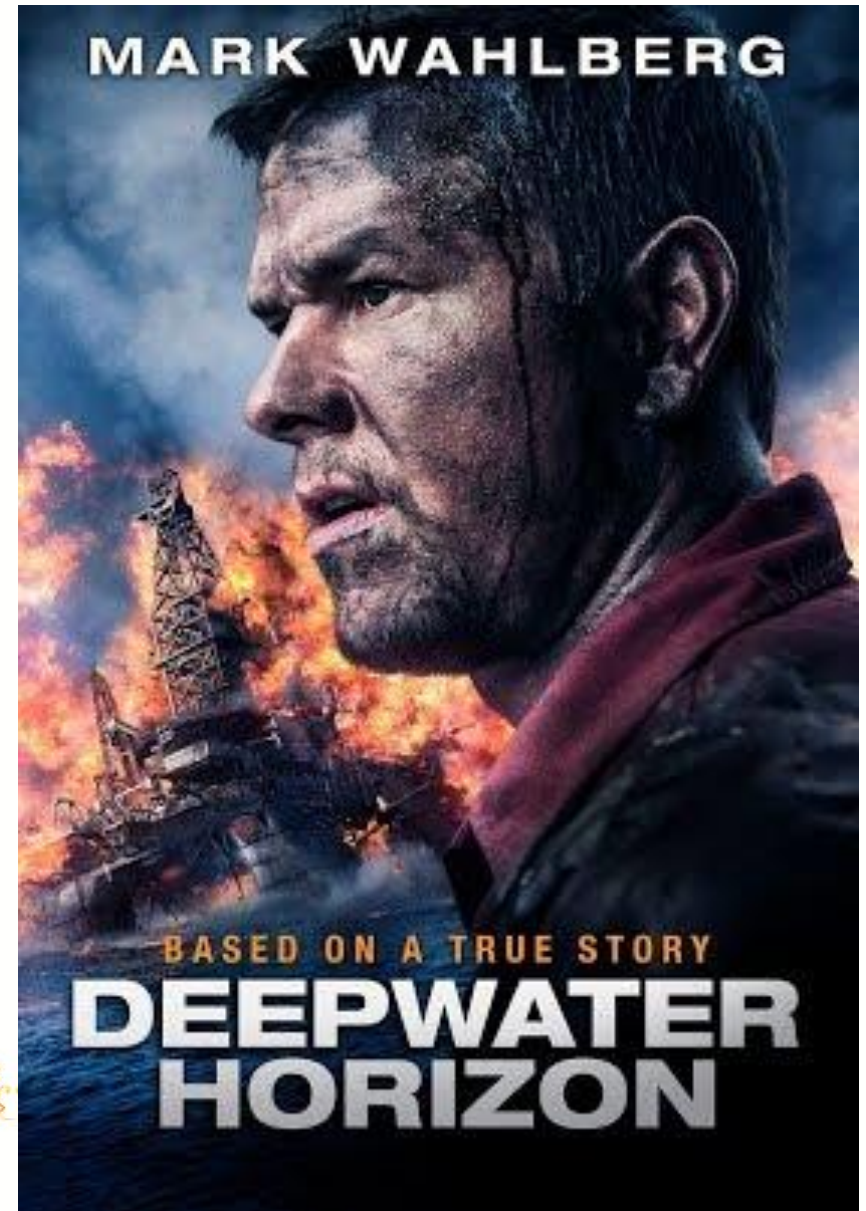
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Agenda

- Timely Reperfusion: What?
- Reality check
- Barriers to timely reperfusion
- *Saudi STEMI Program*
- Initial steps to overcome barriers
- STEMI & Cardiogenic Shock



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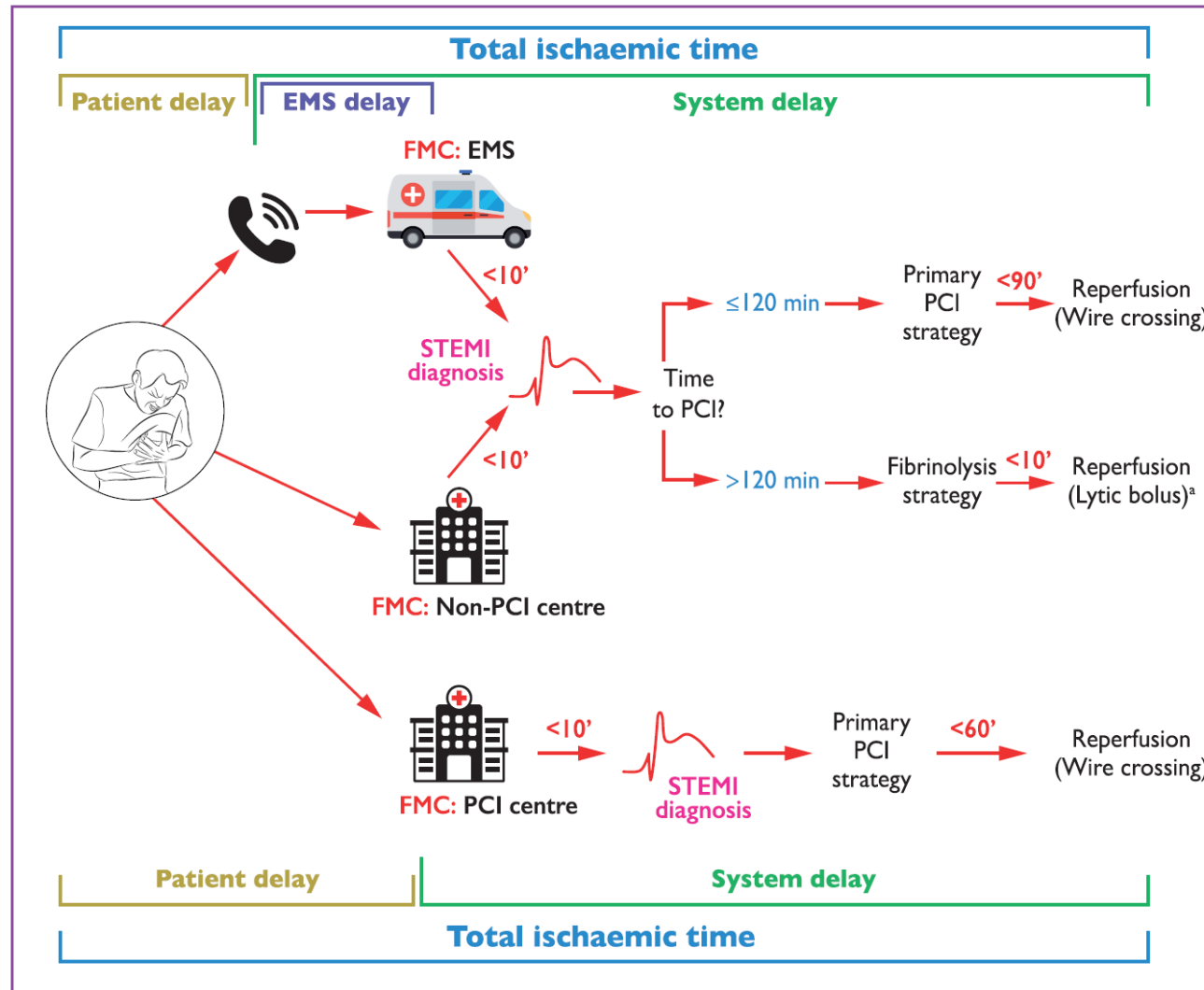


