American Heart Association (AHA)
Mission: Lifeline™ and Rural STEMI projects

Mindy Cook, RN BSN
Director Mission: Lifeline North Dakota, Minnesota
MAY 2004 – JUNE 2007

AHA recruited Advisory Working Group

Price Waterhouse Coopers presents its market research to AWG

AWG Consensus Statement appears in *Circulation*

Eleven manuscripts are published in *Circulation*

Mission: Lifeline was formally launched

AWG develops a set of guiding principles

2008 - 2009

Affiliate Staff Kick-Off was held

Completion of a national EMS Assessment for STEMI Systems represents 91% of US population

2010 - 2011

Hospital recognition program and reports are released

AHA collaborates with SCPC and hospital accreditation program released

2012 AND BEYOND

Mission: Lifeline Cardiac resuscitation Program was launched

Plans to add a Mission: Lifeline Pre-Hospital Recognition Program

2014 – Add Mission: Lifeline EMS Recognition Program
Mission: Lifeline is the American Heart Association’s national initiative to advance the systems of care for patients with ST-segment elevation myocardial infarction (STEMI) and Out of Hospital Cardiac Arrest. The overarching goal of the initiative is to reduce mortality and morbidity for STEMI and OOHCA patients to and improve their overall quality of care.
Mission: Lifeline will:

- Promote ideal STEMI systems of care
- Help STEMI patients get the life-saving care they need in time
- Bring together healthcare resources into an efficient, synergistic system
- Improve overall quality of care

The initiative is unique in that it:

- Addresses the continuum of care for STEMI patients
- Preserves a role for the local STEMI-referring hospital
- Understands the issues specific to rural communities
- Promotes different solutions/protocols for rural vs. urban/suburban areas
- Recognizes there is no “one-size-fits-all” solution
- Knows the issues of implementing national recommendations on a community level
What is a Mission: Lifeline STEMI System?

At Least One EMS Agency
At Least One Referral Center
At Least one Receiving Center

...working together to decrease time to reperfusion and to reduce death and disability by improving patient outcomes.
• ~30 Minute Onset of CP S/S

Patient

• EMS Transports ~30 Minutes

EMS

• ~ 60 Minute ED Evaluation to “Confirm” STEMI

ED

• Cardiology Consult ~30-60 Minute Wait

Cardiology

• At least 30-45 Minutes to arrive and ready the cath lab

Cath lab

Back In The Day - Time from onset to treatment could exceed 200 Minutes (Non-Transfer Patients)
EMS identifies STEMI patient, early acquisition on 12 Lead, early notification

Cath Lab team is activated and prepares for patient arrival

Patient arrives to hospital, Direct to Cath Lab when ready

TODAY ~~~
TOMORROW
Point Of Entry Protocol: GOAL

- Onset of symptoms of STEMI
- 9-1-1 EMS dispatch
- EMS on-scene
  - Encourage 12-lead ECGs
  - Consider prehospital fibrinolytic if capable and EMS-to-needle within 30 min
- EMS transport
  - Prehospital fibrinolysis: EMS-to-needle within 30 min
  - Hospital fibrinolysis: Door-to-needle within 30 min

GOALS:
- Patient: 5 min after symptom onset
- Dispatch: 1 min
- EMS on scene: within 8 min
- EMS transport

* Golden Hour = First 60 minutes

Less than 90 Minutes
STEMI Reperfusion Pathways for Non-PCI Centers

Primary PCI Pathway

Door-in Door-Out Time

Transport Time

Cath Lab Time

Device time

Non-PCI Center

EKG t<10 min

Goal t < 45 min

Goal t < 30 min

Door-in to Needle Time

Arrival t=0

Fibrinolytic Pathway

PCI Center

t < 90 min

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STEMI Statistics

• Acute Coronary Syndrome (ACS) will strike 935,000 people a year in the United States, an estimated 250,000 of those will be STEMIs

• In 2011, 2,284 Minnesotans suffered a STEMI, according to the Minnesota Department of Health.

• Cardiovascular disease is the #2 leading cause of death in MN.

