

# Summary of Cardiac Diagnostics and Interventions

To: Attorney Smith

From: Christie Register

---

## **1. CARDIAC ENZYMES (LAB WORK)**

Severe stress on the heart can damage the heart muscle. When that happens, the heart releases certain enzymes into the blood.

After a heart attack, the level of these enzymes elevates, so checking them is a good way for the physician to know if cardiac damage is occurring.

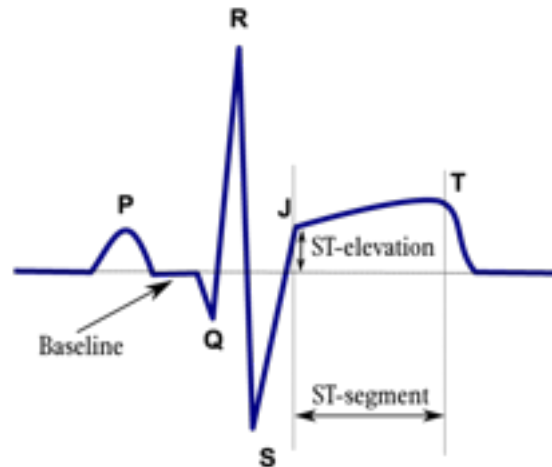
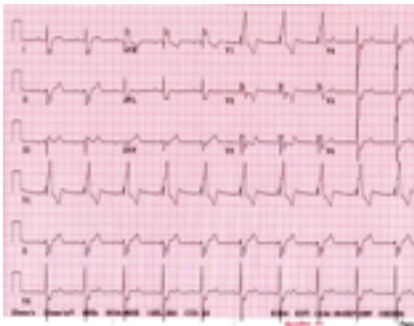
CPK (creatine phosphokinase)

CKMB (creatine kinase MB)

Troponin I is released into the bloodstream within hours of the onset of symptoms of myocardial infarction or ischemic damage.

## **2. EKG**      Abbreviation for electrocardiogram.

Also known as ECG.



How to measure ST elevation?

The **diagnosis of acute myocardial infarction** is not only based on the ECG. A myocardial infarction is defined as:

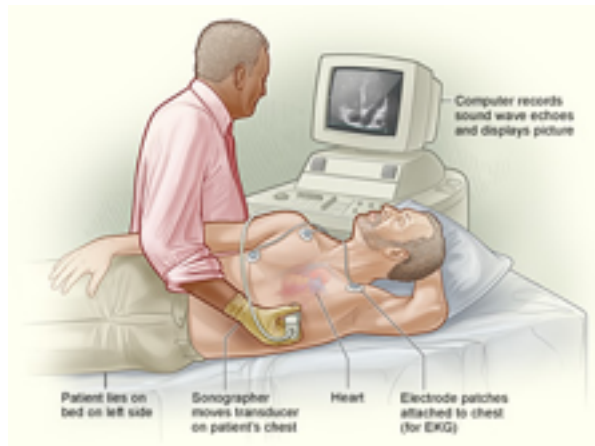
Elevated blood levels of cardiac enzymes (CKMB or Troponin) AND

One of the following criteria are met:

- The patient has typical complaints,
- The ECG shows ST elevation or depression.
- pathological Q waves develop on the ECG
- A coronary intervention had been performed (such as stent placement)

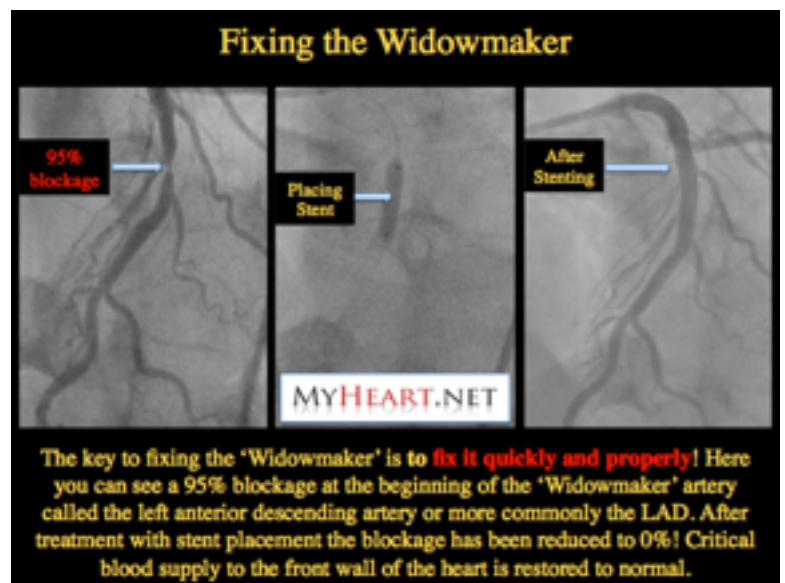
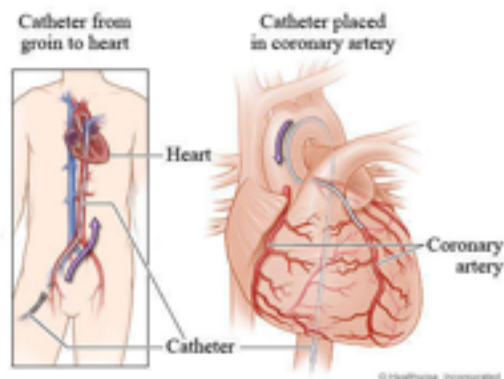
### **3. ECHOCARDIOGRAM**

An echocardiogram, often referred to as a cardiac echo or simply an echo, is a sonogram of the heart. Echocardiography uses standard two-dimensional, three-dimensional, and Doppler ultrasound to create images of the heart.



