

基层胸痛中心选择PPCI策略 的关注重点

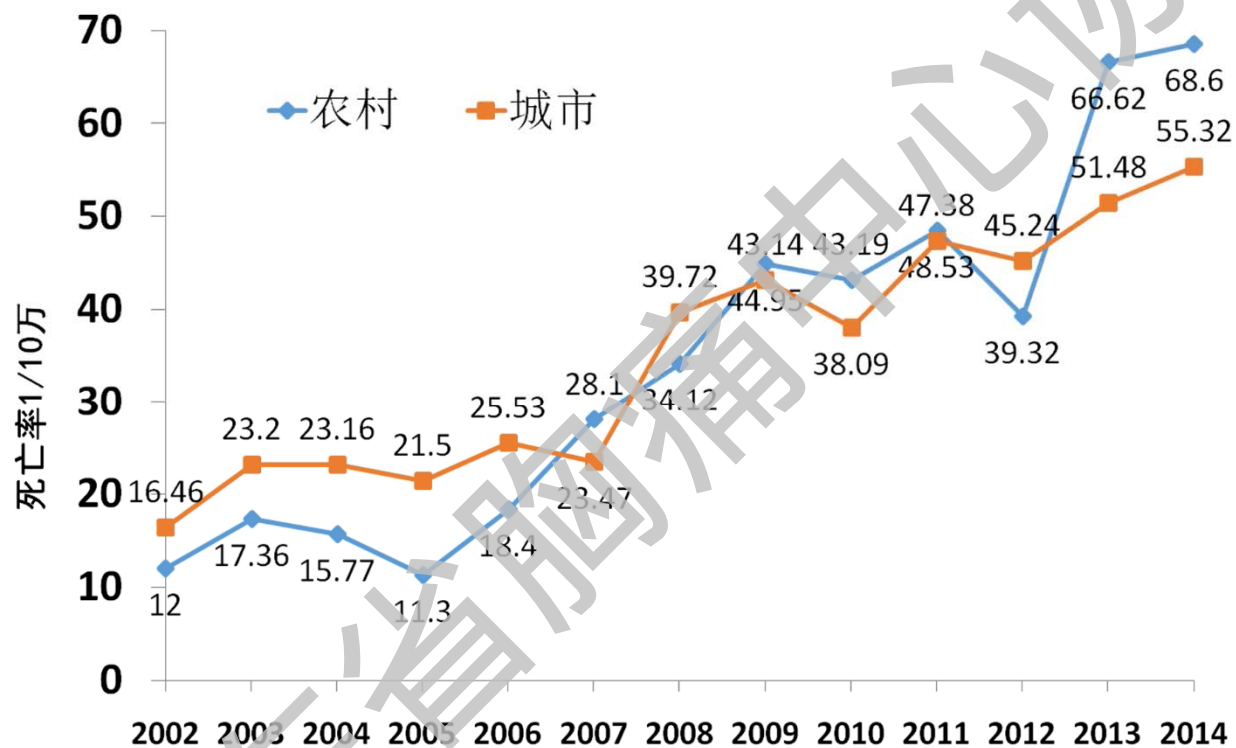
厦门大学附属心血管病医院
中国胸痛中心认证分中心（厦门）

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2017-11-04 广州



关于基层心肌梗死



陈伟伟, 高润霖, 刘力生, 等. 《中国心血管病报告2015》概要. 中国循环杂志, 2016, 31: 624-632

关于再灌注策略的选择

□ 常见勾选方式（已经开展的必须选择）

- ◆ **PPCI**（有能力、有人员、有制度，仅仅量不够）
 - ◆ **转运**（基层中的基层）
 - ◆ **溶栓+转运**（溶栓的患者一定要规范）
 - ◆ **PPCI+转运**（PPCI能力有欠缺，但基本能完成，离上级医院较近，外科能力欠缺等）
 - ◆ **PPCI+溶栓+转运**（只有1个介入医师，离上级医院较远，必须兼顾）
-

选择了PPCI的基层胸痛中心注意事项

- ◆ 应按照胸痛中心建设的认证要求严格执行，尤其是时间节点要求。D2B时间，导管室一键启动，导管室激活时间，FMC2B时间。
- ◆ 选择了PPCI+转运 的医院更需要明确掌握PPCI与转运策略的选择指征，有明确的流程图指引。
- ◆ 选择PPCI+溶栓+转运 策略的医院，面临情况复杂，需流程指引，认真掌握，应有备用预案，更应该有演练。

基层胸痛中心PPCI的能力基本要求

导管室

- 抢救设备和救治能力

人员配备

- 1名具备PPCI能力的医师，年手术量不低于75例

导管室 激活时间

- 最后一名介入人员到达时间
- **小于30分钟**

5-7项中对应本院的再灌注策略项为必须满足的条件

- 5.17 对于自行来院或经救护车入院的所有急性胸痛患者，缩短了从首次医疗接触到完成首份心电图时间，且要求月平均小于10分钟
- 5.18 对于STEMI患者，缩短了从首份心电图至首份心电图确诊时间，且要求月平均小于10分钟
- 5.19 经救护车入院的STEMI患者，从急救现场远程传输心电图至胸痛中心的比例不低于30%，且在过去6个月内呈现增加趋势
- 5.20 肌钙蛋白从抽血到获取报告时间不大于20分钟

在本院实施PPCI的患者，应满足以下至少3条，不足3条者不记分，其中第(1)(2)条为必备条件：

- 5.29 (1) 月平均门-球时间不大于90分钟，且达标率不小于75%，若当前无法达到，则应呈现改进趋势，且应制订措施促进改进，确保在通过认证后1年逐步达到上述要求
- 5.30 (2) 导管室激活时间小于30分钟
- 5.31 (3) 经救护车入院、接受PPCI治疗的STEMI患者，若从首次医疗接触到进门时间大于30分钟，绕行急诊和CCU直达导管室的比例不低于30%，且呈现增高趋势
- 5.32 (4) 自行来院且接受PPCI治疗的STEMI患者，绕行CCU直接送入导管室的比例不低于50%，且呈现增高趋势