• In ND 43% of adults have 3 or more risk factors for Cardiovascular disease.

• CV disease is the #1 leading cause of death in ND.
MYOCARDIAL INFARCTIONS (HEART ATTACKS) are the #1 CAUSE OF DEATH IN MEN AND WOMEN IN U.S.

THIS YEAR approximately 1,000,000 AMERICANS WILL HAVE A HEART ATTACK AND ¼ of those will be ST Elevation Myocardial Infarctions.

38 % OF THESE THAT WILL OCCUR WILL BE FATAL—50% PERCENT OF THESE WILL OCCUR WITHIN THE FIRST HOUR!
AHA Rural Minnesota EMS Needs Assessment 2012

123 Ambulance Service Responses

- 54% ambulance units reported to be 12 L ECG equipped
- 33% ambulance units reported 12 L ECG Equipment needed
- 76% ambulance units reported transmission method support needed

Level of MN Providers

- 77% BLS Providers
- 23% ALS Providers
- 66% reported a need for 12 L ECG training

Pre-Hospital STEMI Activation

- 20% report Yes pre-hospital STEMI Activation
- 53% report yes to capable but No pre-hospital STEMI Activation
- 27% report unable to perform
Mission: Lifeline Grants

- South Dakota 2010
- North Dakota 2011
- Wyoming 2012
- Rural Minnesota 2013
ND Mission: Lifeline 7.1 Million 2011-2014

- The Leona M. and Harry B. Helmsley Charitable Trust
- State of ND
- Otto Bremer
- Dakota Medical Foundation
- American Heart Association
- 6 PCI Receiving Hospitals
- Anonymous private donor
M:L Grants

Rural MN 6.5 Million Grant 2013 – 2016

• The Leona M. and Harry B. Helmsley Charitable Trust
• Medtronic Foundation/Philanthropy
• Otto Bremer Foundation
• Shakopee Mdewakanton Sioux Community

Karla and Tim O’Donnell
Fred C. and Katherine B. Andersen Foundation
Thom Family Foundation
St. Luke’s Hospital and its Foundation

Additional in-kind gifts from the American Heart Association and many additional partners will total over $1 million
Age 35+ STEMI Death Rate per 100,000 by County (2000-2006)

Source: Centers for Disease Control and Prevention, National Center for Health Statistics, Compressed Mortality File 1999-2006. CDC WONDER On-line Database. ICD 10 I21 - I22.
2005-2009 Acute Myocardial Infarction (ICD10 I21 & I22)
35+ Age Adjusted Death Rate per 100,000
Hospital STEMI Treatment Capabilities

CDC Wonder On-line Database. ICD10 I21 & I22.
Scope of Project: Year 1

- Taskforce engagement and committee structure development
- EMS Equipment Allocation and placement, 12 L ECG curriculum and training plan development
- PCI Capable Receiving Hospital
  - Pre-hospital STEMI activation plan support through 12 L ECG Transmission receiving system, computer interpretation or paramedic recognition
- PCI Receiving Hospital ACTION-GWTG registry participation
Mission: Lifeline Committee Structure
Consensus Based Decision Making

• Mission: Lifeline Taskforce Executive Leadership Committee

• Mission: Lifeline Taskforce Quality Committee 2013-2014

• Mission: Lifeline Taskforce EMS Advisory Committee 2013-2014

• Mission: Lifeline Taskforce STEMI Hospital Advisory Committee

• Mission: Lifeline Taskforce STEMI Conference Planning Committee

• MN Time Critical Care Committee TCCC
Update From The Director

- ND M.L. Phase III EMS Education focuses on reinforcement of hands-on 12 L ECG training and working through scenarios that assist with real world application of the ND transport guidelines. The training begins in October and will be delivered statewide through July of 2014 with a group of 12 ND EMS trainers across the state. Additional tool kit materials are being provided by EMS trainers with the phase III curriculum including 12 L ECG Training, O2 and a Transmission step by step guide.

