Clinical Standardization

ACUTE CORONARY SYNDROME (STEMI & NSTEMI), ADULT, EMERGENCY DEPARTMENT & INPATIENT, PATHWAY

Updated: February 14, 2023

Clinical Pathway Summary

CLINICAL PATHWAY NAME: ACUTE Coronary Syndrome (STEMI and NSTEMI)

PATIENT POPULATION AND DIAGNOSIS: Adult patients presenting with STEMI

APPLICABLE TO: Butterworth, Blodgett, Regionals

BRIEF DESCRIPTION: Criteria for Cath Lab activation for:
STEMI at Butterworth, STEMI at Blodgett, STEMI at Regional location, and Rendezvous STEMI.
Also included: Butterworth ED STEMI physician check list, STEMI Alert Physician Checklist PCI Option for Blodgett or Regional Spaces, Fibrinolytic Assessment Worksheet, and Emergency Department Treatment of Likely NSTE-ACS

OPTIMIZED EPIC ENHANCEMENTS: ED Chest Pain and STEMI, ED Obs Chest Pain

IMPLEMENTATION DATE: October 2022

LAST REVISED: February 2023

Pathway Information

OWNER(S): Dr. Trevor Cummings, Dr. Jeffrey Decker, Dr. Ryan Madder

EXPERT IMPROVEMENT TEAM (EIT): ED Cardiac Care and Clinical Cardiology

CLINICAL PRACTICE COUNCIL (CPC): Cardiovascular Health, Acute Health

CPC APPROVAL DATE: September 23, 2022 & November 1, 2022

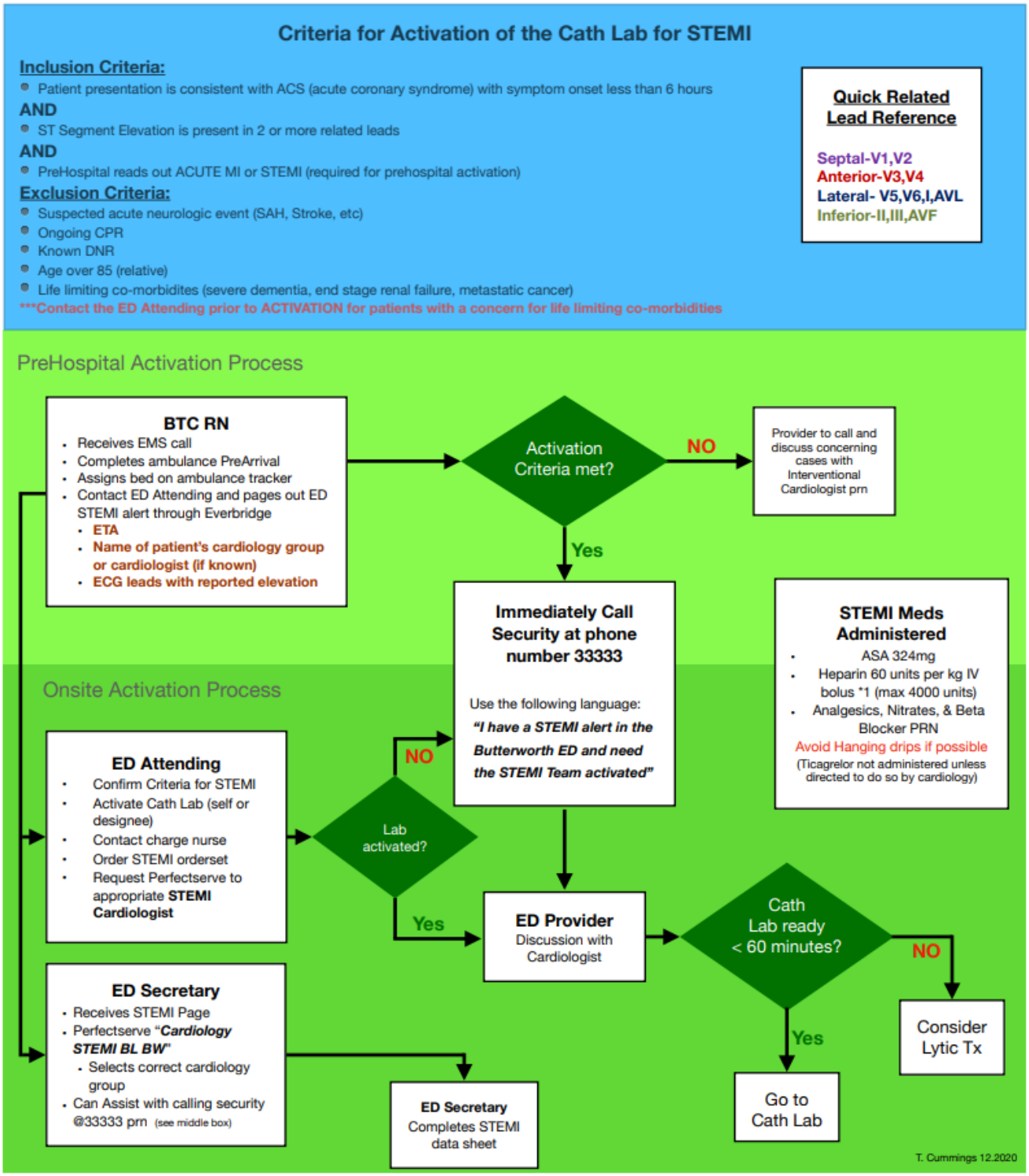
OTHER TEAM(S) IMPACTED: Physicians, Nursing, Secretary, Transfer Center, Cath Lab, Acute Health CPC