5.33 对于从其它基层医院转诊来院的全部STEMI患者，至少满足以下2条，不足2条者不得分：

- (1) 过去6个月内月平均首次医疗接触到完成首份心电图时间小于10分钟或呈明显缩短趋势
- (2) 过去6个月从首诊基层医院传输到胸痛中心的心电图比例在增加
- (3) 过去6个月内STEMI患者从首次医疗接触到确诊的时间在缩短
- (4) 过去6个月内STEMI患者从进入首诊基层医院到转出时间在缩短

5.34 STEMI患者中呼叫120入院的比例在增加

基层PPCI医院的共性问题

1. 人员缺乏，技术力量欠缺。（如：仅1位PPCI能力医生，年病例数不足75例，缺乏IABP等抢救设备，团队建设欠缺）。
2. DSA室多科共用，启动过程繁琐，占台协调困难。（技师，护士，医生隶属关系复杂，协调困难）。
3. PPCI，转运医生PCI，补救PCI并举。（启动与协调较为复杂）。
4. 患者家属原因，需要保留转运PCI渠道。（家属要求转运，没有医疗转运渠道，DIDO时间达标困难，应保留转运PCI渠道！）。
5. 家属知情同意困难，如何在PPCI与溶栓治疗间抉择？（策略问题！
Early-myo 研究的启示）

如何解决问题？---候补机制

- ◆ 加强队伍建设，短期内不现实。
- ◆ 要有候补溶栓+转运候补预案。
- ◆ 医院组织协调，急诊优先。
- ◆ 保留转运PCI预案非常重要。
- ◆ 透彻研究指南，三大再灌注策略了然于胸。

1. 什么病人当做，什么病人不能动？时间如何掌握？
 1. 急性期高危患者的识别？GRACE 评分？极高危患者预案？
 2. 具体指标：older age, fast heart rate, hypotension, Killip class >I, anterior MI, previous MI, elevated initial serum creatinine, history of heart failure, or peripheral arterial disease.
2. 不典型患者的识别？
 1. 心电图的解读？超声工具的使用？床边肌钙蛋白的应用？De-winter综合征
3. 特殊情况时再灌注策略的选择？
 1. 家属拒绝手术？导管室占台？血流动力不稳定？家属要求转运？
 2. 手术医生生病？出差？无法到位？
 3. 无法常态化24/7备班。

Early-Myo研究 急诊转运医生可行

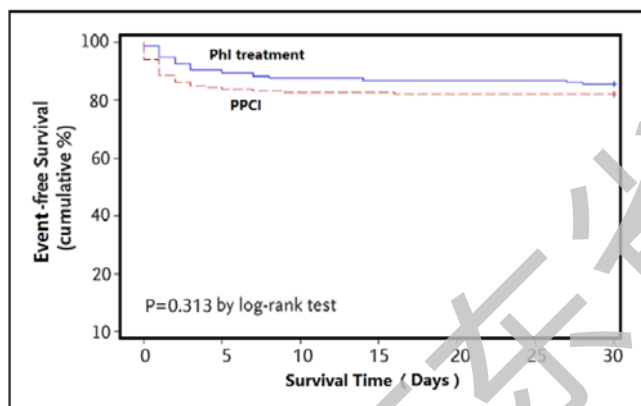
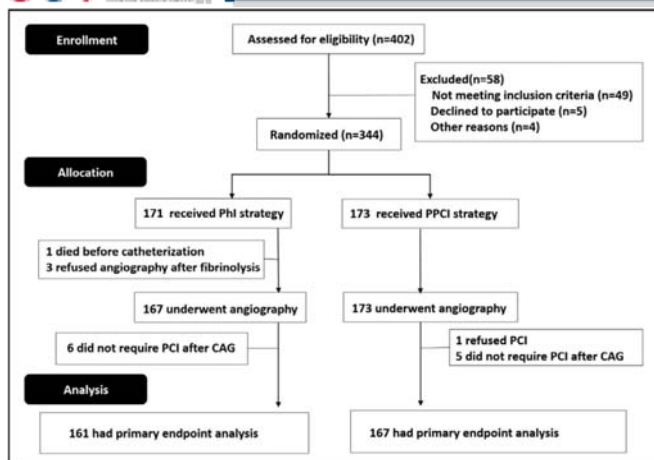


Table 3. Time Intervals of EARLY-MYO Trial

Time Delay (Min)	PHI (n=171)	PPCI (n=173)	P Value
Symptom onset to first medical contact	148 (108–204)	155 (114–210)	0.559
Symptom onset to randomization	190 (136–251)	185 (137–242)	0.971
Symptom onset to arterial sheath insertion	695 (451–1115)	280 (214–340)	<0.001
Symptom onset to reperfusion treatment	210 (166–270)	280 (214–340)	<0.001
Randomization to arterial sheath insertion	521 (303–957)	110 (50–160)	<0.001
Randomization to reperfusion treatment	57 (7–88)	110 (50–160)	<0.001

牢记NSTEMI-ACS有创介入危险分层

极高危情况 (very-high risk criteria)

血流动力学不稳定或心源性休克
药物无法控制的持续或反复发作心绞痛
危及生命的心律失常或心跳骤停
心肌梗死后机械并发症
急性心力衰竭
反复ST-T改变，尤其是ST段抬高

高危情况 (high risk criteria)

肌钙蛋白阳性并有动态改变
伴或不伴症状的ST-T改变
GRACE评分 > 140

中危情况 (intermediate risk criteria)

糖尿病
肾功能不全 ($\text{eGFR} < 60 \text{ ml/min/1.73m}^2$)
 $\text{LVEF} < 40\%$ 或心功能不全
心肌梗死后早期心绞痛
PCI病史
CABG病史

几个心电图问题---

心电图不是唯一标准，不一定等酶学结果。

Table 3 Atypical electrocardiographic presentations that should prompt a primary percutaneous coronary intervention strategy in patients with ongoing symptoms consistent with myocardial ischaemia