- Congratulations to 3 of our 6 Primary PCI capable facilities that achieved Silver recognition for excellence in Acute MI patient care through the ACTION® Registry-GWTG™ (STEMI and NSTEMI). Three of six achieved recognition in excellence through the Mission: Lifeline® (STEMI Only) achievement programs for the 2012 calendar year. Faculty members, American Heart Association leadership and volunteers will be honored and invited to celebrate this achievement during the 2013 Scientific Sessions Quality Awards Ceremony & Dinner in Dallas Texas.

- 88% of 44 ND hospitals are in process or have acquired 12 L ECG receiving systems which allow ER providers to transmit pre-hospital 12 L ECG’s directly to a provider to interpret! $13,000 in Grant funding is available now through the spring of 2013 to each ND Hospital to support 12 L ECG transmission receiving systems. Please contact Mindy for additional information or questions.

- ND M.L. Rush Referring Hospital STEMI protocol annual review will take place at our bi-annual teleconference meeting on October 22 in Jamestown ND.

- The ND M.L. Referring Hospital Education Physicians and Nurse peer to peer based Curriculum Plan 2 and hospital tool kit materials are being presented at each of the R rural referring hospitals by volunteer PCI Physician and Nurse STEMI champions representing each of the 3 PCI Capable facilities between now and March of 2014. Please take advantage of this on site training opportunity which brings the most recent evidence based recommendations for STEMI patient care, ND STEMI protocol recommendations, and training scenarios to your clinicians in your facility!

- "Entering the third year of Mission Lifeline project we have found that continued education and collaboration with referring hospitals is extremely important to achieve door to balloon goals. We’ve worked hard to develop our own" says Dr. Thomas A. Haiden, ND M.L. Co-Chair.

- "Our goal is to improve the overall STEMI care system in North Dakota and to increase the door to balloon times in our hospitals. We are dedicated to improving the quality of care that our patients receive and we are committed to working with our referring hospitals to achieve these goals."

- Three key goals for the next quarter will be to: 1) Close the remaining gaps in the number of hospitals with 12 L ECG transmission receiving system and ensure all EMS agencies are able to acquire and transmit 12 L ECG’s to their referring hospitals. 2) Ensure feedback mechanisms are in place to monitor and report data, and 3) Expand the public awareness campaign with encouraging patients to dial 9-1-1 when experiencing signs and symptoms of a heart attack. Mindy Cook Director of Mission: Lifeline ND & MN

ND M.L. Public Awareness: Campaign and Community Education Toolkits Available!

Many people in North Dakota die or are disabled from heart attack or cardiac arrest because they do not get lifesaving treatment in time. Timely treatment can mean the difference between returning to work or becoming permanently disabled. It can mean the difference between life and death.

Reducing the time it takes for people having a heart attack to get medical care is one goal of the American Heart Association’s Mission: Lifeline public education campaign.

The second goal is to increase the calling of 9-1-1 to activate the acute heart attack system of care. Emergency medical services (EMS) providers are equipped with knowledge and resources that can save lives and get heart attack patients the treatment they need in the shortest amount of time.

Your Life is on the Line: Call 9-1-1 at the First Heart Attack Warning Signs are available at no cost for use in all communities by EMS, First Responders, hospitals and clinics. Go to the ND M.L. Website to order materials and access online downloadable tools and resources.

ACTION GWTC® & Mission: Lifeline Recognition

- Essentia Health System Fargo Silver
- Sanford Medical Center Fargo Silver
- Sanford Medical Center Bismarck Silver
- St. Alexius Medical Center Bismarck Silver
- Trinity Health System Minot Silver

Sanford Health Bismarck 2012 M.L. Bronze Level Recognition

Sanford Health in Fargo 2012 M.L. Silver Level Recognition

Essentia Health in Fargo 2012 M.L. Bronze Level Recognition

ACTION: Registry-GWTG™ (STEMI/NSTEMI) 2012 Awards:
- Essentia Health System Fargo Silver
- Sanford Medical Center Fargo Silver
- Sanford Medical Center Bismarck Silver
- St. Alexius Medical Center Bismarck Silver
- Trinity Health System Minot Silver

