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Protocol Sub-group Update

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Goals Achieved:

- **Goals for 2010 established - Fall 2009**
- **ECG Screening Guideline – Fall 2009**
- **Non-PCI Guideline - Spring 2010**
  - See formatting changes – next slides
- **Non-PCI Lytics Guideline - Fall 2010**
  - See handouts/next slides
- **Goals for 2011 established - Today**

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Formatting change – Plan A Primary PCI

Old formatting

Plan A—Primary PCI Guidelines (draft 9.2010)
Non-PCI Hospital

STEMI Criteria:
Signs / Symptoms of Acute Coronary Syndrome (ACS)
---------- AND ----------
ST segment elevation of 1 mm or more in two contiguous leads

- If both criteria are met then recommend activating the PCI Hospital
- If ST elevation inconclusive, isolated to V1-V2, or LBBB identified then recommend consultation with physician and PCI Hospital prior to activation

Goal: Patient in the door and out the door < 30 minutes

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- Record time patient arrives & leaves ED
- Acquire 12 lead ECG and have Physician read within 10 minutes
- Activate Code STEMI/STEMI Alert
- Contact Transport (EMS or Air Medical) and Obtain ETA
- Consider Fibrinolysis if estimated time from first medical contact to PCI > 90 minutes Refer to Plan B-Fibrinolysis guidelines
- Call for transfer to PCI Hospital
- Apply Oxygen and maintain O2 sat > 92%
- Aspirin 324 mg PO chewable

Priorities Prior to Transport

- Cardiac Monitor & Attach hands-free defibrillator pads
- Vital signs and pain scale
- Fax ECG to PCI Hospital
- Saline Lock #1 large bore needle
- Saline Lock #2 if possible, large bore needle
- Lab - cardiac markers [CKMB, Trop I], CBC, BMP, PT/INR, PTT, pregnancy serum if childbearing age
- STAT portable CXR
- NTG 1/150 gr. SL every 5 min or Nitropaste PRN for chest pain (hold for SBP < 90)
- Analgesia (Morphine sulfate or Fentanyl) IV PRN for pain
- Clopidogrel (Plavix) 600 mg PO
- Heparin IV loading dose 60 units/kg (4,000 units max)
- Consider metoprolol (Lopressor) 5 mg IV x 1 if patient hypertensive (>160/90). May consider additional doses if clinically indicated. Hold if SBP < 120, Pulse ox < 92%, HR < 60 or active CHF or Asthma

Transport Immediately—No Delays! Once Transport is Ready

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New formatting

Plan A—Primary PCI Guidelines (v10.2010)
Non-PCI Hospital

STEMI Criteria:
Signs / Symptoms of Acute Coronary Syndrome (ACS)
---------- AND ----------
ST segment elevation of 1 mm or more in two contiguous leads

- If both criteria are met then recommend activating the PCI Hospital
- If ST elevation inconclusive, isolated to V1-V2, or LBBB identified then recommend consultation with physician and PCI Hospital prior to activation

Goal: Patient in the door and out the door < 30 minutes

Pt. ED arrival time:_____ Pt. ED discharge time:_____

Signs / Symptoms of Acute Coronary Syndrome (ACS)
YES → NO → Refer to hospital's non ACS guidelines

- [ ] Acquire 12 lead ECG
- [ ] Physician reads 12 lead within 10 minutes

STEMI / ST elevation conclusive?
YES → NO → Consult PCI receiving physician

- [ ] Activate Code STEMI / STEMI Alert
- [ ] Contact Transport (EMS or Air Medical) and Obtain ETA:_____
- [ ] Call for transfer to PCI Hospital with Code STEMI / STEMI Alert

Estimated time from first medical contact to PCI < 90 minutes? If no consider Fibrinolytics
YES → NO → Refer to Plan B—Fibrinolysis or Consult PCI receiving physician

Patient Care Priorities Prior to Transport or During Transport

- [ ] Apply Oxygen and maintain O2 sat > 92%
- [ ] Aspirin 324 mg PO chewable
- [ ] Apply Cardiac Monitor & attach hands-free defibrillator pads
- [ ] Obtain vital signs and pain scale
- [ ] Establish Saline Lock #1 large bore needle
- [ ] Administer Heparin IV loading dose 70 units/kg (5,000 units max)
- [ ] Administer Clopidogrel (Plavix) 600 mg PO or Prasugrel 60 mg PO. Precautions with prasugrel: Do not use in patients with active bleeding, history of TIA or stroke, age > 75 years, body weight less than 60 kg or 132 lbs.