Clinical pathways clinical approach

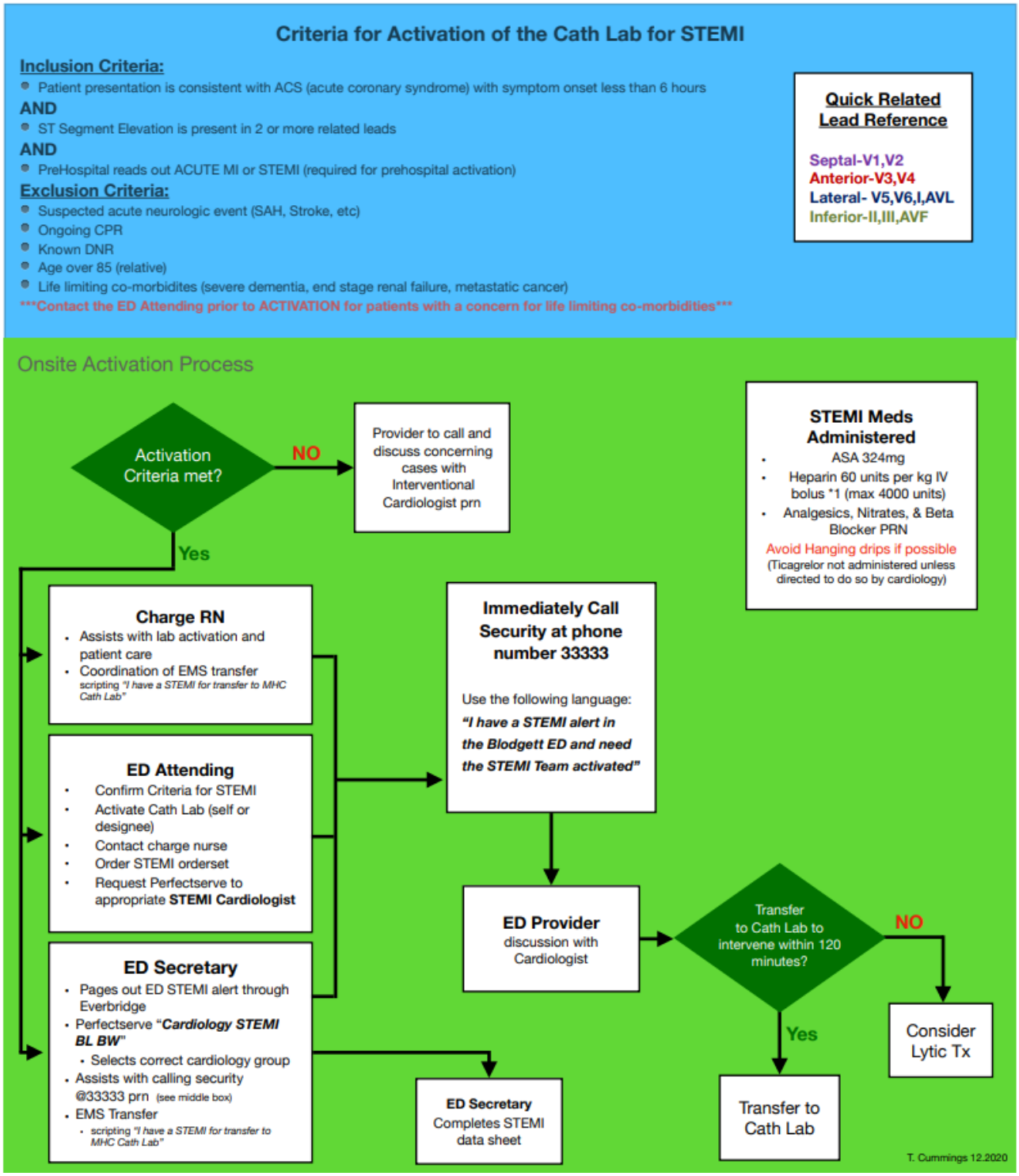
TREATMENT AND MANAGEMENT:

Clinical algorithms:

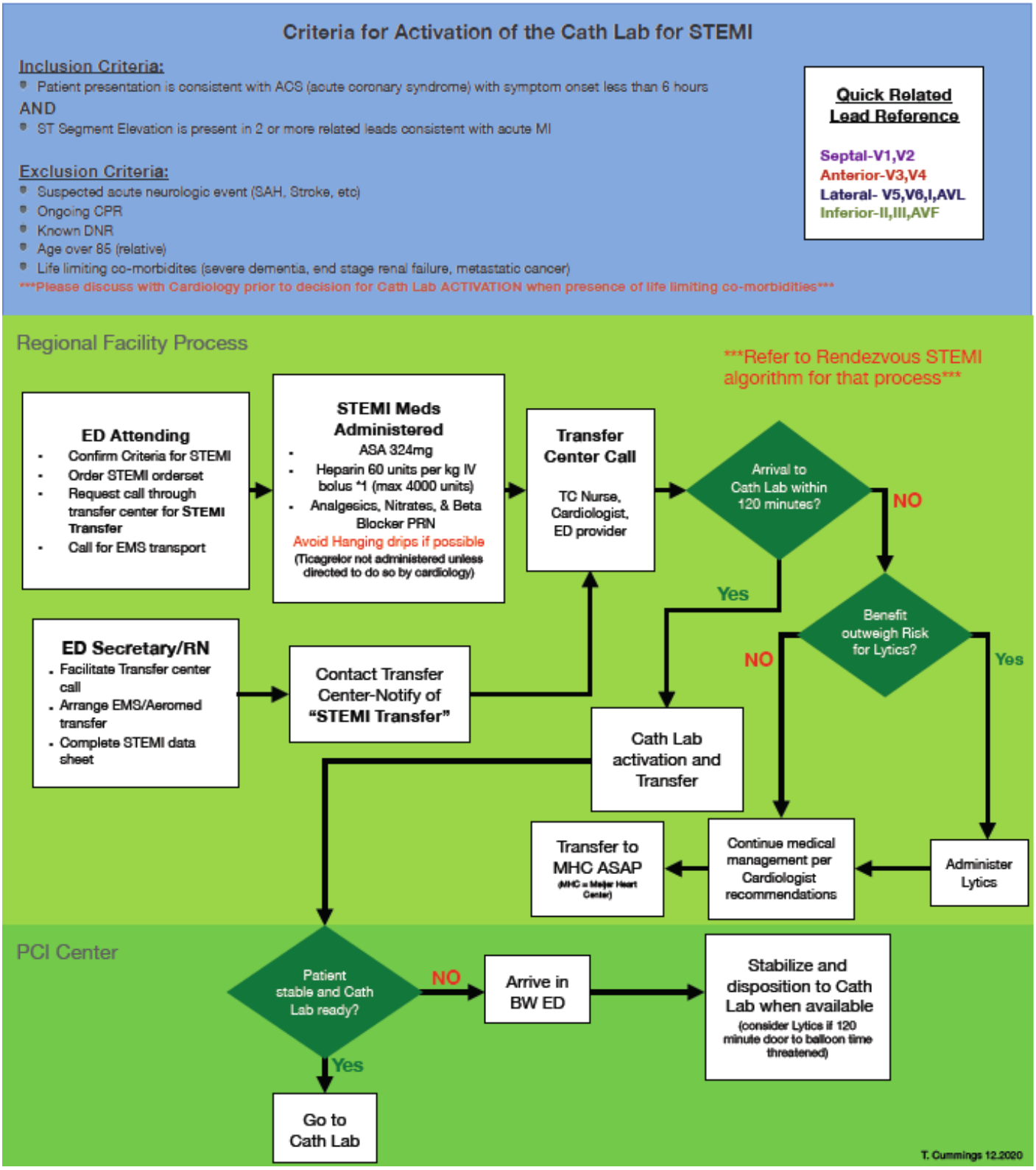
Butterworth Hospital STEMI



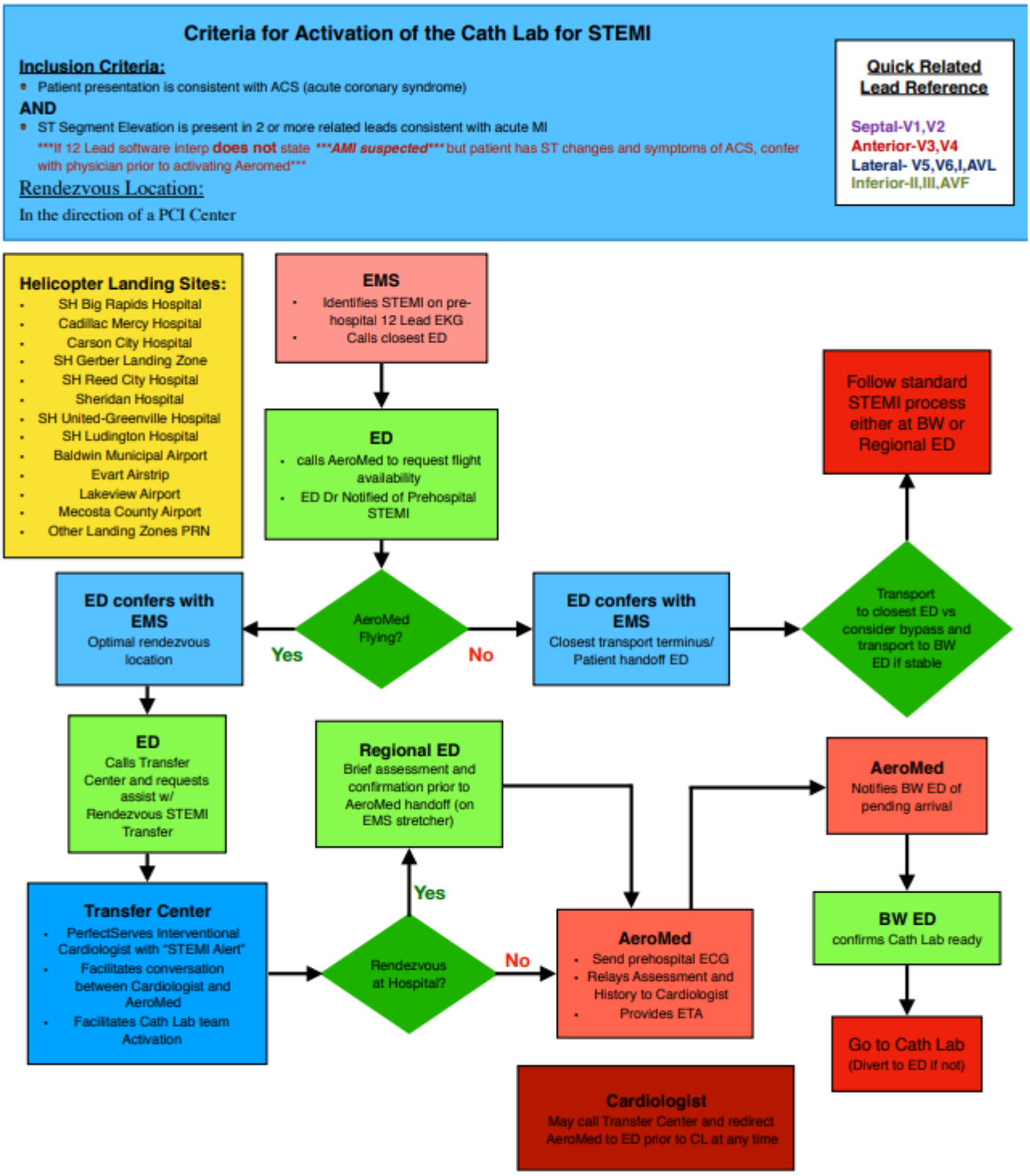
Blodgett Hospital STEMI



Regional Hospital STEMI



Rendezvous STEMI



Butterworth ED STEMI Physician Checklist

- ☐ Verify STEMI per pre-hospital activation or department performed 12 lead ECG.
- ☐ Obtain pertinent history if possible.
  - **Time of symptom onset**
  - **Primary doctor and / or cardiologist**
  - **Age and DNR status**
  - Oral anticoagulant use
  - History of contrast allergy
  - History of prior MI / Stent / CABG / Renal failure
  - CPR duration or multiple defibrillations in route

