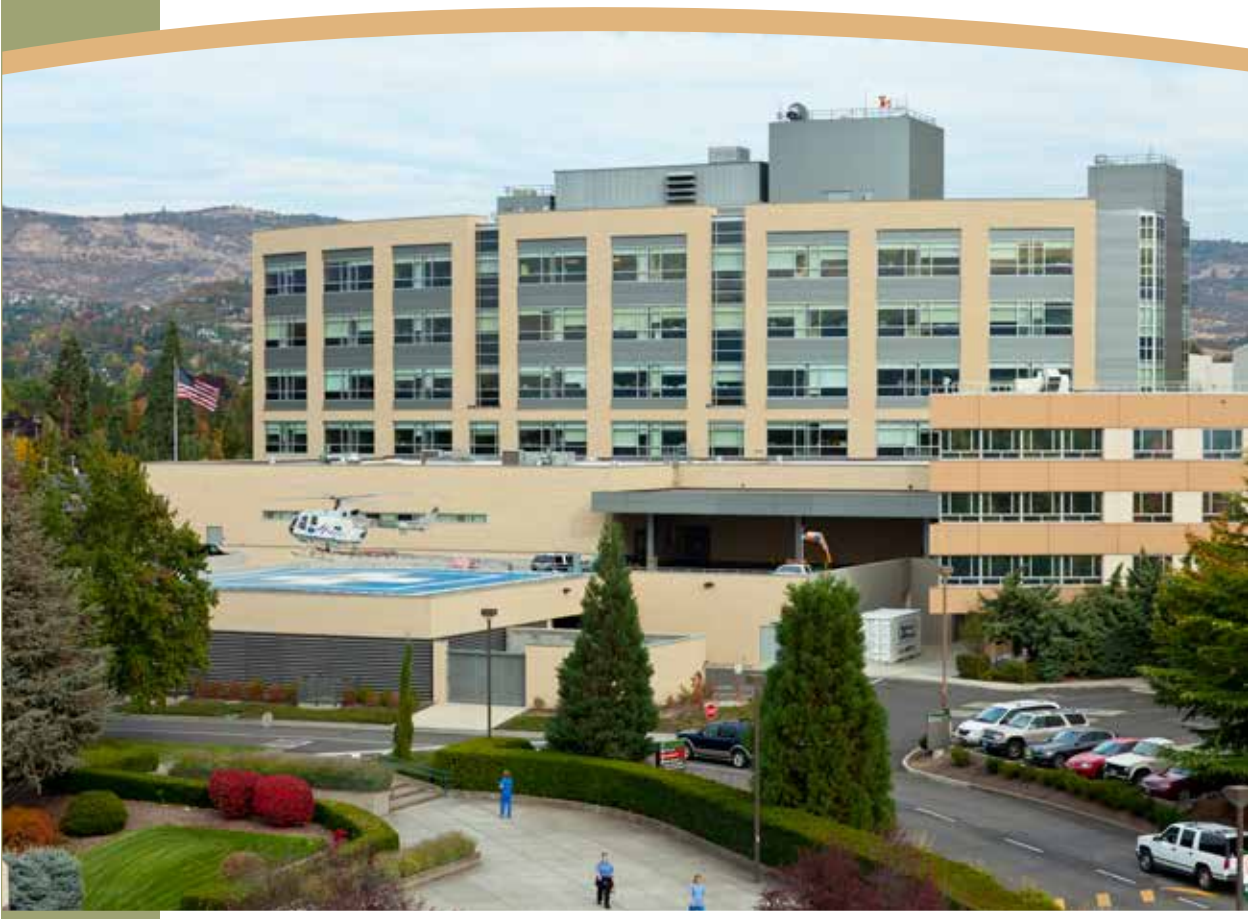
STEMI (ST Elevation Myocardial Infarction)

- *Emergent Transfer for Stenting*
- *Thrombolysis then Transfer*

OHCA (Out of Hospital Cardiac Arrest)

- *Hypothermia*



OCTOBER 2012

ASANTE®
Rogue Regional Medical Center

ASANTE ROGUE REGIONAL MEDICAL CENTER

ACTIVATION PHONE NUMBERS

(Asante Rogue Regional is *never* closed to STEMI/OHCA transfers)

STEMI Activation . . . . . (541) 951-0097

OHCA Transfer . . . . . (541) 951-0097

Reference Numbers:

House Supervisor . . . . . (541) 951-0097

Emergency Department . . . . . (541) 789-7132

Main Number . . . . . (541) 789-7000

Coronary Care Unit (CCU) . . . . . (541) 789-4228

Southern Oregon Cardiology . . . . . (541) 789-6606

Brian W. Gross, MD, FACC, FAHA
(STEMI Physician Director) . . . . . (541) 282-6623
(Nonemergent voice-mail)

Fax Numbers:

Emergency Department . . . . . (541) 789-7111

Cath Lab . . . . . (541) 789-4735

CCU . . . . . (541) 789-5926

We would like to thank you for the care you initiate with the ST-segment elevation myocardial infarction (STEMI) and cardiac arrest patients we share. Working with your emergency department has been a medically exciting and rewarding process, and we appreciate the opportunity to work with your team during the emergent care of these mutual patients.