### **4. HEART CATHETERIZATION**

Cardiac catheterization (aka cardiac cath or coronary angiogram) is an invasive imaging procedure that allows the physician to see how well the heart is supplied by blood vessels. During the test, a catheter is inserted into a large artery in the arm or leg and guided to the heart with the aid of a special X-ray machine. Contrast dye is injected through the catheter so that X-ray videos of the heart valves, coronary arteries, and heart chambers are created.



## **5. STEMI PROTOCOL**

This was initiated by ER physician. See pg. 12.

ST-Elevation Myocardial Infarction (STEMI) is a very serious type of heart attack during which one of the heart's major arteries (one of the arteries that supplies oxygen and nutrient-rich blood to the heart muscle) is blocked. ST-segment elevation is an abnormality detected on the 12-lead ECG.

Here is a link to this article on the Piedmont Healthcare website:

<https://www.piedmont.org/living-better/why-stemi-heart-attacks-are-so-deadly>

“Why STEMI heart attacks are so deadly”

Unlike skin or hair, once heart muscle is damaged, it will never grow back.

All heart attacks are serious, but one type of is the most dangerous of all and it's known as a STEMI (ST segment elevation myocardial infarction).

“What [STEMI] means is a really bad heart attack, where a major artery to the heart is completely blocked,” explains Sasidhar Guthikonda, M.D., a cardiologist at Piedmont Fayette Hospital.

Some heart attacks result from an 80 to 90 percent artery blockage, while STEMI means the artery is 100 percent blocked.

Piedmont Atlanta, Piedmont Fayette and Piedmont Henry are all equipped to treat patients with STEMI heart attacks. These hospitals have an average door-to-balloon time of 60 minutes, well below the national average of 90 minutes. It is important for patients to go to a hospital with a cardiac catheterization lab so their artery can be opened up right away with a coronary angioplasty. During the non-surgical procedure, a cardiologist uses a catheter to insert a deflated balloon in to the blocked artery. The balloon is then inflated, which allows blood to flow through the artery again.

The bottom line is that STEMI heart attacks are always life-threatening and require quick assessment and treatment.

## **6. NITROGLYCERIN (NTG)**

Nitroglycerin injection is used to treat hypertension (high blood pressure) during surgery or to control congestive heart failure in patients who have had a heart attack. It may also be used to produce hypotension (low blood pressure) during surgery. Nitroglycerin injection is sometimes used to treat angina (chest pain) in patients who have been treated with other medicines that did not work well.

Nitroglycerin belongs to the group of medicines called nitrates. It works by relaxing the blood vessels and increasing the supply of blood and oxygen to the heart while reducing its work load.

The IV nitroglycerin likely was preventing the big MI. On page 32, the record states it was discontinued at 5:00 p.m. on 04/28/16.

## **7. ACE INHIBITORS**

Angiotensin-converting enzyme (ACE) inhibitors help relax blood vessels. ACE inhibitors prevent an enzyme in your body from producing angiotensin II, a substance in your body that narrows your blood vessels and releases hormones that can raise your blood pressure. This narrowing can cause high blood pressure and force your heart to work harder.

Examples of ACE inhibitors include:

- Benazepril (Lotensin)
- Captopril
- Enalapril (Vasotec)
- Fosinopril
- **Lisinopril (Prinivil, Zestril) Schaaf was given this. Pg. 33**
- Moexipril
- Perindopril (Aceon)
- Quinapril (Accupril)
- Ramipril (Altace)
- Trandolapril (Mavik)

## **8. BETA BLOCKERS**

Beta blockers, also known as beta-adrenergic blocking agents, are medications that reduce your blood pressure. Beta blockers work by blocking the effects of the hormone epinephrine, also known as adrenaline.

When you take beta blockers, your heart beats more slowly and with less force, thereby reducing blood pressure. Beta blockers also help blood vessels open up to improve blood flow.

Examples of oral beta blockers include:

- Acebutolol (Sectral)
- Atenolol (Tenormin)
- Bisoprolol (Zebeta)
- **Metoprolol (Lopressor, Toprol-XL) Schaaf was given this. Pg. 32**
- Nadolol (Corgard)
- Nebivolol (Bystolic)
- Propranolol (Inderal LA, InnoPran XL)

**9. CLOPIDOGREL (PLAVIX tablet)**

Clopidogrel is used alone or together with aspirin to lessen the chance of a heart attack or stroke. It is given to patients who have already had a heart attack, severe chest pain, or a stroke, or to patients with other circulation problems that could cause a stroke or heart attack.

A heart attack or stroke may occur when a blood vessel is blocked by a blood clot. Clopidogrel is a platelet inhibitor. It reduces the chance that a harmful blood clot will form by preventing platelets from clumping together in the blood.

Patient was taking Plavix and aspirin while at Michigan Gen. Hospital. Pp. 32, 33

MayoClinic.org is a great website.