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Questions, Comments or Suggestions?
www.heart.org/NDMissionOnline
Email to jess.cooks@heart.org or call 701-255-6327 or 1-800-437-9710

For more information or assistance contact:
jean.sandefur@heart.org 1-800-437-9710

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www.heart.org/NDMissionOnline
M:L MN Meetings and Conferences

Biannual MN M:L Taskforce in person meetings

- Monthly Teleconferences
- Subcommittee meetings

Annual STEMI Conference:

- Highlight MN successes and Lessons learned
- Hear from clinical experts about new science
- Network with peers to advance collaboration
- STEMI Survivor Celebration
- Recognize System excellence and award achievements
- MN April 23, 2014 Alexandria MN
- ND August 6, 2014 Jamestown, ND
EMS Year 1

- EMS Advisory Committee Role
  - Eligibility, Funding, and Equipment Implementation
    - EMS Regions: Application process, timeline, & FAQ
    - Scoring and Award notifications
  - EMS Education Plan Development
Pre-hospital ECG Interpretation Strategies

1. Automated computer algorithm
2. Direct paramedic interpretation
3. Wireless transmission with Physician Interpretation
• All Counties in ND have at least 1 ground ambulance
• 125 Licensed GROUND AMBULANCE SERVICES 108 BLS, 17 ALS,
• 98.4% or 123 agencies have received monitors to date
• Eligible agencies were eligible to receive at least one monitor allocation to enable them to acquire and transmit Pre-hospital 12 Leads
12 Lead ECG Capable Defibrillators

- Lifepak
- Phillips 14%
- Zoll 26%
- 60%
12 Lead ECG Placement

Place limb leads on soft tissue surfaces & not the bone according to the diagram on the upper right.

White RA = Upper Right Arm
Black LA = Upper Left Arm
Red LL - Lower Left Leg
Green RL = Lower Right Leg

Apply the 12 Lead ECG per diagram on upper right:

V1 = Palpate the patient’s chest & locate the right 4th intercostal space below the 4th rib
V2 = Place directly across the sternum on the left 4th intercostal space below the 4th rib
V3 = Skip
V4 = Place on the left 5th intercostal space below the midclavicular line
V3 = Place right in the middle of the imaginary line between V2 & V4
V5 = Skip
V6 = Place on the mid-axillary line on the left 5th intercostal space keeping it in a horizontal line (do not curve upward)
V5 = Place directly in the middle of V4 & V6 keeping it in a horizontal line
Ignore V4R
ND Mission: Lifeline EMS Phase III

Obtain a 12 L ECG on Patients who present with:

- Chest pain or persistent discomfort above the waist
- Chest pressure or tightness
- “Heartburn” or epigastric pain
- Complaints of “heart racing” or > 100 bpm
- Complaints of “heart too slow” or <60 bpm
- A syncopal episode or severe weakness
- New onset stroke symptoms
- Difficulty breathing or shortness of breath
- Cardiac Arrest with Return of Spontaneous Circulation (ROSC)

When?

- With the first set of vital signs and before oxygen and nitroglycerine (unless the patient is in respiratory distress or the room air SpO2 < 92%)
- Ideally, the 12-Lead ECG should be captured within 10 minutes of making patient contact (the “at patient” time)
- However, transport should NEVER be delayed to obtain a 12-lead ECG
- When possible transmit the 12-lead ECG to the receiving facility for provider interpretation and follow up with phone call to confirm the ECG transmission.
- If transmission is not possible call ahead with the monitor’s computer interpretation if it indicates Acute MI is detected.

