

# Minnesota STEMI GUIDELINE

## Minnesota Mission: Lifeline Statewide STEMI Interfacility Transfer Guideline



### IDENTIFY / CONFIRM STEMI

- Signs & Symptoms suspect for AMI (Acute Myocardial Infarction) – Duration > 15 minutes < 12 hours
- ST Elevation as defined by diagnostic criteria on pg. 2
- Pre-Hospital STEMI confirmed by 12 L ECG trained ALS EMS recognize ST segment elevation of ≥ 1 mm in 2 contiguous leads, Confirmed Interpretation of STEMI transmitted, or ECG Monitor interpretative statement infers: “Acute Myocardial Infarction” with pt. signs & symptoms suspect of AMI

### ACTIVATE TRANSPORT

Establish availability and ETA of Air or Ground ALS EMS for Interfacility Transfer to PCI Hospital

### ACTIVATE YOUR INTERNAL STEMI ALERT

Alert appropriate provider(s) and team members

### Estimate FMC (first medical contact) to Potential PCI:

(Allow approx. 20 min after arrival to PCI capable hospital)

### ESTABLISH KEY TIMES:

Symptom Onset: \_\_\_\_\_  
 First Medical Contact: \_\_\_\_\_  
 ETA to PCI Hospital: \_\_\_\_\_

### Estimated FMC to PCI ≤ 120 minutes

Or FMC > 120 minutes, and one of the following:

- Fibrinolytic Ineligible
- Resuscitated out-of-hospital cardiac arrest patients whose initial ECG shows STEMI
- Evidence of either Cardiogenic Shock or Acute Severe CHF

**\*\*Do NOT give Lytic/TNK!**

#### All:

- Aspirin 81 mg x4 chewed (\*Dose to achieve 324 mg)
- Heparin IV Bolus 60 Units/kg, max 4,000 Units (No IV Heparin Drip)
- Ticagrelor 180 mg PO (If Ticagrelor not available, then give Clopidogrel 600 mg PO)

### Estimated FMC to PCI 120-180 minutes

- Establish if Fibrinolytic appropriate (See page 2 for contraindications)
- Goal: Door to Needle < 30 minutes

1. **For all ages transferring not utilizing** Pharmaco-invasive strategy proceed to Full Dose Fibrinolytic Strategy
2. **For patients transferring to Abbott NW/MHI utilizing** Pharmaco-invasive strategy, administer HALF-Dose TNK IV and transfer for PCI (Dosing table pg. 2)

#### All:

- Aspirin 81 mg x4 chewed (\*Dose to achieve 324 mg)
- Heparin IV Bolus 60 Units/kg, max 4,000 Units (No IV Heparin Drip)
- Clopidogrel 600 mg PO
- TNK “HALF-Dose” IV

### Estimated FMC to PCI >120 minutes

- Establish if Fibrinolytic appropriate (See page 2 for contraindications)
- Goal: Door to Needle < 30 minutes

**\*\*For all ages transferred with an estimated FMC to PCI > 180 minutes**

#### All:

- Aspirin 81 mg x 4 chewed (\*Dose to achieve 324 mg)
- Heparin IV Bolus 60 Units/kg, max 4,000 Units
- Heparin IV Drip 12 Units/kg/hr, max 1,000 Units/hr

#### For AGE ≤ 75 years old:

- Clopidogrel 300 mg PO
- TNK “FULL-Dose” IV\*

#### For AGE > 75 years old

- Clopidogrel 75 mg PO
- TNK “HALF-Dose” IV

### ACTIVATE CODE STEMI / STEMI ALERT AT PCI HOSPITAL

(See Page 2 for phone #, or follow your regional STEMI protocol)

### TRANSPORT PATIENT AS SOON AS POSSIBLE!

Fax or Transmit ECG and other pertinent records (EMS reports, allergies, past medical history, etc.)

#### Top Patient Care Priorities:

- Establish DNR / Resuscitation Status
- Obtain vital signs and assess pain level on scale of 1-10
- Cardiac Monitor & attach hands-free defibrillator pads
- Establish Saline Lock - large bore needle (left arm preferred)
- Oxygen PRN at 2 L/min and titrate to SpO<sub>2</sub> > 90%
- Assess Allergies (Note if reaction to IV Contrast?)