- ☐ Verify Cath Lab activation criteria met and request Cath Lab activation.
  - Discuss with Interventional Cardiologist as needed when criteria uncertain.
  - Consider q15 min repeat ECGs for patients with evolving ECG changes.
  - If there *is not* a reasonable expectation of PCI within 90 minutes of presentation, consider TNKase in qualifying pts.
- ☐ Request Perfect Serve to appropriate STEMI Cardiologist.
  - If patient has a cardiologist, use that cardiology group
  - If no cardiologist, but PCP has desired referral cardiologist, use that group
  - If uncovered, use the ED on-call cardiology group
- ☐ Enter orders using STEMI order set. STEMI medications include:
  - Aspirin 324mg po
  - Heparin 60units / kg IV bolus x 1 (max 4000 units)
  - Analgesics, Nitrates, Beta blocker PRN
  - Do not administer ticagrelor unless directed to do so by cardiology
  - Avoid hanging drips if possible
- ☐ Send patient to Cath Lab as soon as Cath Lab is ready unless the patient is too unstable for transport.
  - Notify Cath Lab of any delay in transport
  - Best practice is to have a provider accompany the patient to the lab.
    Note: a provider *must* accompany the patient if the cardiologist is not available in the Cath Lab at the time of transport.

Contact Information

MHC Cath Lab Charge RN (Voalte): 616-352-9991
MHC Cath Lab Main Phone: 391-2681
Fax: 391-9166