2017 AHA/ACC Clinical Performance and Quality Measures for Adults With ST-Elevation and Non-ST-Elevation Myocardial Infarction

Performance Measures	
PM-1	Aspirin at Arrival
PM-2	Aspirin Prescribed at Discharge
PM-3	Beta Blocker Prescribed at Discharge
PM-4	High-Intensity Statin Prescribed at Discharge
PM-5	Evaluation of LVEF
PM-6	ACEI or ARB Prescribed for LVSD
PM-7	Time to Fibrinolytic Therapy*
PM-8	Time to Primary PCI*
PM-9	Reperfusion Therapy*
PM-10	Time From ED Arrival at STEMI Referral Facility to ED Discharge From STEMI Referral Facility in Patients Transferred for Primary PCI*
PM-11	Time From FMC (At or Before ED Arrival at STEMI Referral Facility) to Primary PCI at STEMI Receiving Facility Among Transferred Patients*
PM-12	Cardiac Rehabilitation Patient Referral From an Inpatient Setting
PM-13	PY12 Receptor Inhibitor Prescribed at Discharge
PM-14	Immediate Angiography for Resuscitated Out-of-Hospital Cardiac Arrest in STEMI Patients*
PM-15	Noninvasive Stress Testing Before Discharge in Conservatively Treated Patients
PM-16	Early Cardiac Troponin Measurement† (Within 6 Hours of Arrival)
PM-17	Participation in ≥ 1 Regional or National Registries That Include Patients With Acute Myocardial Infarction Registry



2017 ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation



ACS Registries

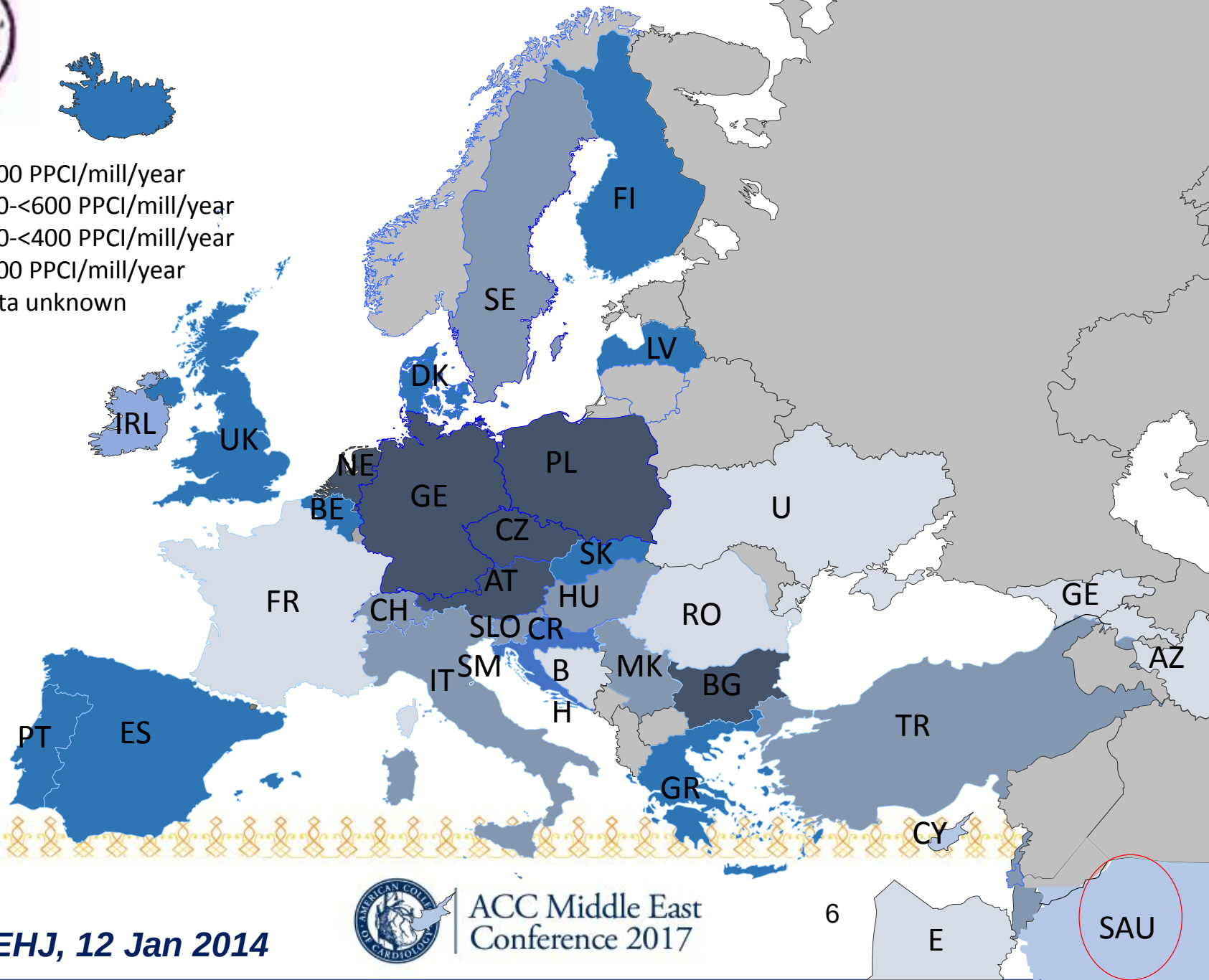
- ***SPACE***
- ***Gulf RACE***
- ***Gulf RACE-2***
- ***Gulf RACE-3***
- ***STARS***