Best Practices Female Patients:

- Alert and Cooperative patients can remove their own bra (privacy should be provided for them)
- To move a patients breast aside use the back of a gloved hand. When possible have the patient lift or more their own breast.
- Consider stocking gowns from the hospital to drape and protect the patients modesty
• 8 MN EMS Regions
EMS Regional Application and Allocation Plan

**Round 1, NW & WC regions**

- Open – July 26, 2013
- Close – Aug 23, 2013
- Final Review and Award – Sept. 13, 2013

**Round 2, NE & Central regions**

- Open – Oct. 7th, 2013
- Close – Nov. 8th, 2013
- Final Review and Award – Week of December 9th, 2013
EMS Regional Application and Allocation Plan

Round 3, SW & Metro

- Open – February 3rd, 2014
- Close – March 3rd, 2014
- Final Review and Award – Week of April 7th, 2014

Round 4, SC & SE Regions

- Open – April 28th, 2014
- Close – May 30th, 2014
- Final Review and Award – Week of June 30th, 2014
Rural MN Primary PCI Capable Hospitals

- Bemidji
- Duluth (2)
- Mankato
- St. Cloud
M:L PCI Receiving Hospitals

• Transmission Receiving Systems - PCI Receiving Hospitals
  • Rural PCI Receiving Hospitals eligible for up to $25,000 to be utilized towards a ECG Receiving Station 5 year license and Training

• ACTION Registry Get With The Guidelines
  • PCI Receiving Hospital Partial FTE Reimbursement
  • Rural MN, ND PCI Receiving Hospitals eligible for annual license reimbursement
  • Annual Quality Improvement Webinar focused on Mission: Lifeline Achievement measures and Objectives
  • Participation in regionalized Blinded M:L System Reports
### MISSION: LIFELINE RECEIVING CENTER RECOGNITION MEASURES FOR STEMI SYSTEMS OF CARE

- Door to first device ≤ 90 Minutes, non-transfer patients
- FMC to first device ≤ 90 Minutes, non-transfer patients
- Eligible patients receiving any reperfusion (PCI or Lytics)
- ASA within 24 hours
- ASA at Discharge
- Beta-blocker at Discharge
- Statins or lipid lowering drugs
- ACEI/ARB at discharge
- Smoking Cessation

### MISSION: LIFELINE REFERRING CENTER RECOGNITION MEASURES FOR STEMI SYSTEMS OF CARE

- Door to first ECG time < 10 Minutes
- Eligible patients receiving any reperfusion (PCI or Lytics)
- Door to Needle ≤ 30 Minutes
- Door In – Door Out ≤ 45 Minutes
- ASA within 24 hours
- ASA at Discharge
- Beta-blocker at Discharge
- Statins or lipid lowering drugs
- ACEI/ARB at discharge
- Smoking Cessation

Each measure must have at least 75% adherence. And the overall composite score must be at least 85%.
Mission: Lifeline Involvement

PARTICIPATION
- M:L Hospital Registration
- M:L System Registration
- Mission: Lifeline Social Community
- Quality Improvement/Data Analysis
- Mission: Lifeline Reports

RECOGNITION

ACCREDITATION
PCI Referring Hospitals

• Rural MN Referring Hospitals eligible for funding for 12 L transmission or recognition equipment funding may be available starting in January of 2014, ND

Funding available through Spring of 2014.

• Referring Hospital Education Phase I, and II
Scope of Project: Year 2

- Local, Regional, and State STEMI system of care development, optimizing the destination plans, rural protocols and feedback recommendation development.

- Referring Hospital and EMS Education Curriculum Development and Delivery – Learn Rapid STEMI ID and STEMI Provider Manual

- Public Awareness Campaign Assessment, and Development
Scope of Project: Year 3

- Phase II EMS/Hospital education
- Data Analysis and Quality Improvement
- Model sharing
- Public Awareness campaign delivery
- Sustainability Plan Execution
ND Mission: Lifeline Public Awareness Campaign

Importance is placed on immediately calling 911. Patient delay in reporting symptoms is one of the greatest obstacles to timely and successful care.

Toolkits available
ND Public Awareness Campaign

Know.

Familiarize yourself with all the warning signs of a heart attack.

Symptoms are not always severe—or limited to the typical chest pains you might expect.

- Chest discomfort pressure, squeezing, tobacco or pain
- Upper body pain or discomfort arm, back, neck, jaw, or stomach

Not all of these signs occur in every heart attack. Sometimes they go away and return.

Act.

