Iowa Mission: Lifeline

Statewide STEMI Guideline for Non-PCI Hospitals

STEMI Criteria:

- ST elevation at the J point in
  - **Men:** at least 2 contiguous leads of ≥2 mm (0.2 mV) in leads V2–V3 and/or ≥ 1 mm (0.1mV) in other contiguous chest leads or the limb leads.
  - **Women:** ≥1.5 mm (0.15 mV) in leads V2–V3 and/or ≥ 1 mm (0.1mV) in other contiguous chest leads or the limb leads.
- Signs & Symptoms of discomfort suspect for AMI (Acute Myocardial Infarction) or STEMI with a duration >15 minutes <12 hours.
- Although new, or presumably new, LBBB at presentation occurs infrequently and may interfere with ST-elevation analysis, care should be exercised in not considering this an acute myocardial infarction (MI) in isolation. If in doubt, immediate consult with PCI receiving center is recommended.
- If initial ECG is not diagnostic but suspicion is high for STEMI, obtain serial ECG at 5-10 minute intervals.

If ECG is transmitted from the field (EMS) and a STEMI is identified, the following should be done prior to patient arrival:

☐ Alert on-call provider if not in-house

☐ Activate Transferring agency (Air or Ground)

☐ Notify Receiving PCI Hospital Emergency Dept. Physician

☐ If Arrived by EMS, Leave Patient on Ambulance Cot

1st ECG time goal: 10 minutes from patient arrival

PRIMARY PCI Pathway – FMC to PCI less than 120 minutes – ACTIVATE CATH LAB

Goal: Door-in to Door-out in < 30 minutes

Patient Care Priorities Prior to Transport or During Transport

☐ Titrate oxygen (starting at 2L/min) to maintain SpO2 between 90%-94%
☐ Aspirin 324 mg PO chewable
☐ Cardiac Monitor & attach hands-free defibrillator pads
☐ Obtain vital signs and pain scale
☐ NTG 0.4mg SL every 5 min or Nitropaste PRN for chest pain (hold for SBP < 90)
☐ Analgesia (Morphine sulfate or Fentanyl) IV PRN for pain
☐ Establish Saline Lock #1 large bore needle

Administer one of the following:

☐ Heparin - IV loading dose (70 Units/kg - max 4,000 units)

Optional to Heparin:

☐ Enoxaparin (Lovenox):
Age < 75: 30mg IV plus 1 mg/kg SC (max 100mg)
Age > 75: No bolus. 0.75 mg/kg SC (max 75mg)

Administer one of the following:

☐ Ticagrelor (Brilinta) - 180mg PO **or**;

Optional to Brilinta:

☐ Clopidogrel (Plavix) 600 mg PO **or;**

☐ Prasugrel **(**Effient) 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.)

FIBRINOLYSIS Pathway - FMC to PCI anticipated to be > 120 min

Goal: Door to Needle < 30 minutes followed by immediate transfer to PCI hospital

ABSOLUTE CONTRAINDICATIONS FOR FIBRINOLYSIS (TNK) IN STEMI

1. Any prior intracranial hemorrhage
2. Known structural cerebral vascular lesion (e.g., arteriovenous malformation)
3. Known malignant intracranial neoplasm (primary or metastatic)
4. Ischemic stroke within 3 months EXCEPT acute ischemic stroke within 3 hours
5. Suspected aortic dissection
6. Active bleeding or bleeding diathesis (excluding menses)
7. Significant closed-head or facial trauma within 3 months

RELATIVE CONTRAINDICATIONS FOR FIBRINOLYSIS: (TNK) IN STEMI

1. History of chronic severe, poorly controlled hypertension
2. Severe uncontrolled hypertension on presentation (SBP more than 180 mm Hg or DBP more than 110 mm Hg)
3. History of prior ischemic stroke more than 3 months, dementia, or known intracranial pathology not covered in contraindications
4. Traumatic or prolonged CPR (over 10 minutes)
5. Major surgery (within last 3 weeks)
6. Recent internal bleeding (within last 2-4 weeks)
7. Noncompressible vascular punctures
8. For streptokinase/anistreplase: prior exposure (more than 5 days ago) or prior allergic reaction to these agents
9. Pregnancy
10. Active peptic ulcer
11. Current use of oral anticoagulants (Warfarin, Dabigatran, Rivaroxaban, Apixaban, etc.)