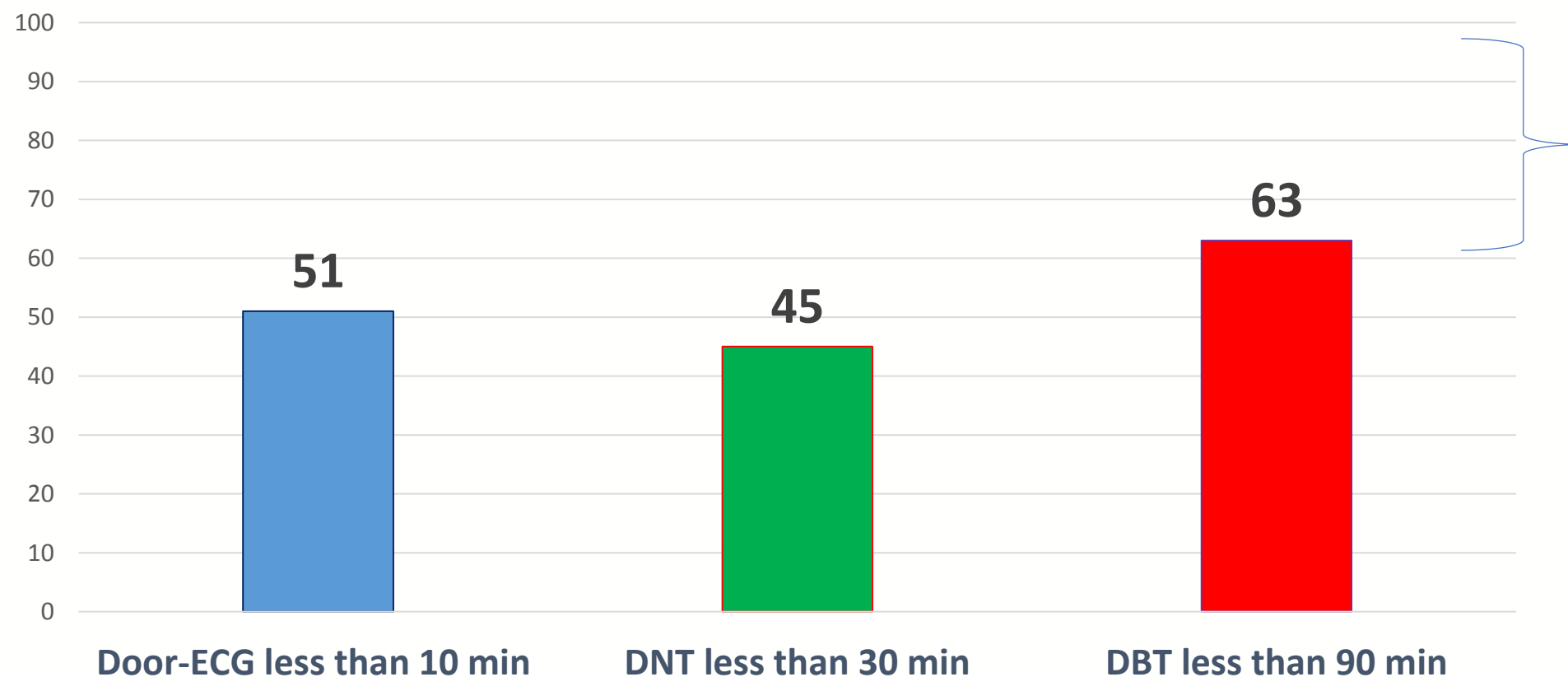


Numbers of Primary Percutaneous Coronary Interventions per million inhabitants 2010/2011

- ≥600 PPCI/mill/year
- 400-<600 PPCI/mill/year
- 200-<400 PPCI/mill/year
- <200 PPCI/mill/year
- Data unknown



KPIs in Acute Revsc. of STEMI





Patient and System-Related Delays of Emergency Medical Services Use in Acute ST-Elevation Myocardial Infarction: Results from the Third Gulf Registry of Acute Coronary Events (Gulf RACE-3Ps)

Khalid F. AlHabib^{1*}, Kadhim Sulaiman², Jassim Al Suwaidi³, Wael Almahmeed⁴, Alawi A. Alsheikh-Ali^{5,6,7}, Haitham Amin⁸, Mohammed Al Jarallah⁹, Hussam F. Alfaleh¹, Prashanth Panduranga², Ahmad Hersi¹, Tarek Kashour¹, Zohair Al Aseri¹⁰, Anhar Ullah¹, Hani B. Altaradi¹, Kazi Nur Asfina¹, Robert C. Welsh¹¹, Salim Yusuf¹²