#### Notes:

#### Patient Care When Time Allows:

- Establish 2<sup>nd</sup> large bore IV with Normal Saline @TKO ( Left arm preferred)
- Obtain Appropriate Labs: Troponin, CBC, Potassium, Creatinine, PT/ INR, aPTT
- Nitroglycerin 0.4 mg SL every 5 min or Nitropaste PRN for chest pain (hold for SBP < 90)
- Evaluate if erectile dysfunction or pulmonary hypertension medications taken in the past 48 hours including: Sildenafil (Viagra, Revatio), Vardenafil (Levitra, Staxyn), Avanafil (Stendra), or Tadalafil (Cialis, Adcirca), and if so, hold nitrates for 48 hours

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## STEMI (ST Elevation Myocardial Infarction) Diagnostic Criteria:

- ST elevation at the J point in at least 2 contiguous leads of  $\geq 2$  mm (0.2 mV) in men or  $\geq 1.5$  mm (0.15 mV) in women in leads V2–V3 and/or of  $\geq 1$  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 consultation with PCI receiving center is recommended
- ECG demonstrates evidence of ST depression suspect of a Posterior MI...consult with PCI receiving center
- If initial ECG is not diagnostic but suspicion is high for STEMI, obtain serial 12 Lead ECG's at 5-10 minute intervals

## ABSOLUTE CONTRAINDICATIONS FOR FIBRINOLYSIS

- Chest Pain / Symptom Onset > 12 hours
- Suspected aortic dissection
- Any prior intracranial hemorrhage
- Structural cerebral vascular lesion or malignant intracranial neoplasm
- Any active bleeding (excluding menses)
- Ischemic stroke within 3 months
- Significant closed-head or facial trauma within 3 months
- Pregnancy

## RELATIVE CONTRAINDICATIONS FOR FIBRINOLYSIS

- Chest Pain / Symptom Onset > 6 hours
- Current use of oral anticoagulants (Warfarin, Dabigatran, Rivaroxaban, Apixaban, etc.)
- Uncontrolled hypertension on presentation (SBP > 180 or DBP > 90 mmHg)
- History of ischemic stroke more than 3 months, dementia, or known intracranial pathology not covered in contraindications
- Traumatic or prolonged CPR (over 10 minutes)
- Major surgery within last 3 weeks
- Recent internal bleeding (within last 2-4 weeks)

### 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

Notes:

Destination CITY	Primary PCI Receiving Hospital	STEMI Activation Phone #:	Fax # for Records:
Bemidji MN	Sanford Health	218-333-2222	218.333.6398
Coon Rapids MN	Mercy Hospital	1-866-922-0246	763-236-6930
Duluth MN	St. Luke's Health	800-306-2939	218-249-5180
Duluth MN	Essentia St. Mary's	877-786-4944	218-786-4248
Edina MN	Fairview Southdale	952-924-8000	952-924-5545
Fargo ND	Essentia Health	701-364-8401	701-364-8405
Fargo ND	Sanford Health	701-234-6304 or 1-877-647-1225	701-234-7203
Eau Claire WI	Mayo Clinic Health	715-838-3333	715-838-3507
Eau Claire WI	Sacred Heart Hospital	877-717-4565	715-717-4972
Grand Forks ND	Altru Health System	701-780-5206 or 1-855-425-8781	701-780-1097
La Crosse WI	Gundersen	1-800-527-1200	608-775-4802
Mankato MN	Mayo Clinic Health	Hospital 507-385-5777 EMS 507-385-2610	507-385-6318
Minneapolis MN	Abbott NW / MHI	612-863-3911	888-764-8218
Minneapolis MN	Hennepin County	800-424-4262 or 612-873-4262	844-904-4200 or 612-904-4200
Minneapolis MN	U of MN. - Fairview	612-273-2500	612-273-2645
Robinsdale MN	North Memorial	763-581-9700	763-581-9771
Rochester MN	Mayo St. Mary's	507-255-2910	507-266-6180
St. Cloud MN	CentraCare Health	877-783-6472	320-255-5845
St. Louis Park MN	Methodist	952-993-0330	952-993-6580
St. Paul MN	Regions	651-254-3307	651-254-6973
St. Paul MN	St. Joseph's Health East	651-232-3348	651-232-3539
St. Paul MN	United Hospital	6512418755	6512415398
Sioux Falls SD	Avera Heart Hospital	605-977-7000	605-977-7108
Sioux Falls SD	Avera McKennan	605-322-2000	605-322-2030
Sioux Falls SD	Sanford Health	605-333-4455 or 800-601-5084	605-333-1578
Watertown SD	Prairie Lakes Health	605-882-7810	605-882-7979
(Other)			
(Other)			

## AHA Mission: Lifeline STEMI Recommendations:

- FMC (First Medical Contact)-to-First ECG time  $\leq$  10 minutes unless pre-hospital ECG obtained
- All eligible STEMI patients receiving a Reperfusion Therapy (Primary PCI or fibrinolysis)
- Fibrinolytic eligible STEMI patients with Door-to-Needle time  $\leq$  30 minutes
- Primary PCI eligible patients transferred to a PCI receiving center with referring center Door in- Door out (Length of Stay)  $\leq$  45 min
- Referring Center ED or Pre-Hospital First Medical Contact-to-PCI time  $\leq$  120 minutes (including transport time)
- All STEMI patients without a contraindication receiving Aspirin prior to referring center ED discharge