STEMI care is rapidly evolving. The speed of door-to-balloon stenting or thrombolytic administration is a metric followed and graded by Medicare. The challenge of appropriate patient selection for rapid thrombolytic administration or for emergent stenting are strategies that translate into substantial myocardial salvage and lives saved. We are proud to say our overall STEMI responses and outcomes are among the best in the nation.

Likewise, Out of Hospital Cardiac Arrest (OHCA) involves aggressive therapies, including emergent hypothermia for victims of cardiac arrest, and are yielding dramatically improved outcomes.

To keep abreast of the latest medical recommendations regarding thrombolysis, stenting, hypothermia, and adjunctive medical therapy, we have put together this resource, which we hope you will find useful during these cardiovascular emergencies. It is compiled from the American College of Cardiology and the American Heart Association STEMI and OHCA guidelines.

We are always interested in hearing about ways we may be able to make the transfer process easier for you and safer for your patients. Thank you for including us in the care of your patients.

Sincerely,

Brian W. Gross, MD, FACC, FAHA
STEMI Physician Director
(541) 282-6623
(nonemergent voice-mail)

CONTENTS

STEMI Transfer for Immediate Stenting

Section 1

STEMI Protocol for Emergent Transfer to Asante Rogue Regional Medical Center Cath Lab

(formerly known as ASSET)

STEMI ACTIVATION CRITERIA
for Jackson, Josephine, and Northern Siskiyou Counties

- Heart equivalent discomfort for ≤ 12 hours
- Age < 86
- No fully paced rhythm
- no LBBB;
- VF/VT converted to perfusing rhythm with stable vital signs
  And ECG showing STEMI > 5 minutes after last defibrillation

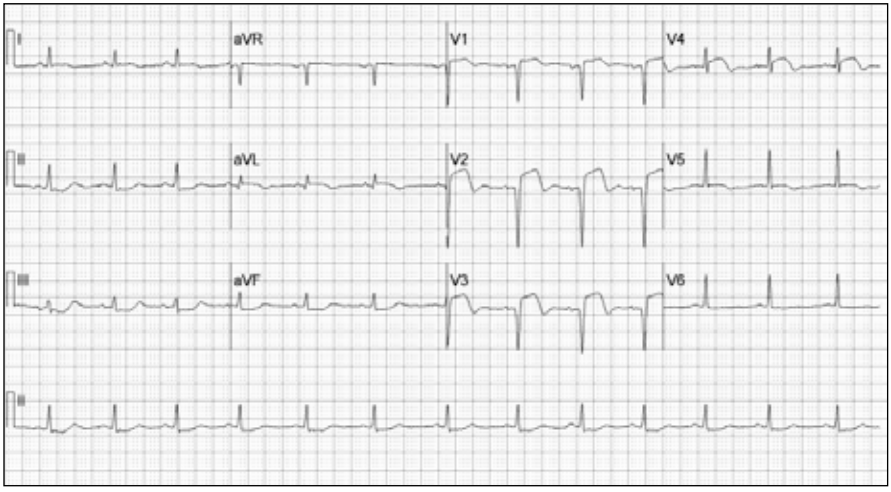
AND

- EMS ECG printouts states ***Acute MI***

OR

- Physician/EMT diagnosis of STEMI with 2 mm ST elevation (J-point) in 2 contiguous anterior leads V1-3 or 1 mm ST elevation in 2 contiguous leads II, III, AVF or I, AVL, V4-6

If other than STEMI criteria (i.e., LBBB, non-dx ECG, age > 86, > 12 hours since onset of symptoms, VF without STEMI ECG, unstable angina), consult with cardiologist: (541) 789-6606