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PLOS ONE January 25, 2016

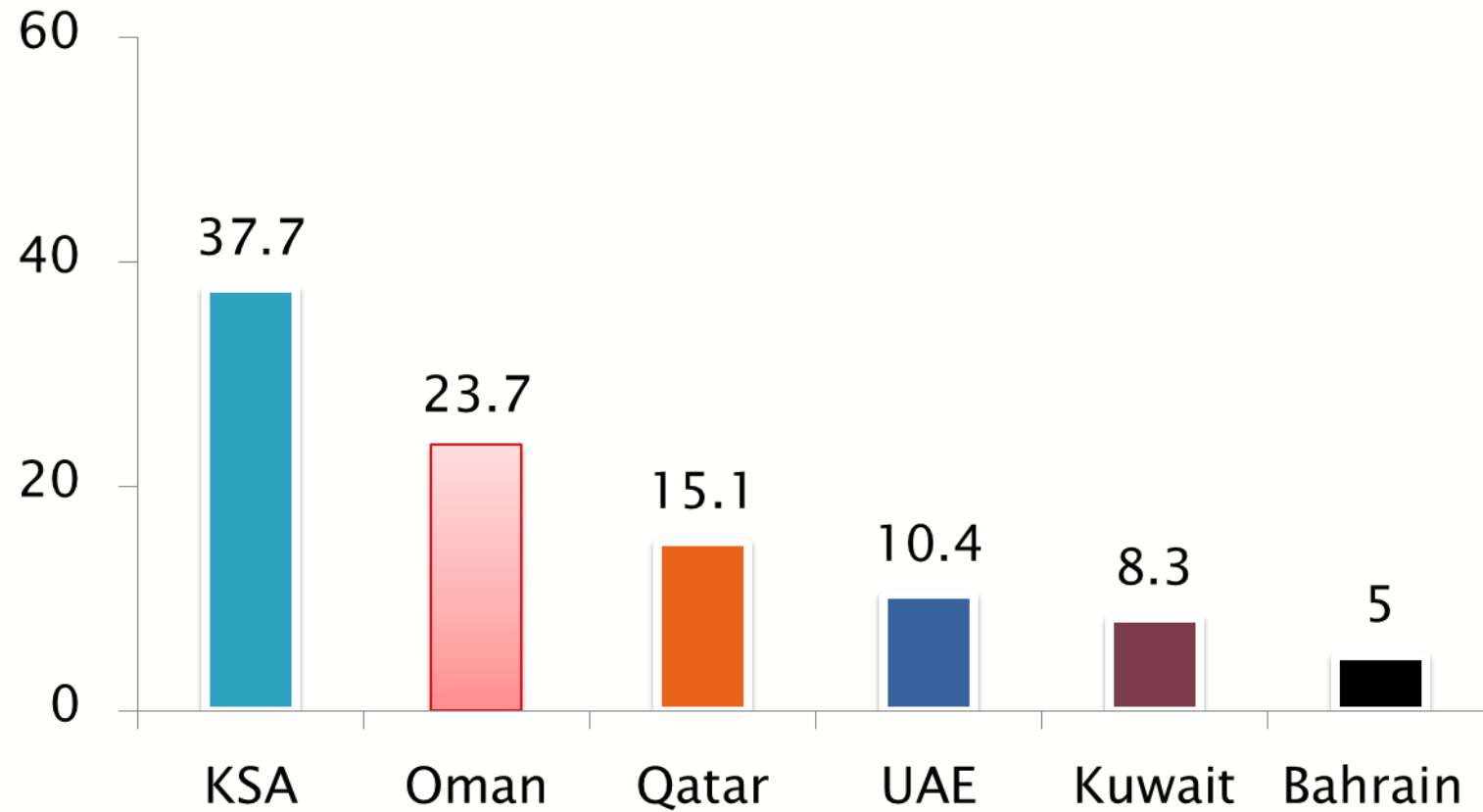
Methods

- **EMS**
 - 1- Red Crescent
 - 2- Inter-Hospital ambulances



Results

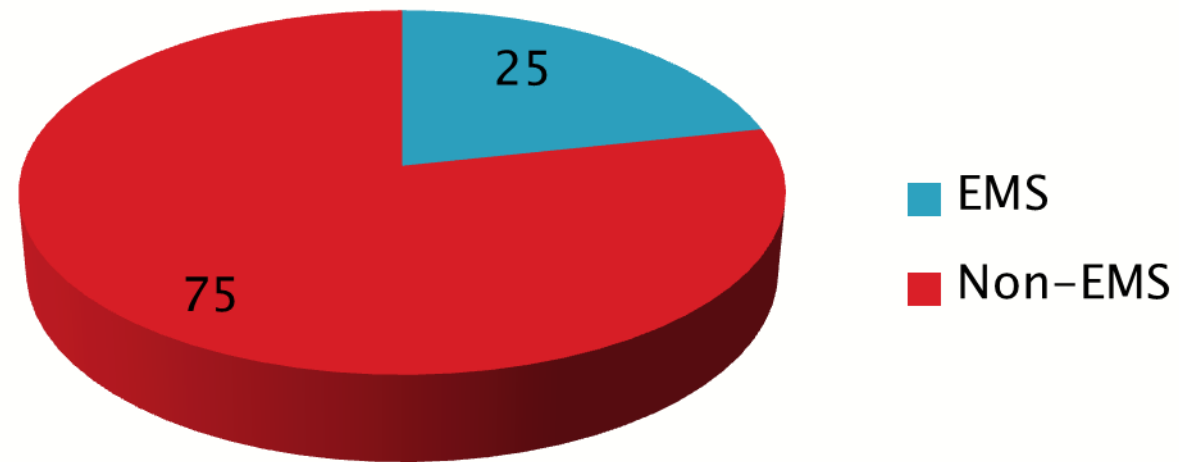
2928 patients



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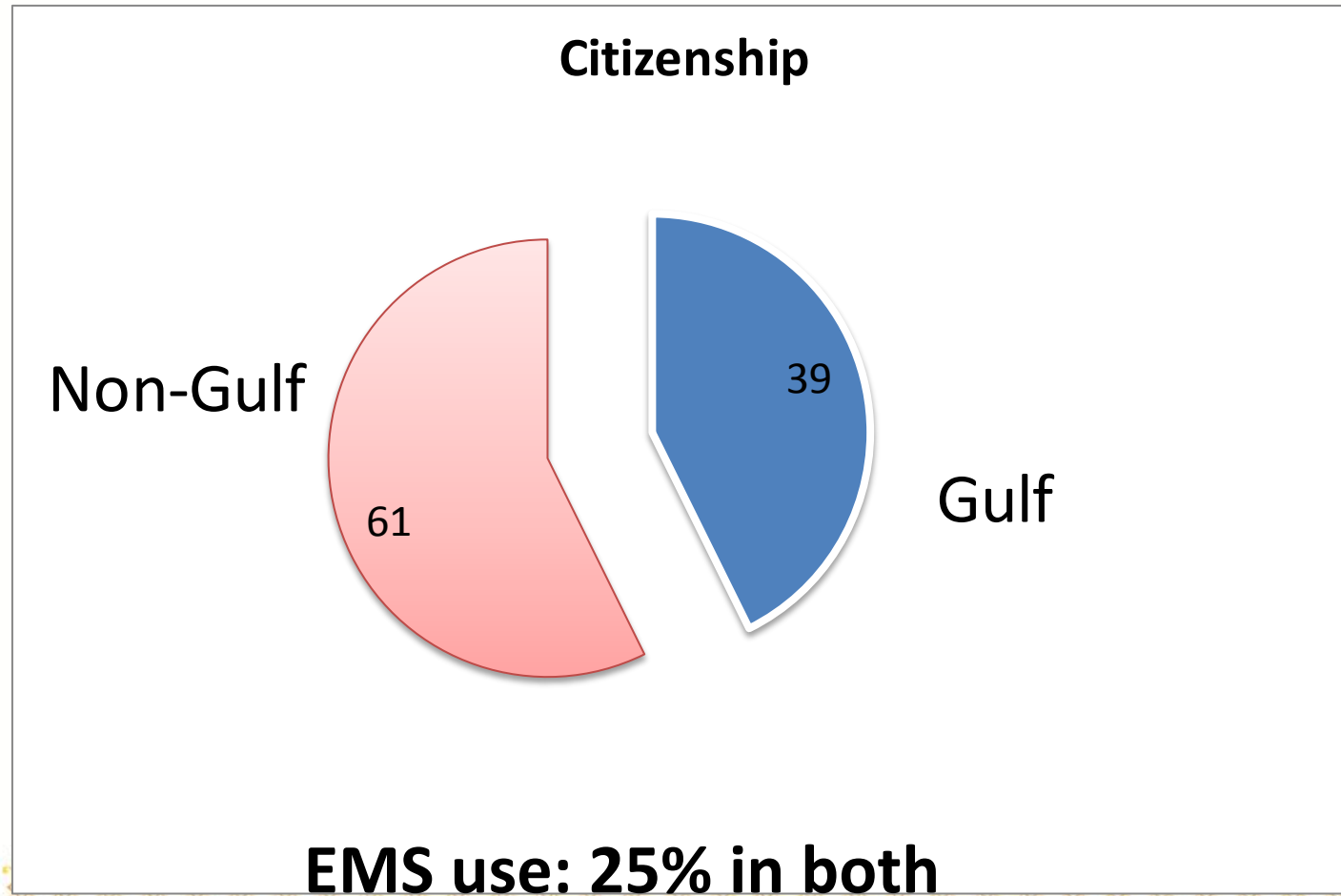
Results