Bundle branch block

Criteria that can be used to improve the diagnostic accuracy of STEMI in LBBB³⁰:

- Concordant ST-segment elevation ≥ 1 mm in leads with a positive QRS complex
- Concordant ST-segment depression ≥ 1 mm in V_1-V_3
- Discordant ST-segment elevation ≥ 5 mm in leads with a negative QRS complex

The presence of RBBB may confound the diagnosis of STEMI

Ventricular paced rhythm

During RV pacing, the ECG also shows LBBB and the above rules also apply for the diagnosis of myocardial infarction during pacing; however, they are less specific

Isolated posterior myocardial infarction

Isolated ST depression ≥ 0.5 mm in leads V_1-V_3 and ST-segment elevation (≥ 0.5 mm) in posterior chest wall leads V_7-V_9

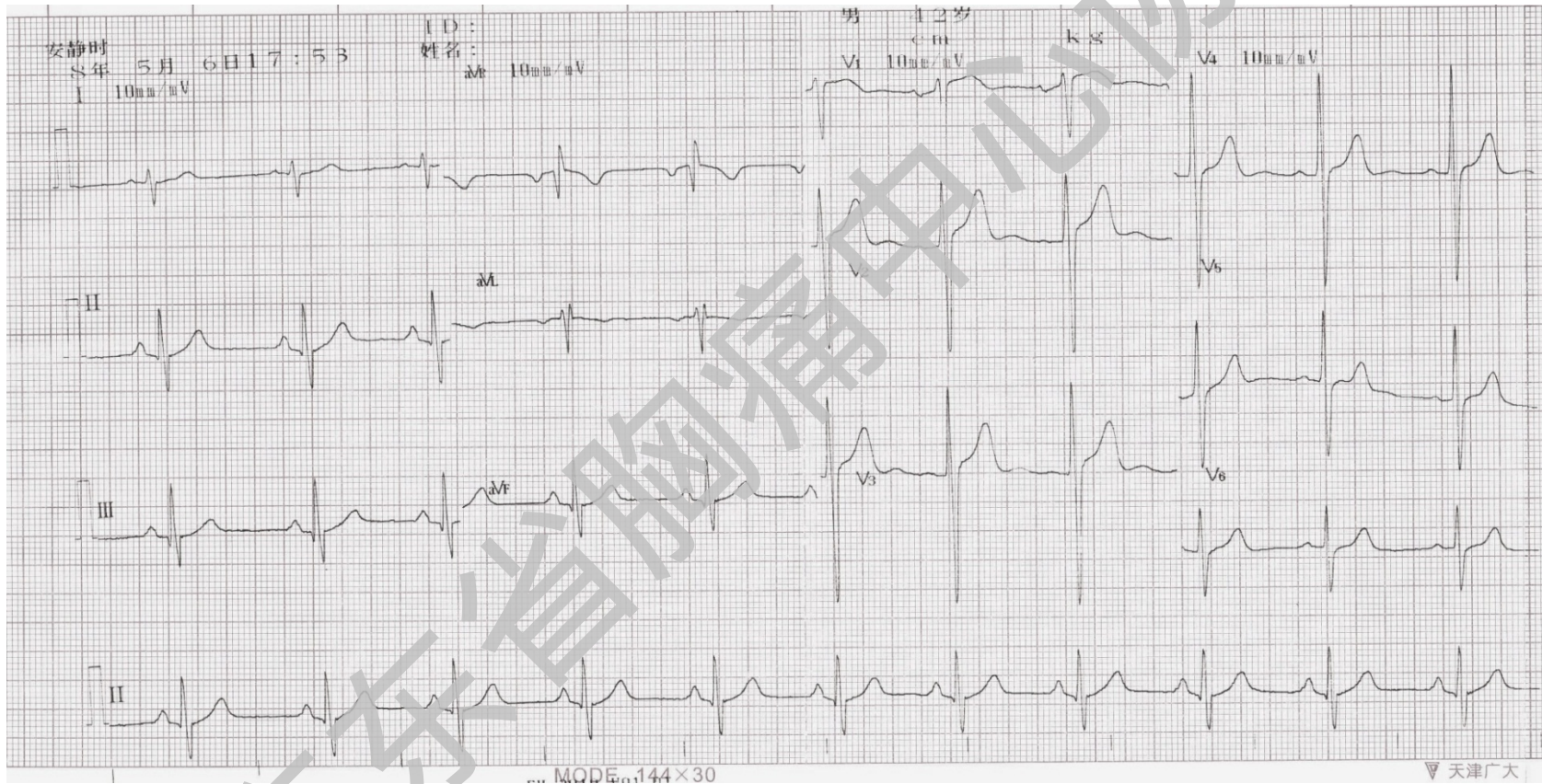
Ischaemia due to left main coronary artery occlusion or multivessel disease

ST depression ≥ 1 mm in eight or more surface leads, coupled with ST-segment elevation in aVR and/or V_1 , suggests left main-, or left main equivalent- coronary obstruction, or severe three vessel ischaemia