GOAL: DOOR-TO-ECG ≤ 10 MINUTES

TO ACTIVATE A STEMI TRANSFER

- Referring hospital emergency room physician or charge RN:
  - –**STAT** contact EMS for transfer (Asante Rogue Regional **always** accepts STEMI patients)
  - –**STAT** call to Asante Rogue Regional nursing supervisor: **(541) 951-0097**
  - –**Give critical meds and get critical labs (listed below)**
  - –Fax ECG and labs to Cath Lab: **(541) 789-4735**
  - –Fax registration facesheet to Asante Rogue Regional Patch Desk: **(541) 789-7139**
- Asante Rogue Regional's cardiologist will be notified by a nursing supervisor and cardiologist will call back referring physician STAT
- Asante Rogue Regional's nursing supervisor will take nursing report or transfer call to CCU nurse

CRITICAL MEDS

- ASA 162 mg (chewable)
- Standard Heparin 4,000 units, IV bolus (no drip)
- NTG, morphine, and dopamine PRN
- Thrombolytic protocol if > 120 minutes estimated Door-to-Balloon (please consult with accepting cardiologist prior to thrombolytic administration): (541) 789-6606

Note: *IV beta-blockers should not be administered to STEMI patients who have any of the following:*

- *Signs of heart failure or a low output state*
- *Increased risk of cardiogenic shock*
- *Second- or third-degree heart block*
- *Active asthma*
- *Relative contraindication PR interval > 0.24 sec*

CRITICAL LABS

- CBC, CMP, CK, Troponin, and INR
- CXR only if does not cause delay in transfer

GOAL: 30-MINUTE ED DOOR-TO-TRANSFER TIME

Medical Issues That May Prompt Further Discussions with Cardiologist before STEMI Activation

- Uncertain history or ECG…worrisome for acute STEMI
- Possible posterior MI (deep anterior ST depressions)
- Greater than 12 hours of STEMI heart equivalent discomfort
- Age ≥ 86
- LBBB
- Fully paced rhythm
- Known DNR status
- Known non-interventional status from prior heart cath
- Known severe vascular access issues
- Known creatinine > 2.5 mg/dL
- Known anaphylactoid reaction to IV contrast
- Known HITT or HATT (heparin) reactions
- Cardiac arrest with prolonged downtime
- Active or recent major bleeding or surgery
- Severe respiratory distress that requires intubation
- Nursing home origin
- Significant dementia

IF YOU HAVE QUESTIONS OR CONCERNS REGARDING YOUR PATIENT, EVEN IF THEY DO NOT MEET STEMI CRITERIA, PLEASE CALL SOUTHERN OREGON CARDIOLOGY AT (541) 789-6606.

STEMI Thrombolysis then Transfer

Section 2

STEMI Thrombolysis Protocol

TNKase (Tenecteplase)

ASA 162 mg chewed + clopidogrel 300 mg po for age < 75
or 75 mg po for age ≥ 75

+

Weight	TNKase
< 60 kg:	30 mg IV
60–69 kg:	35 mg IV
70–79 kg:	40 mg IV
80–89 kg:	45 mg IV
> 90 kg:	50 mg IV

+

Heparin (Standard)

PREFERRED

Bolus 60 units/kg IV
(max: 4,000 units IV)

Drip 12 units/kg/hr IV
(max: 1,000 units/hr IV)

or

Age	Enoxaparin (LMW Heparin)
< 75	30 mg IV bolus plus 1.0 mg/kg SQ q12 hr (maximum SQ dose 100 mg for first 2 doses)
≥ 75	0.75 mg/kg SQ q12 hr (no IV bolus) (maximum SQ dose 75 mg for first 2 doses)

If chronic kidney disease (CrCl < 30 cc/min), give same load as above, then 1.0 mg/kg SQ q24 hr for any age

Note: *Avoid IV beta-blocker if CHF, low output, large MI, shock, heart block*

FOR EARLY TRANSFER TO ASANTE ROGUE REGIONAL:

- Call the cardiologist on call: **(541) 789-6606**
  —If unable to reach the cardiologist immediately, call the Asante Rogue Regional nursing supervisor: **(541) 951-0097**
- Please fax records to CCU: **(541) 789-5926** and also to Cath Lab: **(541) 789-4735**

STEMI Thrombolysis Protocol

Retavase (Reteplase)

ASA 162 mg chewed + clopidogrel 300 mg po for age < 75
or 75 mg po for age ≥ 75

+

Reteplase (Retavase)
10 units IV
followed 30 minutes later
by an additional
10 units IV

+

Heparin (Standard)
PREFERRED

Bolus 60 units/kg IV
(max: 4,000 units IV)