Patient Care when time allows — Do Not Delay Transport

- [ ] Fax ECG to PCI Hospital
- [ ] Establish Saline Lock #2 large bore needle
- [ ] Obtain Lab: cardiac markers (CKMB, Trop I), CBC, BMP, PT/INR, PTT, and pregnancy serum if childbearing age
- [ ] STAT portable CXR
- [ ] Administer NTG 1/150 gr. SL every 5 min or Nitropaste PRN for chest pain (hold for SBP < 90)
- [ ] Administer Analgesia (Morphine sulfate or Fentanyl) IV PRN for pain
- [ ] Consider Metoprolol (Lopressor) 5 mg IV x 1 if patient hypertensive (>160/90). May consider additional doses if clinically indicated. Hold if SBP < 120, Pulse ox < 92%, HR < 60 or active CHF or Asthma

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Guidelines – Plan B – Fibrinolysis page 1

Old formatting

Plan B— Fibrinolysis (draft 1)

STEMI Criteria
Signs / Symptoms of Acute Coronary Syndrome (ACS)
---------- AND ----------
ST segment elevation of 1 mm or more in two contiguous leads

- If both criteria are met then recommend activating the PCI Hospital
- If ST elevation inconclusive, isolated to V1-V2, or LBBB identified then recommend consultation with physician and PCI Hospital prior to activation

Goal: Door to needle time within 30 minutes

Goal: Door to needle time within 30 minutes

- **Record time patient arrives & leaves ED**
- **Acquire 12 lead ECG and have Physician read within 10 minutes**
- **If anticipated time to PCI < 90 minutes—Refer to Plan A-Primary PCI**
- **Activate Code STEMI/STEMI Alert**
- **Contact Transport (EMS or Air Medical)**
- **Call for transfer to PCI Hospital**
- **Apply Oxygen and maintain O2 sat > 92%**
- **Aspirin 324 mg PO chewable**

Priorities Prior to Transport

Checklist **MUST BE COMPLETED** prior to administration of Fibrinolytic Therapy

Absolute contraindications to Fibrinolytic Therapy			Relative contraindications to Fibrinolytic Therapy		
Active internal bleeding or bleeding diathesis	Yes	No	Active internal bleeding in past 2-4 weeks	Yes	No
Any prior Intracranial Hemorrhage	Yes	No	Acute pericarditis	Yes	No
Allergy to thrombolytics	Yes	No	Acute subacute bacterial endocarditis	Yes	No
Prior exposure to thrombolytics (< 5 days)	Yes	No	Advanced Age > 70 years	Yes	No
Ischemic stroke < 3 months	Yes	No	Bleeding Risk - Diabetic Retinophathy	Yes	No
(exception: acute ischemic stroke within 3 hours)			CPR > 10 minutes	Yes	No
Known malignant intracranial neoplasm	Yes	No	Current use of anticoagulants	Yes	No
Known or suspected aortic dissection,	Yes	No	History of prior ischemic stroke > 3 months	Yes	No
aneurysm or AVM			Major surgery or trauma within 3 weeks	Yes	No
Intracranial or intraspinal surgery < 3 months	Yes	No	Pregnancy or early postpartum	Yes	No
Severe uncorrected hypertension	Yes	No	Corrected Hypertension	Yes	No
(SBP> 180 mmHg or DBP > 110 mmHG)			(SBP> 180 mmHg or DBP > 110 mmHG)		
			Recent GI bleed or active Ulcer disease	Yes	No
			Severe hepatic and renal dysfunction	Yes	No

** If all answers are "NO", proceed with Fibrinolytic therapy - otherwise, consult PCI receiving facility physician **

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New formatting

Plan B— Fibrinolysis Guidelines page 1 (v10.2010)
Non-PCI Hospital

STEMI Criteria
Signs / Symptoms of Acute Coronary Syndrome (ACS)
---------- AND ----------
ST segment elevation of 1 mm or more in two contiguous leads

- If both criteria are met then recommend activating the PCI Hospital
- If ST elevation inconclusive, isolated to V1-V2, or LBBB identified then recommend consultation with physician

Goal: Door to needle time within 30 minutes

Pt. ED arrival time:_____ Pt. ED discharge time:_____

Signs / Symptoms of Acute Coronary Syndrome (ACS)
YES ↓ NO → Refer to hospital's non ACS guidelines

- ☐ Acquire 12 lead ECG
- ☐ Physician reads 12 lead within 10 minutes

STEMI / ST elevation conclusive?
YES ↓ NO → Consult PCI receiving physician

- ☐ Activate Code STEMI / STEMI Alert
- ☐ Contact Transport (EMS or Air Medical) and Obtain ETA:_____
- ☐ Call for transfer to PCI Hospital