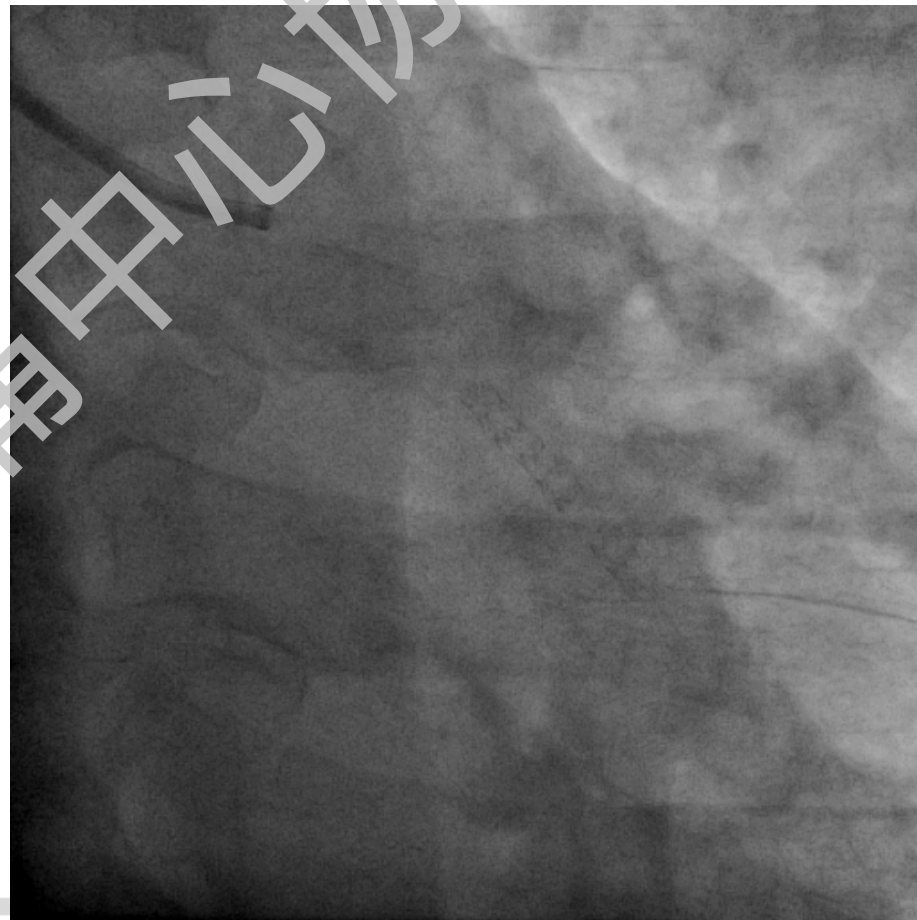
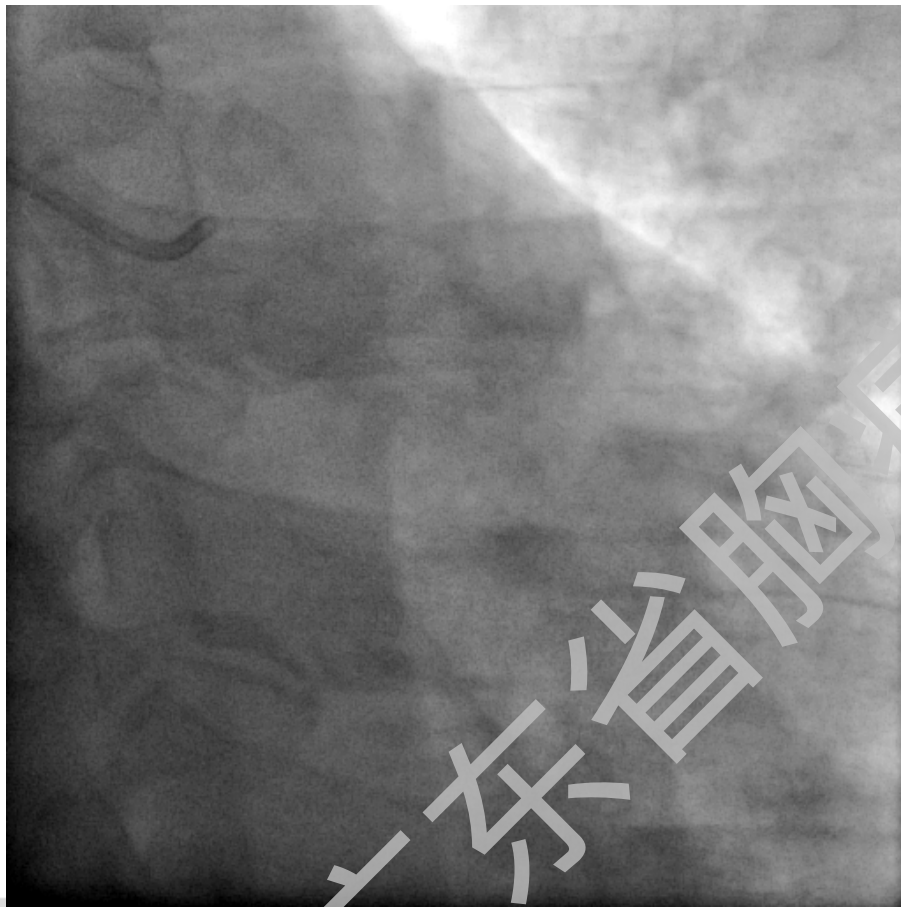
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以往指南只是根据ST段抬高来识别患者，新指南认为其不仅应包含ST段抬高的患者，还应包含束支阻滞的患者、其他非典型心电图表现的患者、其他心电图改变不确定的患者，以及不伴有ST段抬高的患者（例如，前壁导联ST段压低及伴有其他不确定心电图表现的患者）。这些患者只要有缺血症状，就存在较高的冠状动脉闭塞风险。因此，我们可将患者快速带至导管室行诊断检查。