SHMG Interventional Cardiology APP (Voalte) 616-352-7920

STEMI ALERT
Physician Checklist
PCI Option

	Verify STEMI is occurring by ECG and clinical presentation.
	Direct staff to call for transport. Request Priority One transport for a STEMI patient. **If patient is unstable or ground transport is not readily available, consider use of air transport.**
Consider lytics if rapid transport not available	**If there IS NOT a reasonable expectation of PCI within 90-120 minutes of presentation – consider fibrinolytics in qualifying patients.**
	Direct staff to call Spectrum Health Transfer Center and request the desired on call interventional cardiologist.
Have following info available for cardiologist -it may impact treatment	Obtain following history from patient (or EMS) if possible. • **Time of symptom onset** • **Age and DNR status** • **Primary doctor and / or cardiologist** • Oral anticoagulant use? • History of contrast allergy? • History of prior MI / stent / CABG / renal failure • CPR, intubation or multiple defibrillations in route?
	If the interventional cardiologist has not returned your call w/in 5 minutes, request a second page. If no response after 10 minutes, immediately request the Spectrum Health on call interventional cardiologist.
	Obtain a STAT portable CXR <u>only</u> if time permits and transport is not delayed by doing so.
	Order medications. STEMI patients should be considered for the following unless contraindicated: • **ASA** -324mg PO (81 mg x 4 tabs) ** only contraindication is true aspirin allergy • **Nitroglycerin** 0.4mg SL q 5min x 2 PRN • **Nitroglycerin paste** 1 inch topical PRN • **Heparin** 60 units/kg, IV bolus x 1 ***maximum dose 4000 units*** • **Beta-blocker** -metoprolol 25mg PO **PRN** (e.g. HTN, tachycardia) ** hold for contraindications such as hypotension or hypoxia; use with caution in Inferior wall MI • **Narcotic analgesia** Morphine as tolerated. Use this for pain control before Nitroglycerin infusions. **<u>Avoid hanging drips please</u>!** This delays transport. **If aspirin is not given, clearly document why (Core measure).
	Keep patient and family updated. Help complete Data Sheet.
	SEND patient (with data sheet) to SH Meijer Heart Center immediately when transport arrives.

Fibrinolytic Assessment Worksheet

STEMI patients in whom there IS NOT a reasonable expectation of PCI within 90 minutes of presentation should receive fibrinolytic within 30 minutes unless contraindicated (AHA/ACC Class I evidence)

In general, STEMI patients who may receive the greatest benefit from early administration of fibrinolytics include those with:

Short symptom duration (less than 3hrs)
Age less than 75 yrs
Anterior ST elevation or Large infarcts with significant reciprocal changes

I. Consider fibrinolytics as the preferred therapy if the answer to all of the following is "YES":

- **Time to PCI at Meijer Heart Center is likely more than 90 minutes?**
- Symptoms onset less than 3 hours ago?
- Clear ST elevation of >1mm in 2 or more related leads?
- No absolute contraindications to fibrinolytics? (listed below)
- Absence of cardiogenic shock? (PCI is preferred for cardiogenic shock)

II. Absolute contraindications: Do not give fibrinolytics if any answer is "YES"

- History of any intracranial hemorrhage?
- Known structural cerebral vascular lesion (e.g. AVM)?
- Known primary or metastatic brain cancer?
- History of ischemic stroke within 3 months?
- Significant closed head or facial trauma within 3 months?
- Suspicion for aortic dissection?
- Significant active bleeding? (excluding menses)

III. Relative contraindications: PCI may be preferred vs. fibrinolytics, especially if multiple factors are present. Reasonably assess combined factors.

- History of chronic, severe, poorly controlled hypertension
- Severe hypertension on presentation (SBP >180 or DBP >110)
- History of stroke over three months ago or questionable intracranial pathology (not ICH or CA)
- CPR for > 10 minutes or non-compressible vascular punctures present
- Internal bleeding within 2-4 weeks
- Major surgery within 3 weeks
- Pregnancy
- A questionable diagnosis of STEMI (ECG findings not clear or non-diagnostic)
- Prior multiple cardiac stents or known hx of severe CAD
- Age over 75yrs (age alone is NOT a contraindication to fibrinolytics)