Anticipated time to PCI > 90 minutes?
YES ↓ NO → Refer to Plan A—Primary PCI

Checklist **MUST BE COMPLETED** prior to administration of Fibrinolytic Therapy

ABSOLUTE contraindications to Fibrinolytic Therapy			RELATIVE contraindications to Fibrinolytic Therapy		
Active internal bleeding or bleeding diathesis	Yes	No	Active internal bleeding in past 2-4 weeks	Yes	No
Any prior Intracranial Hemorrhage	Yes	No	Acute pericarditis	Yes	No
Allergy to thrombolytics	Yes	No	Bacterial endocarditis	Yes	No
Prior exposure to thrombolytics (< 5 days)	Yes	No	Advanced Age > 70 years	Yes	No
Ischemic stroke < 3 months (exception: acute ischemic stroke within 3 hours)	Yes	No	Bleeding Risk - Diabetic Retinophathy	Yes	No
			CPR > 10 minutes	Yes	No
Known malignant intracranial neoplasm	Yes	No	Current use of anticoagulants	Yes	No
Known or suspected aortic dissection or aneurysm	Yes	No	History of prior ischemic stroke > 3 months	Yes	No
Cerebral aneurysm or AVM	Yes	No	Major surgery or trauma within 3 weeks	Yes	No
Intracranial or intraspinal surgery < 3 months	Yes	No	Pregnancy or early postpartum	Yes	No
Severe uncorrected hypertension (SBP> 180 mmHg or DBP > 110 mmHG)	Yes	No	Corrected Hypertension (SBP> 180 mmHg or DBP > 110 mmHG)	Yes	No
			Recent GI bleed or active Ulcer disease	Yes	No
			Severe hepatic and renal dysfunction	Yes	No

** Go to page 2 **

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Guidelines – Plan B

Fibrinolysis page 2

Plan B— Fibrinolysis Guidelines page 2 (v10.2010)
Non-PCI Hospital

Reperfusion Checklist – Goal: Door to needle time within 30 minutes

Has patient experienced chest discomfort for greater than 12 hours?
- YES → Consult PCI receiving physician
- NO ↓

Are there contraindications to fibrinolysis (see page 1)?
- YES → Consult PCI receiving physician
- NO ↓

Primary Drug Treatment Plan

Fibrinolytic should be given in a dedicated IV line. Flush line before and after administration of medication

☐ Tenecteplase (TNKase) IV over 5 seconds: (If unable to give TNKase, give Reteplase per alternative drug plan below)

Patient Weight		TNKase Reconstituted	
kg	lbs	mg	Volume
<60	<132	30	6
60 to <70	132 to <154	35	7
70 to <80	154 to <176	40	8
80 to <90	176 to <198	45	9
≥90	≥198	50	10

☐ Enoxaparin (Lovenox): (If unable to give Lovenox, give Heparin per alternative drug plan below)

Patient Age	Dose
< 75	30 mg IV plus 1 mg/kg SC (maximum dose 100 mg)
> 75	No bolus. 0.75 mg/kg SC (maximun dose 75 mg)

☐ Apply Oxygen and maintain O2 sat > 92% (if not already done)

☐ Aspirin 324 mg PO chewable times 1 dose (if not already given)

☐ Clopidogrel (Plavix) 300 mg PO loading dose

☐ Repeat EKG 30 minutes after fibrinolytics administration if possible

Alternative Drug Plan

☐ Reteplase (Retavase) 10 Units IV over 2 minutes x 2 at 30-minute intervals

☐ 1st dose given at:_____ ☐ 2 nd dose given at:_____

☐ Unfractionated Heparin bolus 60 IU/kg IV (maximum 4,000 IU) **plus**

☐ Continuous infusion 12 IU/kg/h (maximum initial rate of 1,000 IU) to achieve Activated Partial Thromboplastin time (APTT) 1.5 to 2 times control, maintained for 48 hours

Ensure transport agency will accept Heparin Drip during patient transport to PCI hospital

** page 2 of 2 **

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2010 Goals - Next Steps:

- Plan to manage multiple STEMI patients arriving at the same time (PCI hospitals to bring plan to Nov. meeting)
- Plan for transport of patients on a drip (EMS subgroup will be engaged and bring solutions to protocols group)
- Finalize guidelines as written on Nov. 10, 2010 (next sub-group meeting)

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2011 Goals

- Address appropriate STEMI activation of cath lab based on EMS provider impression and ECG interpretation, create plan to monitor appropriate activation based on EMS ECG interpretation.

- Written regional document that includes newly developed regional guidelines, best practices, Mission: Lifeline "ideal system" criteria, etc.

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Next Protocol Sub Group Meeting:

Wednesday November 10, 2010

AHA Office

0800 - 0930

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