Case 01

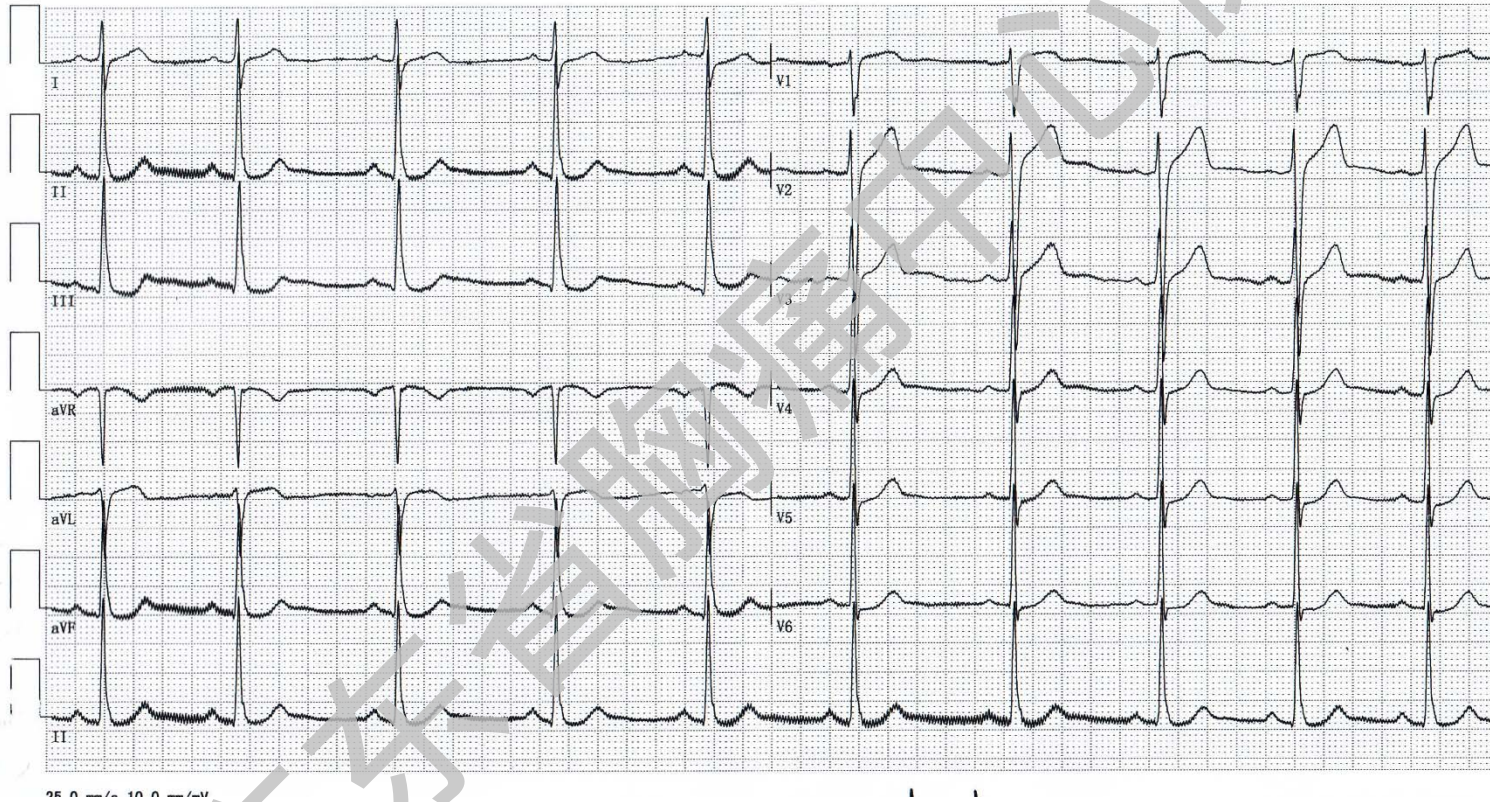


Atypical STEMI

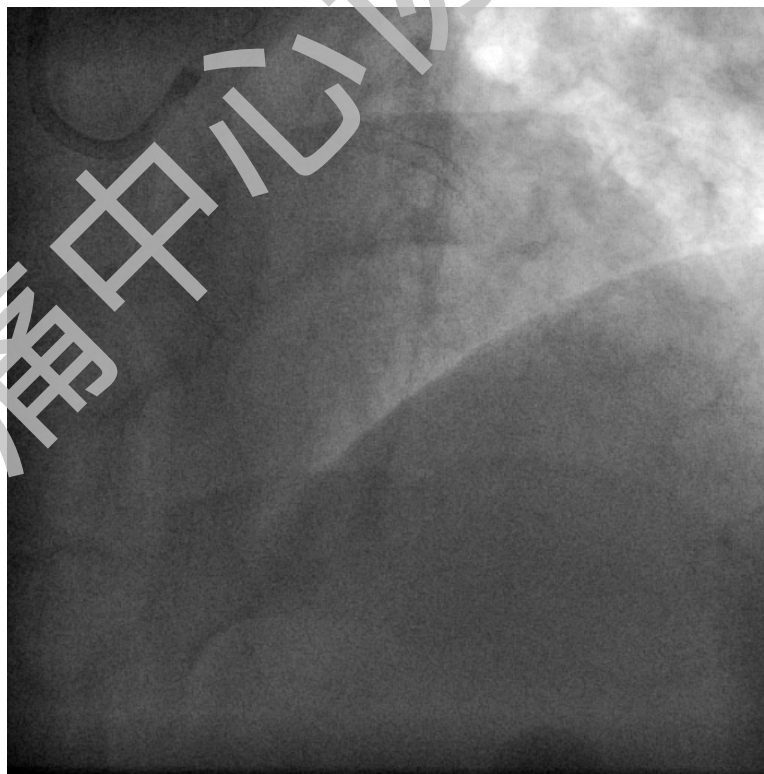
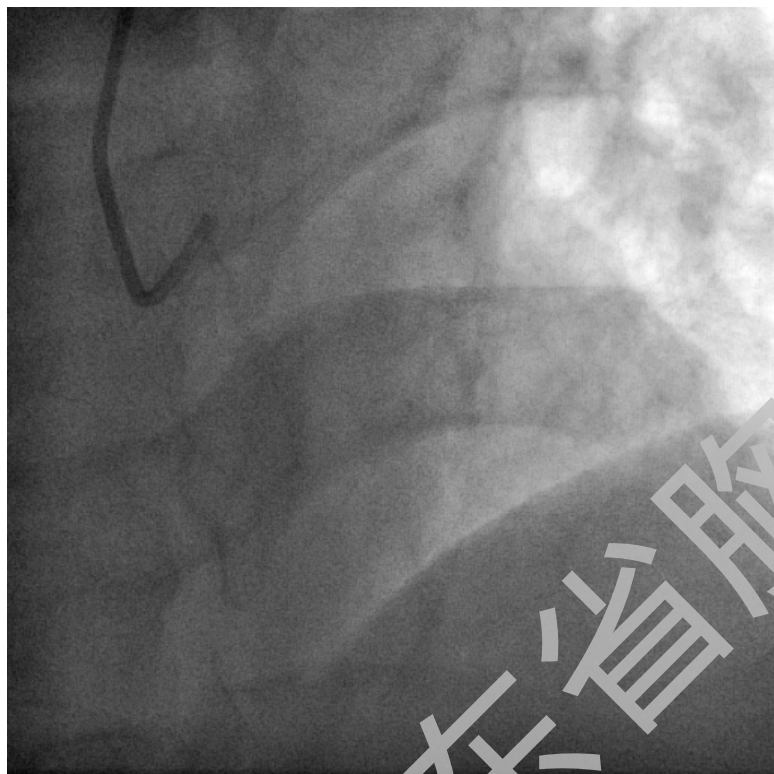