Dial 9-1-1 immediately at the first sign of a heart attack.

- A heart attack is a life or death emergency.
- Half of heart attack victims die within an hour of the first symptoms.
- Your heart can suffer permanent damage the longer you wait.
- 9-1-1 operators can provide instructions that can help save your life.

Live.

Don't waste precious minutes driving yourself to the hospital.

- EMS will monitor and transmit vital signs to the hospital so they are ready when you arrive.
- Ambulances are equipped to start treatment immediately.
- Your chance of survival is much greater when you dial 9-1-1.
- If you drive, you could injure yourself or others if your symptoms worsen while driving.

Your life is on the line. Dial 9-1-1.

www.heart.org/NorthDakota
Mission: Lifeline ND STEMI
(ST-Segment Elevation Myocardial Infarction)
R.U.S.H. (Rural United STEMI Hospitals) Inter-Hospital Transfer Protocol

One-Call Phone & Fax Numbers

**Altru Health – Grand Forks**
Phone: 701-780-5206 or 1-855-425-8781
Fax: 701-710-1097

**Essentia Health – Fargo**
Phone: 701-364-8401
Fax: 701-364-8405

**Sanford Health – Bismarck**
Phone: 701-323-6150
Fax: 701-323-5751

**Sanford Health – Fargo**
Phone: 877-647-1225
Fax: 701-234-7203

**St. Alexius Medical Center – Bismarck**
Phone: 701-530-7699 or 1-877-735-7699
Fax: 701-530-7005

**Trinity Health – Minot**
Phone: 701-857-3000 or 1-800-223-1596
Fax: 701-857-3260

Upon Transfer Fax the following documents to the accepting facility:
- 12 L ECG
- ED Record
- Lab Results
- Current Medication Record
- ND M:L STEMI Rush Protocol
Mission: Lifeline ND STEMI (ST-Segment Elevation Myocardial Infarction) Protocol
R.U.S.H. (Rural United STEMI Hospitals) Inter-Hospital Transfer

DEFINITION FOR STEMI
- ST elevation at the J point in at least 2 contiguous leads of ≥2 mm (0.2 mV) in men or ≥1.5 mm (0.15 mV) in women in leads V1-VQ and/or ≥1 mm (0.1 mV) in other contiguous chest leads or the limb leads.
- New or presumably new LBBB at presentation occurs infrequently, may interfere with ST-elevation analysis, and should not be considered diagnostic of acute myocardial infarction (MI) in isolation. If doubt persists, immediate referral for invasive angiography may be necessary. Consult with PCI receiving center.
- ECG demonstrates evidence of ST depression suspected of a Posterior MI consult with PCI receiving center.
- (If initial ECG is not diagnostic but suspicion is high for STEMI, obtain serial ECG at 5-10 minute intervals)

Air Transport: ☐ ☐ ☐ Ground Transport: ☐ ☐ ☐ Estimated Transport Time to PCI Facility ☐ ☐ ☐ Estimated Transport Time to PCI Facility ☐ ☐ ☐

Choose STEMI Receiving Hospital
☐ Hospital
☐ Call: ☐ ☐ ☐ Request Activation of STEMI Protocol
☐ Fax records to ☐ ☐ ☐

STANDARD ORDERS & LABS
☐ Apply Cardiac Monitor.
☐ Start 2 peripheral IVs (0.9% NaCl TKO or Saline lock)
☐ O2-MB and Tropicin ☐ Glucose ☐ INR
☐ (Standard) Panel ☐ Magnesium ☐ aPTT
☐ CBC ☐ Other:

Choose One Pathway
☐ PRIMARY PCI – ACTIVATE CATH LAB
Goal: Medical Contact to PCI (Balloon) LESS THAN 120 minutes
☐ Aspirin 324 mg chewed
☐ Plavix 600 mg PO
☐ Heparin IV Bolus (70 Units/kg, max 5,000 Units)
☐ Heparin IV Drip (15 Units/kg/hr, max 1,000 Units/hr)
☐ Transport patient directly to Cath Lab for Percutaneous Coronary Intervention.
☐ Do not give Fibranolysics (TnKase, rPA, or tPA)
☐ Administer Oxygen as needed to keep SpO2 > 92%