2928 patients



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Results

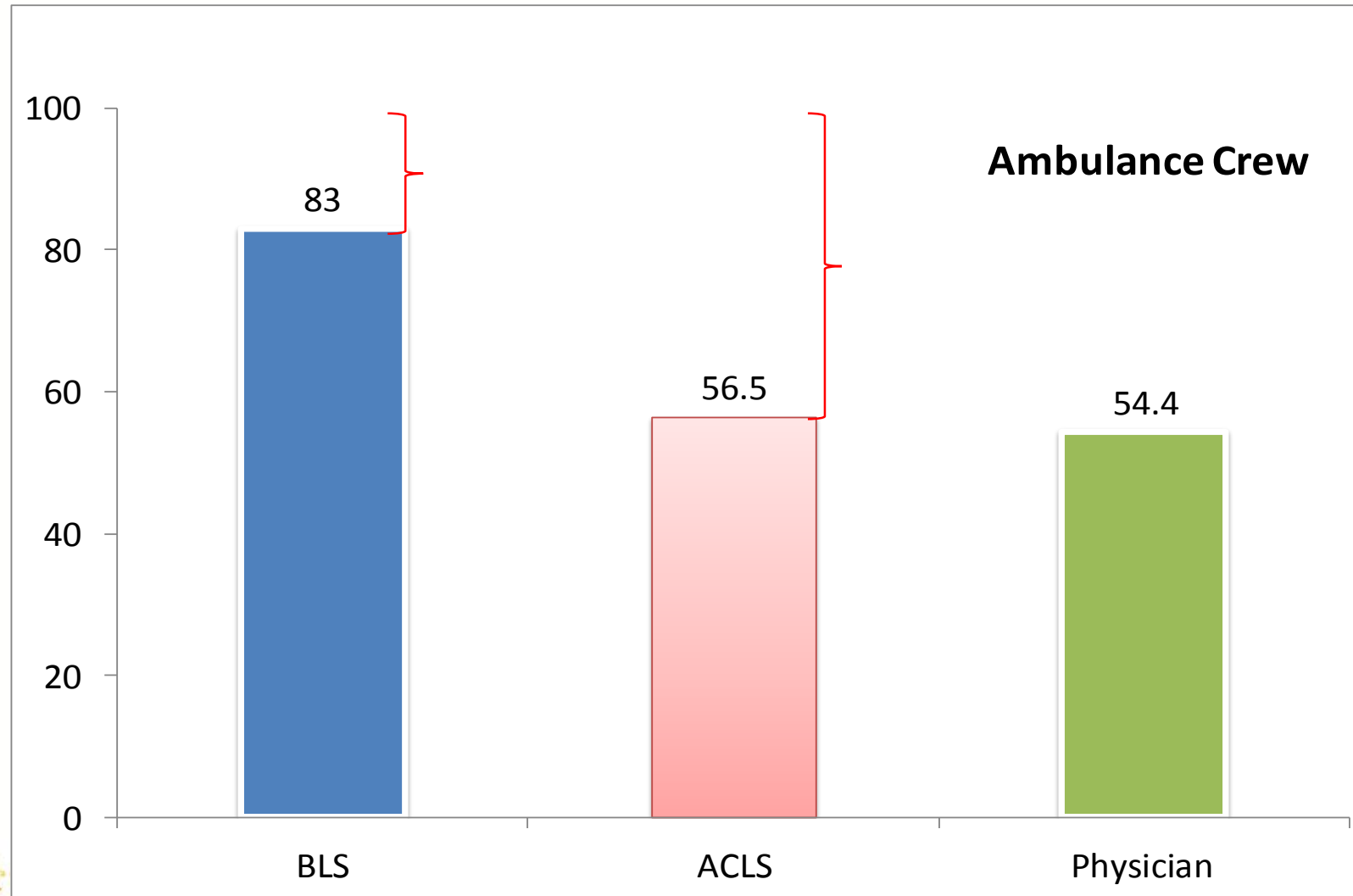


Red Crescent

< 5%

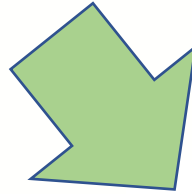
Poor Pre-hospital Care

Results





997



وزارة الصحة

مدينة الملك فهد الطبية
King Fahad Medical City



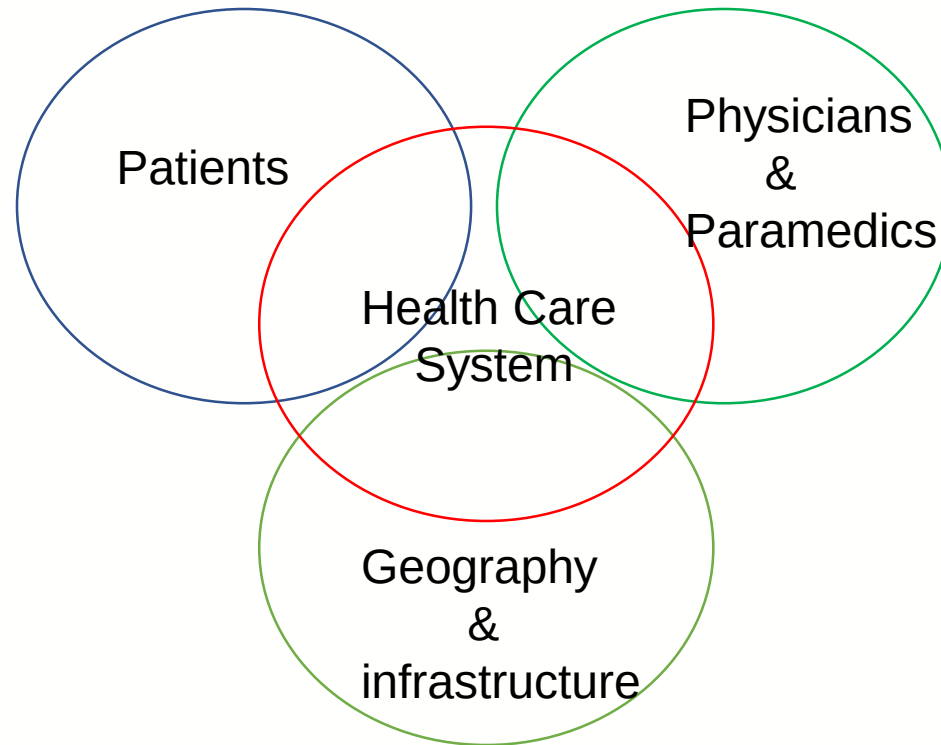
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Gulf RACE-3Ps Findings

- EMS in our region is *not actually a true “EMS”* !
- **Low EMS use** by acute STEMI patients in the Arab Gulf countries particularly among the non-educated and those with prior IHD.
- **Improving EMS services, STEMI networks, and public awareness** are top health care system priorities.