Case 02

检查时间: 2011-11-4 23:10:40

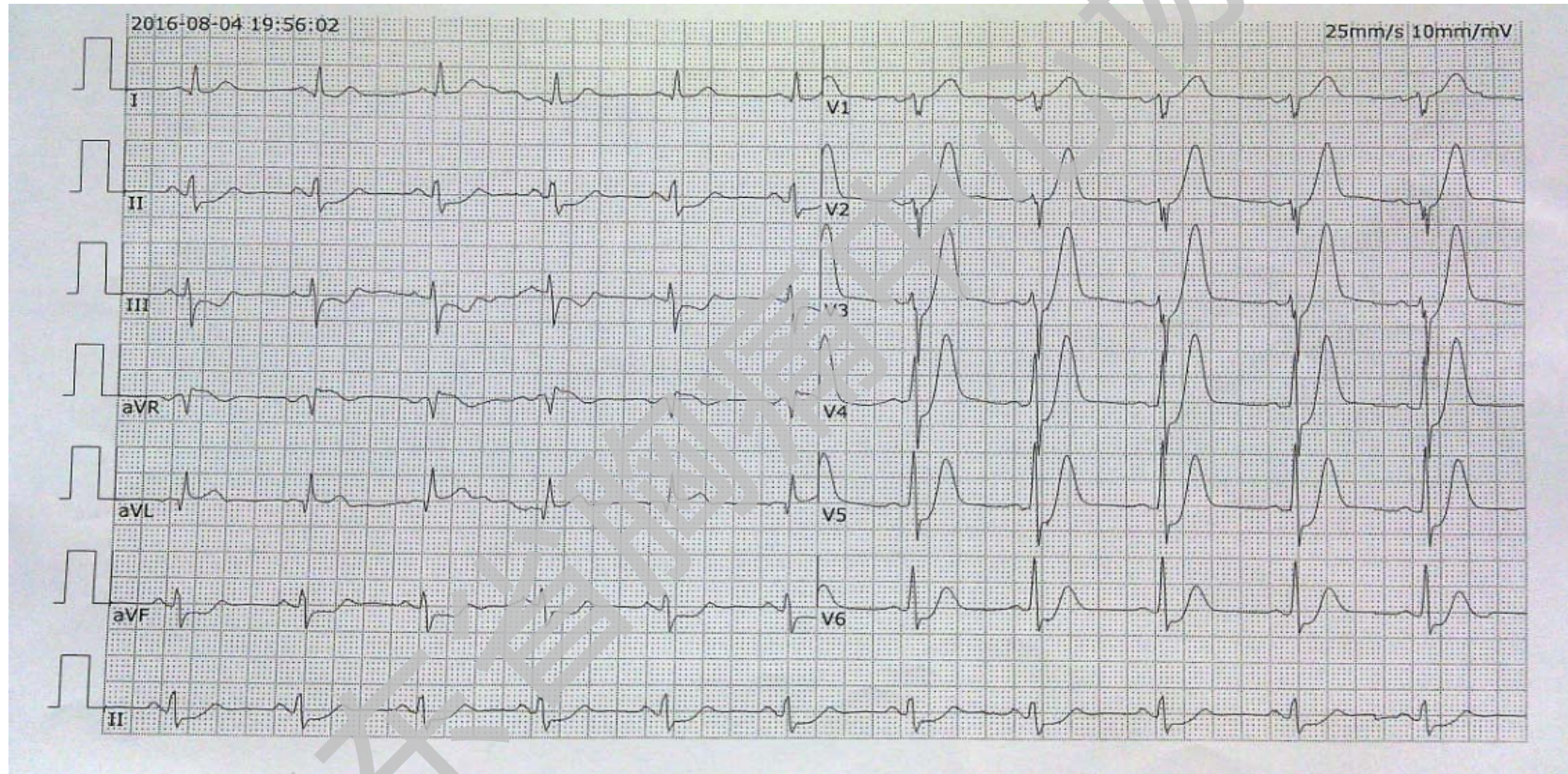


分支血管闭塞



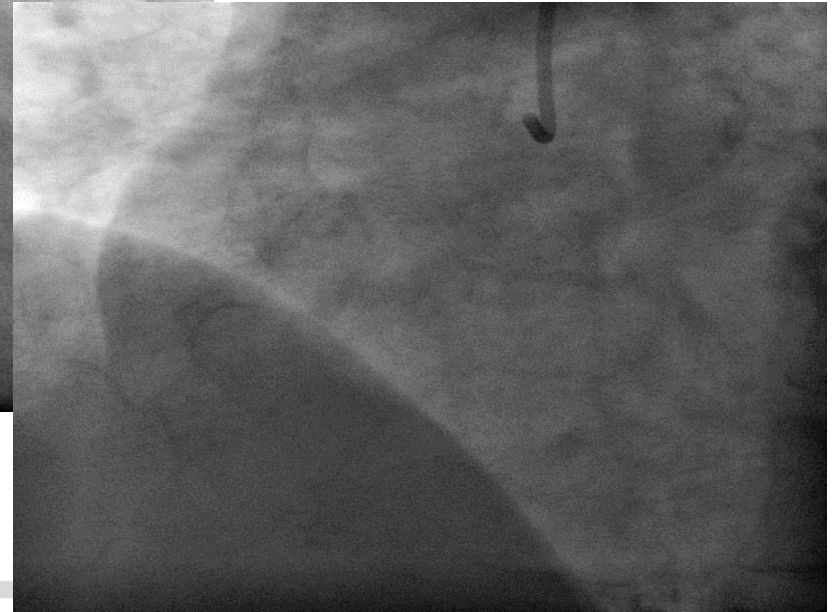