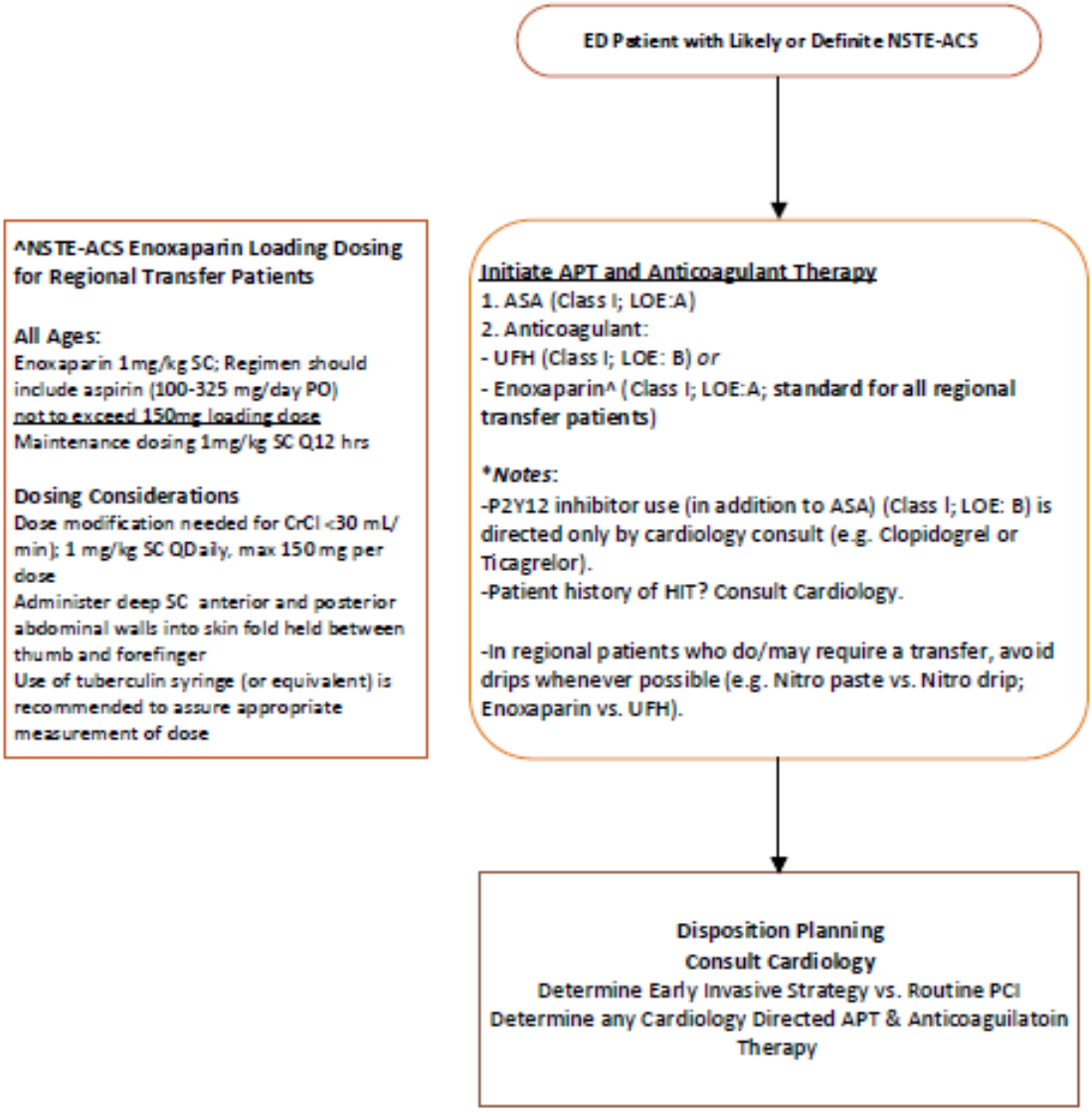
IV. If patient clearly fits criteria for fibrinolytic therapy, proceed immediately! If you are not sure, prepare for fibrinolysis while waiting to talk to Cardiologist.

******Note: Patients receiving TNKase must receive a weight adjusted UFH bolus (4000Units max) and infusion**

TNKase™ (Tenecteplase) Dosing

Patient Weight (Kg)	Patient weight (lbs.)	TNKase™ (mg)	Reconstituted TNKase (5mg/mL)
<60	<132	30	6
60-<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

Emergency Department Treatment of Likely NSTE-ACS



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† In patients who have been treated with fondaparinux (as upfront therapy) who are undergoing PCI, an additional anticoagulant with anti-IIa activity should be administered at the time of PCI because of the risk of catheter thrombosis. ASA indicates aspirin; CABG, coronary artery bypass graft; cath, catheter; COR, Class of Recommendation;DAPT, dual antiplatelet therapy; GPI, glycoprotein IIb/IIIa inhibitor; LOE, Level of Evidence; NSTE-ACS, non–ST-elevation acute coronary syndrome; PCI, percutaneous coronary intervention; pts, patients; and UFH, unfractionated heparin.

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