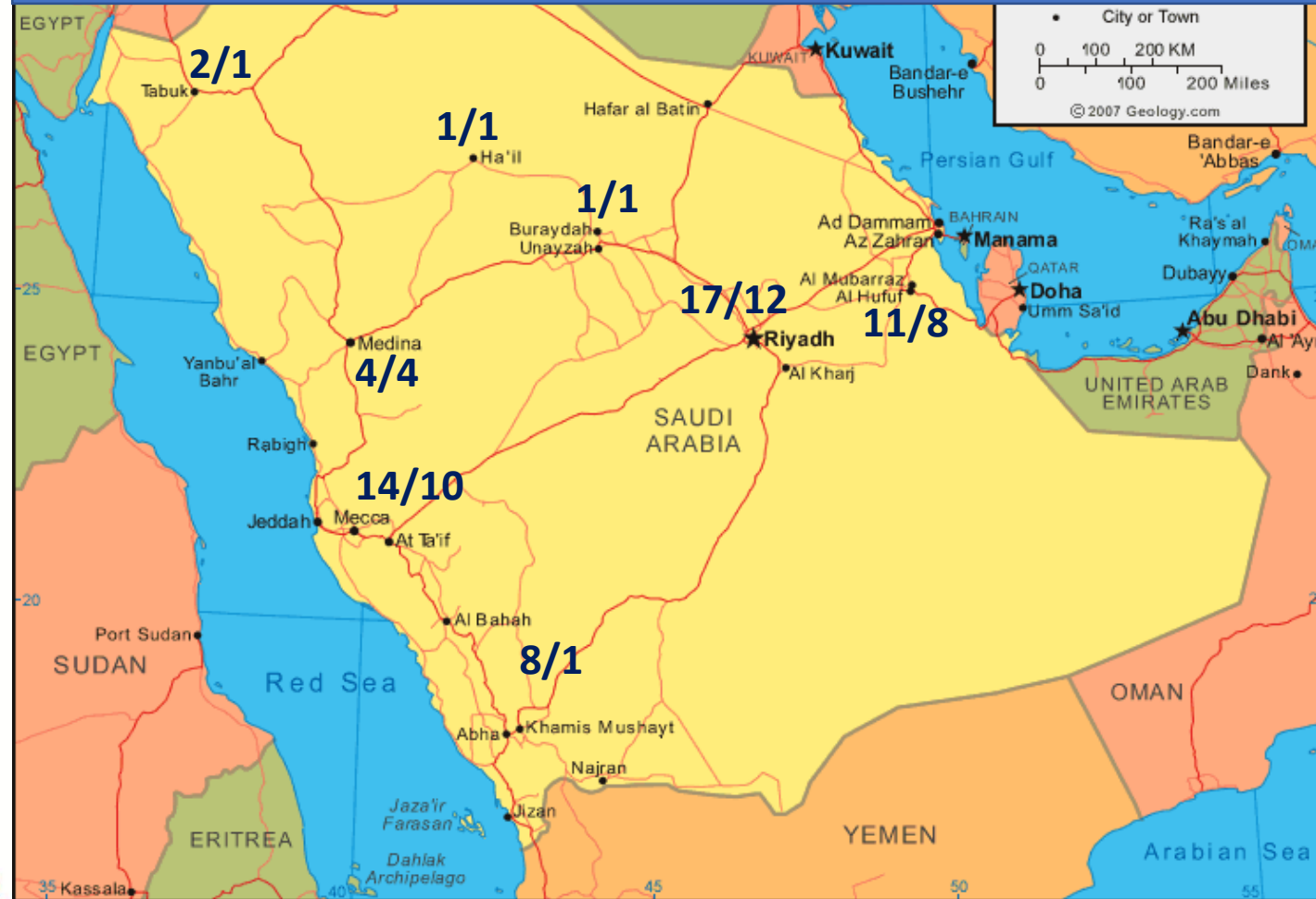
Barriers



Cath Labs (58) 24/7 Primary PCI (38)

Only around 15 Cath Labs are high-volume 24/7 primary programs.

Around 30 high-volume 24/7 primary programs are needed for the 30-million population of Saudi Arabia



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2015/2016

Barriers

- **Health Care System:**

- Several different health care providers concentrated in 1 area → “dilution” of volume & experience → Decline of mutual trust → destructive competition.
- **Complex transfer logistics (lots of paper work to transfer a patient)**
- Poor primary health care system → Delay in diagnosis and management.
- Lack of a universal health insurance system (esp. for non-Saudis) → poor access to efficient & timely care



Disparities in Health Care Delivery and Hospital Outcomes between Non-Saudis and Saudi Nationals Presenting with Acute Coronary Syndromes in Saudi Arabia

Hussam F. AlFaleh^{1*}, Mostafa Q. Al Shamiri¹, Anhar Ullah¹, Khalid F AlHabib¹, Ahmad Salah Hersi¹, Shukri AlSaif², Khalid AlNemer³, Amir Taraben⁴, Asif Malik⁵, Ahmed M Abuosa⁶, Mimish LA⁷, Tarek Kashour¹

Table 4. Crude and adjusted odds ratios (ORs) for developing adverse hospital outcomes in non-Saudi patients with acute coronary syndromes.