Drip 12 units/kg/hr IV
(max: 1,000 units/hr IV)

or

Age	Enoxaparin (LMW Heparin)
< 75	30 mg IV bolus plus 1.0 mg/kg SQ q12 hr (maximum SQ dose 100 mg for first 2 doses)
≥ 75	0.75 mg/kg SQ q12 hr (no IV bolus) (maximum SQ dose 75 mg for first 2 doses)
	If chronic kidney disease (CrCl < 30 cc/min), give same load as above, then 1.0 mg/kg SQ q24 hr for any age

Note: *Avoid IV beta-blocker if CHF, low output, large MI, shock, heart block*

FOR EARLY TRANSFER TO ASANTE ROGUE REGIONAL:

- Call the cardiologist on call: **(541) 789-6606**
  —If unable to reach the cardiologist immediately, call the Asante Rogue Regional nursing supervisor: **(541) 951-0097**
- Please fax records to CCU: **(541) 789-5926** and also to Cath Lab: **(541) 789-4735**

Considerations Prior to Thrombolysis

Section 3

STEMI: Indications for Thrombolysis

Indications for Fibrinolytic Therapy

CLASS I (Benefit >>> Risk)

1. In the absence of contraindications, fibrinolytic therapy should be administered to STEMI patients with symptom onset within the prior 12 hours and ST elevation greater than 0.1 mV in at least two contiguous precordial leads or at least two adjacent limb leads. (Level of Evidence: A)

   Based on current literature review, Asante Rogue Regional recommends 2mm ST elevation at the J point for 2 adjacent leads V1-3

2. In the absence of contraindications, fibrinolytic therapy should be administered to STEMI patients with symptom onset within the prior 12 hours and new or presumably new LBBB. (Level of Evidence: A)

CLASS IIA (Benefit >> Risk)

1. In the absence of contraindications, it is reasonable to administer fibrinolytic therapy to STEMI patients with symptom onset within the prior 12 hours and 12-lead ECG findings consistent with a true posterior MI. (Level of Evidence: C)
2. In the absence of contraindications, it is reasonable to administer fibrinolytic therapy to patients with symptoms of STEMI beginning within the prior 12 to 24 hours who have continuing ischemic symptoms and ST elevation greater than 0.1 mV in at least two contiguous precordial leads or at least two adjacent limb leads. (Level of Evidence: B)

Class III: Contraindications to Give Thrombolytic

1. Fibrinolytic therapy should not be administered to asymptomatic patients whose initial symptoms of STEMI began more than 24 hours earlier. (Level of Evidence: C)
2. Fibrinolytic therapy should not be administered to patients whose 12-lead ECG shows only ST-segment depression except if a true posterior MI is suspected. (Level of Evidence: A)

ACC/AHA Guidelines for the Management of ST-Elevation Myocardial Infarction 2004

STEMI Thrombolysis

ABSOLUTE CONTRAINDICATIONS

- Intracranial hemorrhage on CT
- Ischemic Stroke in the past three months
- Presence of a cerebral vascular malformation, aneurysm, or neoplasm
- Suspected aortic dissection
- Bleeding diathesis or active bleeding (exception of menses)
- Intracranial or intraspinal surgery within the previous 2 months
- Significant closed-head or facial trauma within the previous 3 months
- Severe hypertension despite treatment (> 180/110)

RELATIVE CONTRAINDICATIONS

- History of intracranial hemorrhage
- History of chronic, severe, poorly controlled hypertension
- History of ischemic stroke more than 3 months previously
- Dementia
- Any known intracranial disease that is not an absolute contraindication
- Traumatic or prolonged (>10 min) CPR
- Major surgery within the preceding three weeks
- Recent (< 4 week) history of internal bleeding or an active peptic ulcer
- Noncompressible vascular punctures
- Pregnancy
- Current anticoagulant use
- Severe hepatic or renal impairment

IF YOU HAVE QUESTIONS OR CONCERNS REGARDING YOUR PATIENT, EVEN IF THEY DO NOT MEET STEMI CRITERIA, PLEASE CALL SOUTHERN OREGON CARDIOLOGY AT (541) 789-6606.

Epocrates Rx Online Premium. (2012). Retavase (retaplase)/TNKase (tenecteplase) Contraindications/Cautions. Retrieved from http://WWW.online.epocrates.com

UpToDate. (2012). Absolute and relative contraindications to the use of thrombolytic therapy in patients with acute ST elevation myocardial infarction.Retrieved from http://WWW.uptodate.com

Out of Hospital Cardiac Arrest (OHCA) and Hypothermia

Section 4

OHCA/Hypothermia Candidates

Out of Hospital Cardiac Arrest care is a new section in the 2010 American Heart Association Guidelines for ACLS. A structured multidisciplinary approach to care post-cardiac arrest, including the implementation of therapeutic hypothermia as soon as possible for appropriate patients, can improve survival to hospital discharge.