☐ FIBRINOLYSIS
Goal: If Medical Contact to PCI anticipated to be ≥ 120 min, Door to Needle Lytic goal: LESS THAN 30 minutes
☐ Aspirin 324 mg chewed
☐ Tenecteplase IV (TNKase) per attached protocol
☐ Plavix 300 mg PO (Consult with cardiology regarding administration)
☐ Heparin IV Bolus (60 Units/kg, max 4,000 Units)
☐ Heparin IV Drip (12 Units/kg/hr, max 1,000 Units/hr)
☐ Transport patient directly to PCI capable hospital
☐ Administer Oxygen as needed to keep SpO2 > 92%

MD Signature: ____________________________ Date: ____________ Time: ______________

PHYSICIAN’S ORDERS
Regional Hospital: ________________________
Regional Hospital City: ____________________
Regional ED Phone: ________________________
ED Physician (print name): __________________
Draft Current 2-20-2013

Patient Name: ____________________________
### Mission: Lifeline ND STEMI (ST-Segment Elevation Myocardial Infarction) Protocol

**R.U.S.H. (Rural United STEMI Hospitals) Inter-Hospital Transfer**

**NURSING DOCUMENTATION**

<table>
<thead>
<tr>
<th>Tienectapase (TNKase) Dosing</th>
<th>Weight</th>
<th>Height</th>
<th>Age</th>
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<tbody>
<tr>
<td>Patient weight (kg)</td>
<td>TNK (mg)</td>
<td>TNK (mL)</td>
<td></td>
</tr>
<tr>
<td>Less than 80 kg</td>
<td>30 mg</td>
<td>6 mL</td>
<td></td>
</tr>
<tr>
<td>80 or more but less than 70</td>
<td>35 mg</td>
<td>7 mL</td>
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<td>70 or more but less than 80</td>
<td>40 mg</td>
<td>8 mL</td>
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<tr>
<td>80 or more but less than 90</td>
<td>45 mg</td>
<td>9 mL</td>
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</tr>
<tr>
<td>90 or more but less than 100</td>
<td>50 mg</td>
<td>10 mL</td>
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</tr>
</tbody>
</table>

**ABSOLUTE CONTRAINDICATIONS FOR FIBRINOLYSIS (TNK) IN STEMI**

1. Any prior intracranial hemorrhage
2. Known structural cerebrovascular 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 acute dissection
6. Active bleeding or bleeding diathesis (excluding meningi)
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
(WBP > 180 or DBP > 110 mmHg)
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 non-traumatic head (within last 2 weeks)
7. Noncompressible vascular puncture
8. Thrombolysin-associated prior exposure (more than 7 days) or prior allergic reaction to these agents
9. Pregnancy
10. Active peptic ulcer
11. Current use of anticoagulants the higher the HR.
12. Symptomatic onset > 6 hrs. prior to presentation consult Cardiology

**Notes:**

- [Insert notes here]

**Hospital**

- [Hospital name]

**Call:** [Routing number]

- Request Activation of STEMI Protocol
- Cell Report, when patient leaves your hospital and confirm update ETA
- Fax records to [Routing number]

**Fax ECG, ED physician and Nurses documentation and send with patient - do not delay transport**

- Fax all paperwork to referring hospital (ECG, Labs, Orders, Physician Orders, Notes, Medication administration record)

**Please Document Times:**

1. Chest Pain Onset Pain Scale 0-10 (10 being severe)
2. Pre-Hospital ECG time (if available)
3. Regional Hospital Arrival
4. Regional Hospital 1st ECG Time
5. 2nd ECG Time (if 1st is negative)
6. Time Transport Called
7. STEMI Protocol Activation (STEMI Hospital 1st Called)
8. Time Transport Arrives
9. Regional Hospital Departure

**Allergies:**

- [Allergy list]

**Emergency Contact Name:**

- [Name]