Outcome	Crude OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
Death	2.78 (1.52–5.07)	< 0.001	2.91 (1.45–6.15)	0.004
Heart failure	1.51 (1.06–2.12)	0.020	1.41 (0.86–2.30)	0.168
Stroke	1.95 (0.63–5.99)	0.232	1.66 (0.38–7.23)	0.500
Re-infarction	1.04 (0.41–2.65)	0.939	1.48 (0.48–4.52)	0.490
Cardiogenic shock	1.96 (1.23–3.12)	0.003	2.75 (1.54–4.93)	<0.001
Major bleeding	1.61 (0.60–4.35)	0.337	1.76 (0.55–5.62)	0.337



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Barriers

- **Health Care System:**
 - **Lack of re-imbursement for emergency procedures**
 - Red Crescent: under-funded, under-staffed, low competency, no inter-hospital transfers, not accepted in some health sectors!!.
 - Proliferation of low-volume, stand-alone PPCI centers
 - **Beds.. Beds.. Beds !!.**



Barriers

- **Patients:**
 - **Low awareness**
 - Carelessness/ignorance!
- **Physicians/Nurses/Paramedics:**
 - **Enough numbers/Low competency**
 - **Reluctance/slow to transfer patients**
- **Geography/infrastructure:**
 - Large distances
 - Poor transportation system

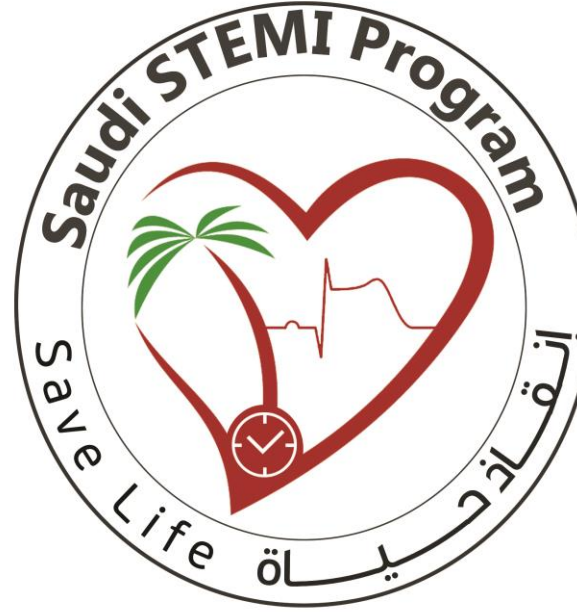


Dr."Scared"



??

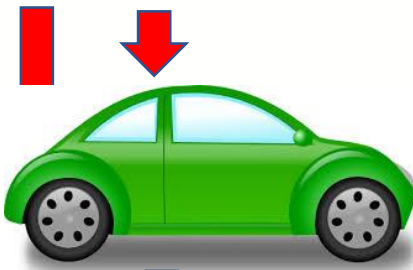
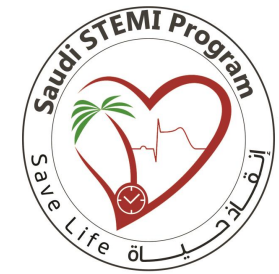




برنامج تطوير طرق علاج جلطات القلب الحادة بالمملكة العربية السعودية

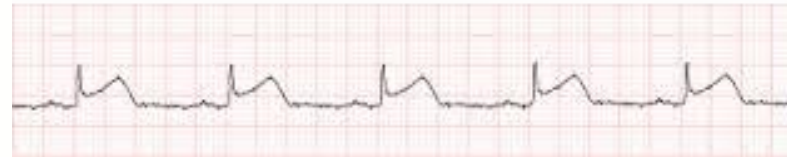


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Whatsup

ST Elevation



Interventional Cardiologist

120 min PPCI

STEMI Hotline



KKUH

> 120 min

TT

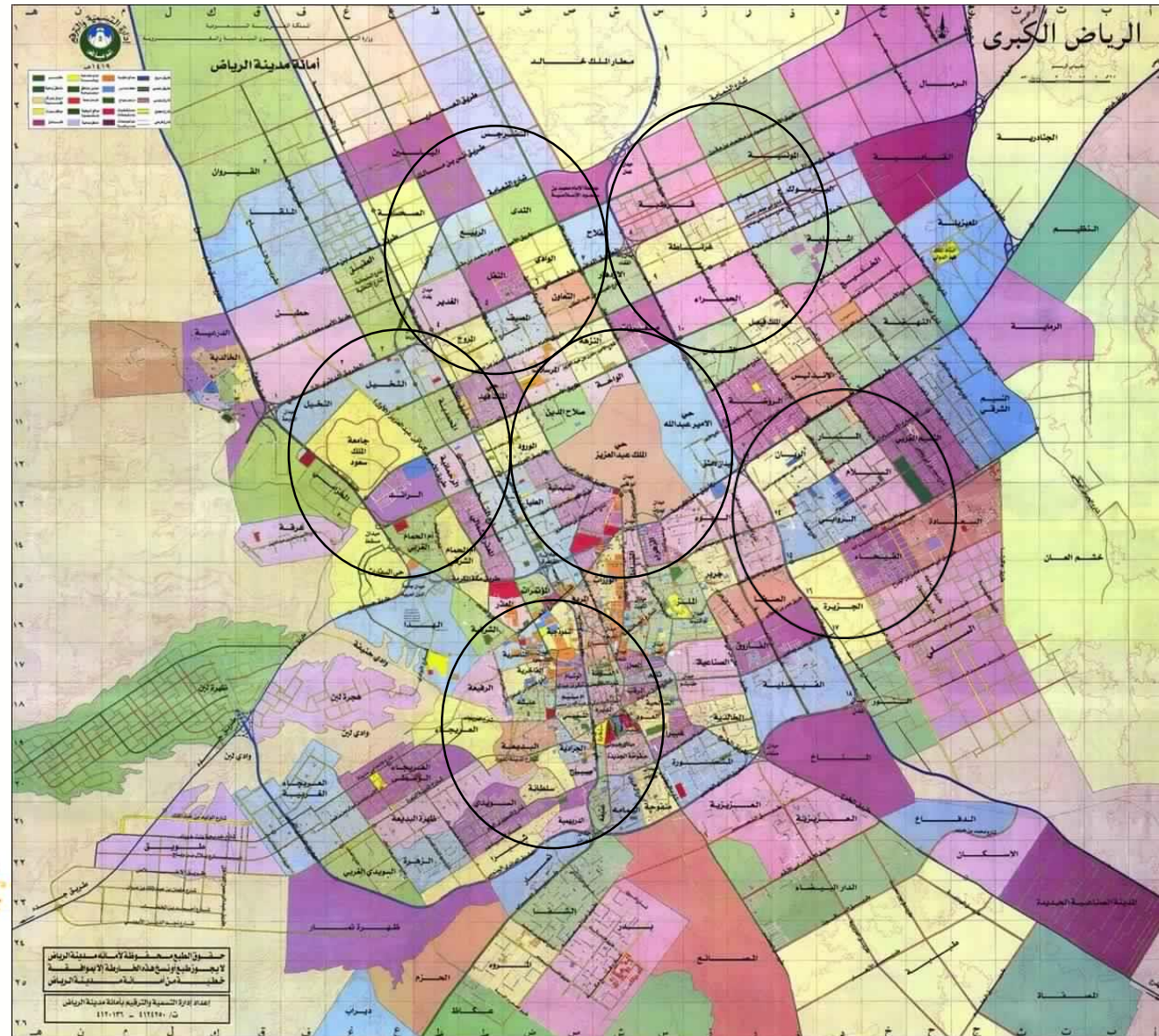


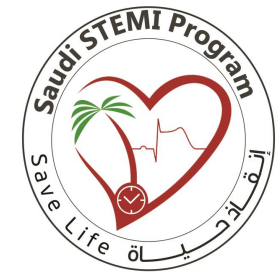
Rescue or
Elective
PCI



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STEMI Program Network: Zoning