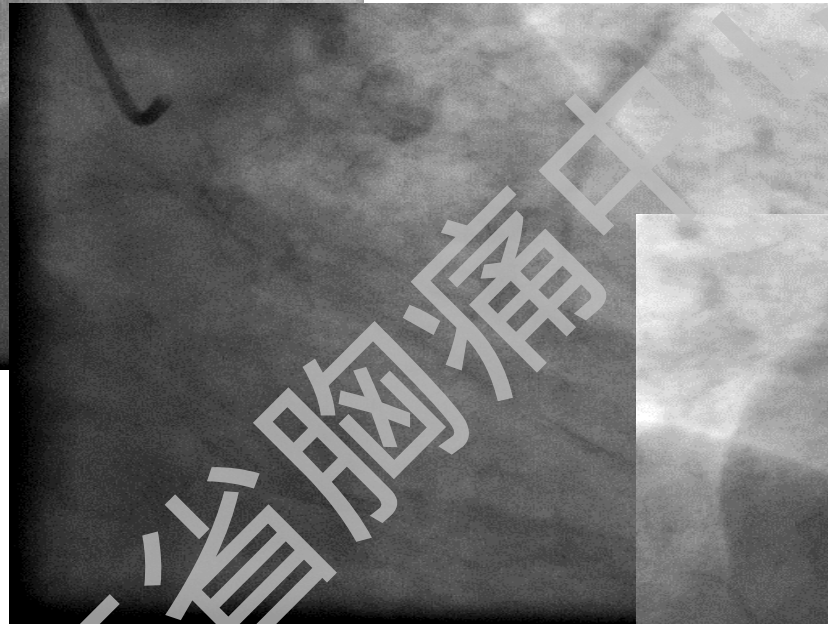
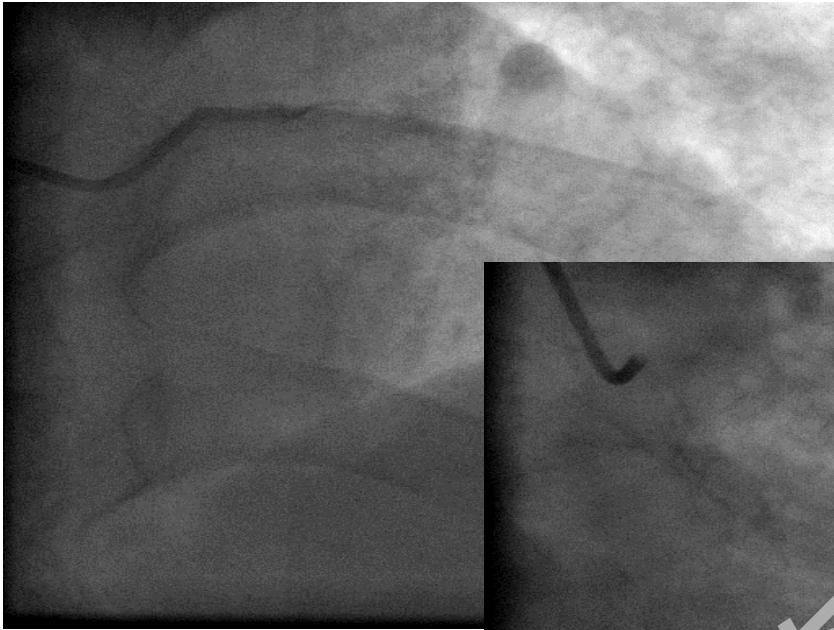
广东省胸痛中心协作