In addition to the STEMI program, Asante Rogue Regional provides therapeutic hypothermia after cardiac arrest for patients who meet criteria.

Early cooling and prompt transfer allows additional post-resuscitation care to be started early, giving the patient the best chance for survival and neurologic recovery.

TO INITIATE AN OUT OF HOSPITAL CARDIAC ARREST TRANSFER OR FOR QUESTIONS, CALL ASANTE ROGUE REGIONAL AT (541) 951-0097.

OHCA/Hypothermia (Out of Hospital Cardiac Arrest)

Transfer to Asante Rogue Regional Medical Center

TO INITIATE AN OHCA/HYPOTHERMIA TRANSFER

- Referring hospital emergency room physician or charge RN:
  - — Review Inclusion and Relative Exclusion Criteria
  - — Call Asante Rogue Regional nursing supervisor: **(541) 951-0097** to initiate transfer or for questions
  - — Consider a noncontrast head CT for patients with the following indications:
    - Obvious signs of focal stroke symptoms prior to unresponsiveness
    - Witnessed head trauma or evidence of head injury
    - Obvious signs of seizure activity
    - Coagulopathy (INR > 2.5 or platelets < 75,000)

  Obtaining a head CT should not delay transfer or interfere with rapid transfer to the cardiac cath lab (if indicated).
  - — Apply ice pack to the patient's neck, axillae, and groin during transport to Asante Rogue Regional

INCLUSION CRITERIA

All boxes must be checked

- ❑ Primary cardiac arrest with return of spontaneous circulation (ROSC) within 60 minutes
- ❑ Unresponsive or not following commands after cardiac arrest
- ❑ Age > 18 years
- ❑ Hypothermia therapy to be initiated as soon as possible (within 6 hours of cardiac arrest)

*RELATIVE EXCLUSION CRITERIA

- ❑ Pulseless electrical activity (PEA) or asystole as first rhythm
- ❑ Continued ventricular arrhythmias
- ❑ Time from arrest to CPR greater than 15 minutes
- ❑ Advanced directive with DNR
- ❑ MAP less than 60 despite adequate fluid resuscitation and high-dose vasopressors
- ❑ End-stage terminal disease or life expectancy < 6 months
- ❑ Pregnancy; if not confirmed, send urine HCG
- ❑ Active bleeding/coagulopathy (INR > 3.0, Plt < 50,000)
- ❑ Known or suspected systemic infection/sepsis
- ❑ Within 72 hours of a major operative procedure

* *All exclusions are relative contradictions. If you have questions, please call the nursing supervisor at (541) 951-0097; they will put you in contact with the cardiologist or intensivist.*

TO INITIATE AN OHCA/HYPOTHERMIA TRANSFER OR FOR QUESTIONS, CALL ASANTE ROGUE REGIONAL AT (541) 951-0097

ASANTE ROGUE REGIONAL MEDICAL CENTER

ACTIVATION PHONE NUMBERS

(Asante Rogue Regional is *never* closed to STEMI/OHCA transfers)

STEMI Activation . . . . . (541) 951-0097

OHCA Transfer . . . . . (541) 951-0097

Reference Numbers:

House Supervisor . . . . . (541) 951-0097

Emergency Department . . . . . (541) 789-7132

Main Number . . . . . (541) 789-7000

Coronary Care Unit (CCU) . . . . . (541) 789-4228

Southern Oregon Cardiology . . . . . (541) 789-6606

Brian W. Gross, MD, FACC, FAHA
(STEMI Physician Director) . . . . . (541) 282-6623
(Nonemergent voice-mail)

Fax Numbers:

Emergency Department . . . . . (541) 789-7111

Cath Lab . . . . . (541) 789-4735

CCU . . . . . (541) 789-5926

Asante Rogue Regional Medical Center and
Asante Three Rivers Medical Center are members of Asante—
a mission-driven, not-for-profit health system
created by and for the people of
Southern Oregon and Northern California.
To support the work of these Asante facilities, to honor someone,
or to learn about planned giving, contact the
Asante Foundation in Medford at (541) 789-5025,
in Grants Pass at (541) 472-7300,
or via e-mail at foundationinfo@asante.org.

ASANTE®
Rogue Regional Medical Center

2825 East Barnett Road | Medford, OR 97504

(541) 789-7000 | ***asante.org***

12CARDO21

12CM-CARD-OOOO10_09/12/12