**Phone:** [Phone number]

**RN Name (Print):**

- [Name]

**RN Signature:**

- [Signature]

**RN Initials:**

- [Initials]

**Date:**

- [Date]

**Time:**

- [Time]

**Print:**

- [Print]

**Fax:**

- [Fax number]
STEMI Coordinator Role
each regional PCI Center will send a detailed report including treatment goal achievement metrics, suggestions for improvement, interventional procedural summary and discharge outcome.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Actual Time</th>
<th>Timeline In minutes</th>
<th>Goal</th>
<th>Goal Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Medical Contact to ECG (EMS or Hospital)</td>
<td></td>
<td>&lt;10 minutes after arrival</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEMI Recognition to Transfer Dispatch</td>
<td></td>
<td>&lt;10 minutes after STEMI ECG</td>
<td></td>
<td></td>
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<tr>
<td>Referring Hospital Door to Lytic Administration (if applicable)</td>
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<td>&lt;30 minutes after arrival to ED</td>
<td></td>
<td></td>
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<tr>
<td>Referring Hospital Door in to Door Out (DIDO)</td>
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<td>Primary PCI Goal: &lt;30 minutes after arrival to ED</td>
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<tr>
<td>1st Medical Contact to Reperfusion by Primary PCI</td>
<td></td>
<td>Primary PCI Goal: &lt; 120 minutes</td>
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</tr>
</tbody>
</table>

STEMI Medications given:

<table>
<thead>
<tr>
<th>Goal met</th>
<th>Goal not met</th>
</tr>
</thead>
</table>

◆ A more detailed STEMI feedback report regarding patient outcome D2B times will be provided as soon as details are available

PCI Hospital __________________________ Cardiologist __________________________
Contact: __________________________ Phone: __________________________
email: __________________________
Feedback: Building regional system

Process

Establish REGIONAL PCI CENTERS (primary, lytic ineligible, rescue)

Measurement & Feedback

Develop leadership, funding, data structure

EMS by EMS establishment of STEMI plan (review, consensus, training)

HOSPITAL by hospital establishment of STEMI plan (review, consensus, training)

Improve system
ND House Bill 1175 Acute Cardiovascular Emergency Medical System

Sixty-third Legislative Assembly of North Dakota
In Regular Session Commencing Tuesday, January 8, 2013

HOUSE BILL NO. 1175
(Representatives Porter, Bellows, J. Nelson)
(Senators Carstens, Dever, O’Connell)

AN ACT to create and enact a new chapter to title 23 of the North Dakota Century Code, relating to an acute cardiovascular emergency medical system.

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF NORTH DAKOTA:

SECTION 1. A new chapter to title 23 of the North Dakota Century Code is created and enacted as follows:

Definitions.
As used in this chapter:

1. “Department” means the state department of health.

Acute cardiovascular emergency medical system - Duties of state department of health.

1. Following consultation with and receipt of a recommendation of the acute cardiovascular emergency medical system care advisory committee, the department shall establish and maintain a comprehensive emergency cardiovascular medical system for the state. The system must include standards for the following components:
   a. A system plan.
   b. Prehospital emergency medical services.
   c. Hospitals, for which the standards must include:
      (1) Standards for designation, redesignation, and designation of receiving and referring centers.
      (2) Standards for evaluation and quality improvement programs for designated centers.
      (3) Recognition of a hospital as a STEMI receiving center or as a STEMI referring center. In making such recognition, the standards much include consideration of whether the hospital is:
          (a) Accredited as a mission: lifeline STEMI receiving center or mission: lifeline STEMI referring center by the society of cardiovascular patient care and the American heart association accreditation process, or
          (b) Accredited by a department-approved, nationally recognized organization that provides mission: lifeline STEMI receiving center and mission: lifeline STEMI referring center accreditation or a substantive equivalent.
      d. System registries, for which the components must include a plan for achieving continuous quality improvement in the quality of care provided under the statewide system, including for STEMI response and treatment.
Questions??

Mindy Cook, RN BSN

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www.heart.org/missionlifelinemn