If Patient is contraindicated for Fibrinolysis, Follow Transport Guidelines for Primary PCI

PRIMARY PCI Pathway – FMC to PCI less than 120 minutes – ACTIVATE CATH LAB (continued)

Goal: Door-in to Door-out in < 30 minutes

Patient Care when time allows — Do Not Delay Transport

- Establish large bore IV with NS @TKO, left arm preferred
- Atorvastatin (Lipitor) 80 mg PO
- Obtain Labs: cardiac markers (CKMB, Trop I), CBC, BMP, PT/INR, PTT, and pregnancy serum if childbearing age (do not delay transport waiting for results)
- NTG 0.4mg SL every 5 min or Nitropaste PRN for chest pain (hold for SBP < 90)
- Analgesia (Morphine sulfate or Fentanyl) IV PRN for pain
- Consider Metoprolol (Lopressor) 50 mg PO 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

Goal: Door-in to Door-out in < 30 minutes
Immediately Transport to PCI Hospital

Do not give Fibrinolytics (TNKase, rPA, or TPA) for Primary PCI Patients

List and contact info for Primary PCI Hospitals:

Ames - Mary Greeley Medical Center	515-239-2251
Bettendorf - UnityPoint Trinity Regional Health System	563-742-3200
Cedar Rapids - UnityPoint St. Luke's Hospital	888-369-7105
Cedar Rapids - Mercy Medical Center	866-583-0896
Clinton - Mercy Medical Center	563-244-3641
Council Bluffs - CHI Health Mercy Hospital	844-577-0577
Council Bluffs - Methodist Jennie Edmundson	844-536-6431
Davenport - Genesis Medical Center	563-421-7681
Des Moines - Mercy Medical Center	877-886-3729
Des Moines - UnityPoint Iowa Lutheran	800-806-1787
Des Moines - UnityPoint Iowa Methodist	800-806-1787
Dubuque - Mercy Medical Center	563-589-9666
Dubuque - UnityPoint Finley Hospital	563-589-2560
Ft. Dodge - Trinity Regional Medical Center	515-574-6684
Iowa City - Mercy Hospital	319-688-7874
Iowa City - University of Iowa Hospitals & Clinics	319-467-6666
Marshalltown - Central Iowa Healthcare	641-754-5040
Mason City - Mercy Medical Center North	877-422-7162
Ottumwa - Ottumwa Regional Health Center	641-799-6827
Sioux City - Mercy Medical Center	712-560-6529
Sioux City - UnityPoint St. Luke's Hospital	712-635-2022
Sioux Falls, SD - Avera Heart Hospital	605-977-7000
Sioux Falls, SD - Avera McKennan	605-322-2000
Sioux Falls, SD - Sanford Health	800-601-5084
Waterloo - Covenant Medical Center	319-272-4327
Waterloo - UnityPoint Allen Hospital	319-235-3697
West Burlington - Great River Medical Center	319-768-4700
West Des Moines - Mercy West Lakes	877-886-3729

FIBRINOLYSIS Pathway - FMC to PCI anticipated to be > 120 min (continued)

Goal: Door to Needle < 30 minutes

Tenecteplase (TNKase) IV over 5 seconds:

☐ Patient age ≤75 – FULL DOSE

☐ Patient age >75 – Contact Cardiologist for Consideration of HALF DOSE

Tenecteplase (TNKase) Dosing Chart

Patient Weight	** FULL-DOSE **	** HALF-DOSE **
59 kg or less	30 mg = 6 mL	15 mg = 3 mL
60 - 69 kg	35 mg = 7 mL	18 mg = 3.5 mL
70 - 79 kg	40 mg = 8 mL	20 mg = 4 mL
80 - 89 kg	45 mg = 9 mL	23 mg = 4.5 mL
90 kg or more	50 mg = 10 mL	25 mg = 5 mL

☐ Unfractionated Heparin (UFH):

- Heparin IV Bolus (60 Units/kg, max 4,000 Units)
- Heparin IV Drip (12 Units/kg/hr, max 1,000 Units/hr)

Optional to Heparin:

☐ Enoxaparin (Lovenox):

Age < 75: 30mg IV plus 1 mg/kg SC (max 100mg)

Age > 75: No bolus. 0.75 mg/kg SC (max 75mg)

☐ Titrate oxygen (starting at 2L/min) to maintain SpO2 between 90%-94%

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

☐ Clopidogrel (Plavix)

age ≤75 300 mg loading dose

age >75 only 75 mg total

☐ Repeat EKG 30 minutes after fibrinolytics administration if possible

Immediately Transport to PCI Hospital