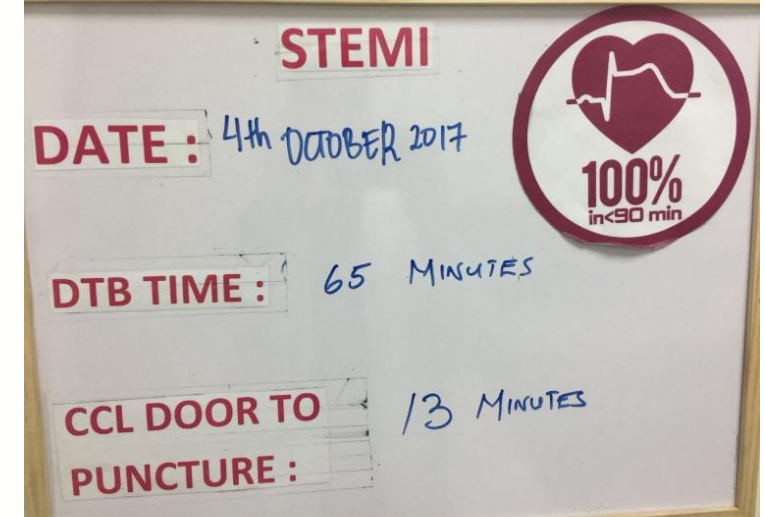


Initial steps to overcome the barriers

- Connect the dots: have a clear and efficient agreed-upon referral system between non-PCI and PCI hospitals.
- Bed Coordinator.
- Bypass the ER.
- Use technology (ECGs by Whatsup:? Confidentiality).
- Feedback.
- Beds: Radial Primary PCI and ship back immediately.
- Lytic risk and reperfusion: *Education.. Education.. Education.*
- Public awareness programs about AMI symptoms (? Call Red Crescent).
- ? Reimbursement.



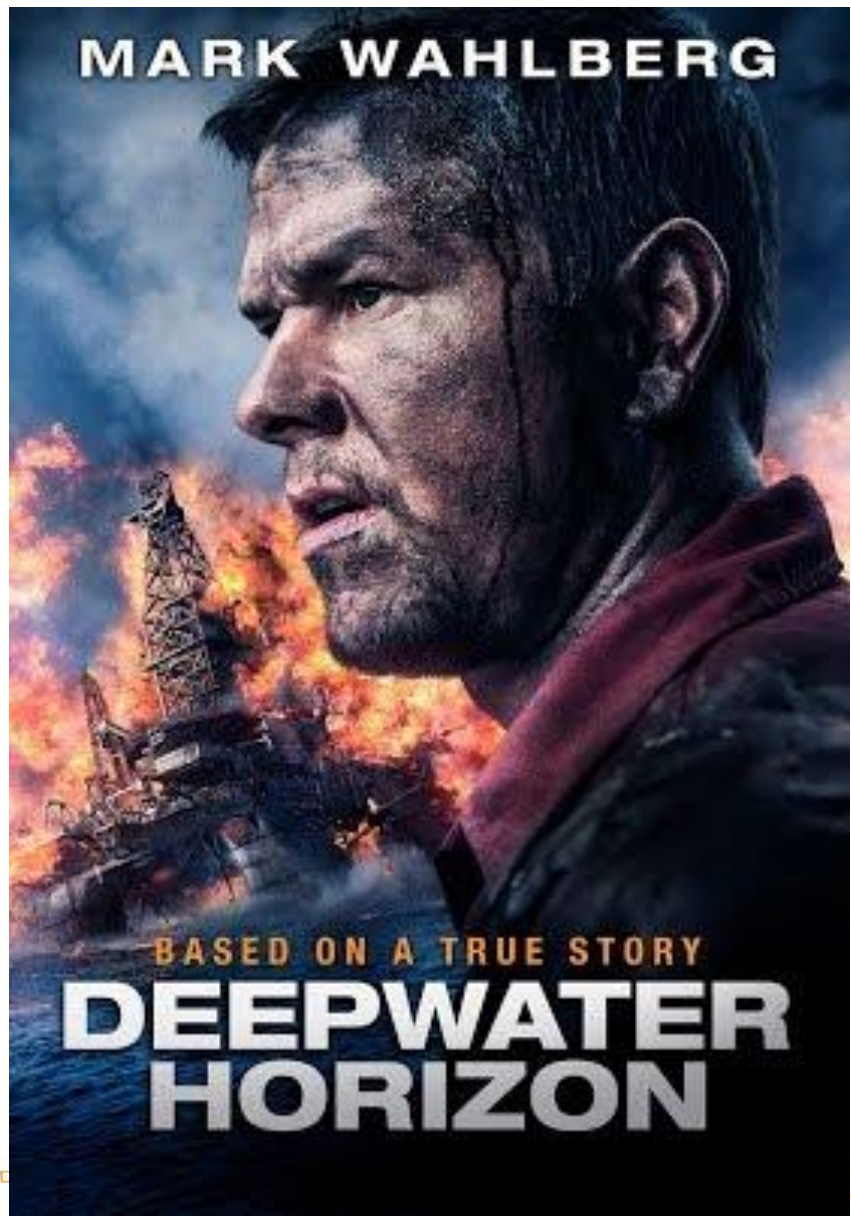
- Empowering ER physicians (Code STEMI)



STEMI & Cardiogenic shock



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Worst oil spill in U.S. history

“?? bad people, bad decisions, broken parts.”

“Normalization of deviance.. Mistake, mishap, and disaster are socially organized and systematically produced by social structures.”

Diane Vaughan (Sociologist)

The disaster, in other words, is not a violation of the daily routine, but a product of it.



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STEMI Champion

“STEMI-ologist”



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PEACE MENA Registry



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2nd Steering Committee Meeting.

ESC. 27 August 2017. Barcelona



Special Thanks also to: Prof.Tabassome Simon and Prof.Nicolas Danchin (France)

Take Home Message

(وَمَنْ أَحْيَاهَا فَكَأَنَّمَا أَحْيَا النَّاسَ جَمِيعًا)



8th Annual Emirates
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