Case -03



CAG

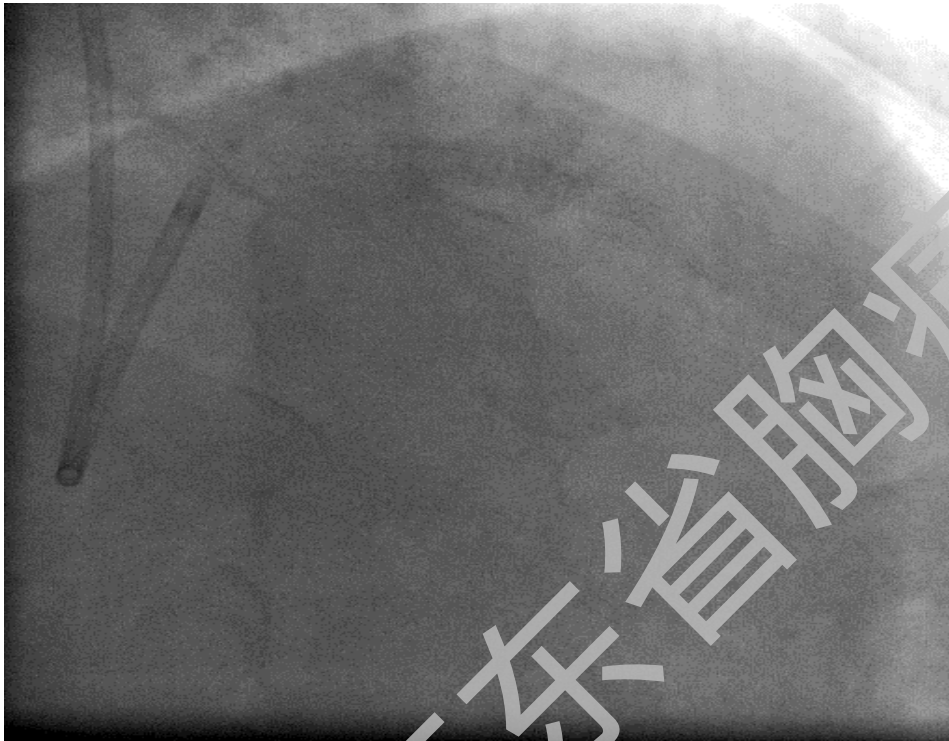
LAD & LCx完全闭塞，
RCA开口异常。





PCI

IABP支持，先LAD，后LCx



广东省胸痛中心协作网

几个时间节点，几个概念，最新指南标准

Table 4 Definitions of terms related to reperfusion therapy

Term	Definition
FMC	The time point when the patient is either initially assessed by a physician, paramedic, nurse or other trained EMS personnel who can obtain and interpret the ECG, and deliver initial interventions (e.g. defibrillation). FMC can be either in the prehospital setting or upon patient arrival at the hospital (e.g. emergency department)
STEMI diagnosis	The time at which the ECG of a patient with ischaemic symptoms is interpreted as presenting ST-segment elevation or equivalent
Primary PCI	Emergent PCI with balloon, stent, or other approved device, performed on the IRA without previous fibrinolytic treatment
Primary PCI strategy	Emergent coronary angiography and PCI of the IRA if indicated
Rescue PCI	Emergent PCI performed as soon as possible in the case of failed fibrinolytic treatment
Routine early PCI strategy after fibrinolysis	Coronary angiography, with PCI of the IRA if indicated, performed between 2 and 24 hours after successful fibrinolysis
Pharmacoinvasive strategy	Fibrinolysis combined with rescue PCI (in case of failed fibrinolysis) or routine early PCI strategy (in case of successful fibrinolysis)

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Table 5 Summary of important time targets

Intervals	Time targets
Maximum time from FMC to ECG and diagnosis ^a	≤10 min
Maximum expected delay from STEMI diagnosis to primary PCI (wire crossing) to choose primary PCI strategy over fibrinolysis (if this target time cannot be met, consider fibrinolysis)	≤120 min
Maximum time from STEMI diagnosis to wire crossing in patients presenting at primary PCI hospitals	≤60 min
Maximum time from STEMI diagnosis to wire crossing in transferred patients	≤90 min
Maximum time from STEMI diagnosis to bolus or infusion start of fibrinolysis in patients unable to meet primary PCI target times	≤10 min
Time delay from start of fibrinolysis to evaluation of its efficacy (success or failure)	60–90 min
Time delay from start of fibrinolysis to angiography (if fibrinolysis is successful)	2–24 hours

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重视数据库的填报—认证核心

- ◆ 重视数据的真实性，可溯源性，填报的完整性，有审核机制。
- ◆ 相对专职数据管理员。
- ◆ 理解时间节点及节点意义。

ESC指南2017比2012的更新

CHANGE IN RECOMMENDATIONS 2012	2017	2017 NEW RECOMMENDATIONS
Radial access^a MATRIX ¹⁴³		• Additional lipid lowering therapy if LDL >1.8 mmol/L (70 mg/dL) despite on maximum tolerated statins IMPROVE-IT¹⁷⁶, FOURIER¹⁷⁷ • Complete revascularization during index primary PCI in STEMI patients in shock Expert opinion
DES over BMS EXAMINATION ^{150,151} COMFORTABLE-AMI ¹⁴⁹ , NORSTENT ¹⁵²		• Cangrelor P2Y₁₂ inhibitors have not been given CHAMPION¹⁷³ • Switch to potent P2Y₁₂ inhibitors 48 hours after fibrinolysis Expert opinion • Extend Ticagrelor up to 36 months in high-risk patients PEGASUS-TIMI 54¹²¹ • Use of polypill to increase adherence FOCUS¹²²
Complete Revascularization^b PRAMI ¹⁴⁸ , DANAMI-3-PRIMULTI ¹⁷⁹ , CVLPRIT ¹⁴⁹ , Compare-Acute ¹⁷¹		• Routine use of deferred stenting DANAMI 3-DEFER¹⁵⁵
Thrombus Aspiration^c TOTAL ¹⁵³ , TASTE ¹⁵⁷		
Bivalirudin MATRIX ¹⁵⁹ , HEAT-PPCI ¹⁷⁰		
Enoxaparin ATOLL ^{200,201} , Meta-analysis ²⁵⁴		
Early Hospital Discharge^d Small trials & observational data ²⁵⁵⁻²⁶²		
Oxygen when SaO₂ <95% AVOID ⁶ , DETO2X ⁹⁹	Oxygen when SaO₂ <90%	
Dose i.V. TNK-tPA same in all patients STREAM ¹²¹	Dose i.V. TNK-tPA half in Pts ≥75 years	

I

IIa

IIb

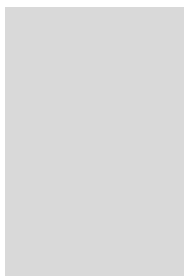
III

PPCI再灌注治疗时间窗放宽

Recommendations	Class	Level
Early angiography (within 24 hours) is recommended if symptoms are completely relieved and ST-segment elevation completely normalized spontaneously or after nitroglycerin administration (provided there are no recurrence of symptoms or ST-segment elevation).	I	C
In patients with time from symptom onset >12 hours, a <i>primary PCI strategy</i> is indicated in the presence of ongoing symptoms suggestive of ischaemia, haemodynamic instability, or life-threatening arrhythmias.	I	C
A routine <i>primary PCI strategy</i> should be considered in patients presenting late (12-48 hours) after symptom onset.	IIa	B
In asymptomatic patients, routine PCI of an occluded IRA >48 hours after onset of STEMI is not indicated.	III	A

总结

- ◆ 基层PPCI策略认证标准不低。
- ◆ 实施难度更大，面临情况更复杂。
- ◆ 应有预案，全面考虑，优化救治流程。
- ◆ 保持知识技术更新，迎接当前挑战。



谢谢聆听